STILL DIGGING

EX extrACTIVE iNDUSTRIES, resource cURSES, anD tranSnaTIONAL GOVERNANCE iN THE ANTHROPOCENE

Stacy D. VanDeveer
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1 Introduction

There is an old saying: “When you find yourself in a hole, stop digging.” In other words, when any of us has a problem, especially one of our own making, the first thing to do is to stop making things worse. As concerns mining and oil and natural gas extraction — often known collectively as the “extractive industries” — we humans are not following this sage advice. Around the globe, humans and our economic activities consume ever more oil, natural gas, and mined materials, driving a growing list of environmental, humanitarian, and social changes on every inhabited continent and in an expanding number of offshore areas. Extractive industries pose serious challenges to good governance in their own right, and they often increase other resource-related threats associated with food, water, and land scarcities and degradation (Andrews-Speed et al. 2012).

The global scale of extractive industries is unprecedented. In fact, few things are better at illustrating the recently popularized “Anthropocene” concept than the aggregate scale and ecological implications of the extractive industries. The concept is based on the idea that the human impact on the global environment and the earth system as a whole is now large enough to denote a new geological epoch (Crutzen 2002; Galloway et al. 2003; Steffen et al. 2011; Williams et al. 2012). Humanity is now a geophysical force, as influential on the earth ecosystem function as other major ecosystem functions. The scientific literature is filled with such indicators, including those related to CO₂ emissions, land-use change, nitrogen inputs, annual earth moving, water use, rates of biodiversity loss, river damming, and a host of rapidly accelerating indicators of product and resource consumption. The Anthropocene idea suggests that humans cannot persist on business as usual paths through the 21st century; the stress on the global ecosystem and its many life-sustaining functions is simply too great. The recent analysis of resource challenges by McKinsey (2011) used different assumptions, methods, and data, but it came to much the same conclusion. Most resources are not, in fact, “running out.” But their ever-accelerating use, driven by ever-growing global demand, cannot be sustained by current market, governance, or ecological systems.

The governance challenges posed by extractive industries and their externalities go far beyond these industries’ substantial environmental impacts. In the mining sector, environmental, humanitarian, and interstate security concerns are often tightly coupled. Dangerous working conditions, appalling treatment of workers, and (at times) a complete lack of basic worker rights have plagued mining for generations. More recently, links to international security threats like terrorism, organized crime, and the weapons trade have been added to the list of governance challenges, taking their place alongside the older threats of local violence. This is not to say that all mining always produces these outcomes. But a growing list of environmental, humanitarian, and security issues plagues the extractive industries in the global North and across the developing world.

There is no doubt that enormous human progress — economically, politically, culturally, technologically, and otherwise — has been made in part through the extraction and use of oil, gas, and mined materials. Extracting resources from the earth is essential to contemporary economies and societies around the globe. But the accompanying ecological and human costs are high — and

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1 This paper draws on VanDeveer 2011a, 2011b, and forthcoming. It also benefits greatly from the joint research and writing associated with Andrew-Speed, Bleischwitz, Boarsma, Johnson, Kemp, and VanDeveer, 2012. The author wishes to thank John Loomis and Michael Cole for invaluable research assistance, and the staff and fellows of the Transatlantic Academy and the German Marshal Fund of the United States. The material in this working paper also informs VanDeveer’s current book project entitled Global Resource Politics.
It is simply impossible to comprehend modern societies without the products of the extractive industries.

This analysis is organized into five sections. The first briefly discusses environmental, humanitarian, and security challenges surrounding the extractive industries and their governance. The next focuses briefly on the oil and gas sector, including illustrative boxes about Nigeria’s Niger Delta, U.S. pipeline and oil shale politics, and recent debates about what some call the global “scramble” for oil and gas. Next, the paper turns attention to mining, the less famous side of the global extractive industries sector. This section includes boxes on diamonds and the “Kimberley process” and coltan controversies. The latter two sections focus discussion on the resource curse and several proposed solutions to it, and a broad discussion of existing state and non-state led efforts to improve extractive industries’ governance.
Extractive industries move massive quantities of earth, use enormous amounts of water, and produce stunning quantities of a diverse set of pollutants. One estimate put the movement of earth worldwide at 57 billion tons, an amount that rivals estimates of all erosion around the globe (Bridge 2004). In other words, humans now move more earth each year, just for mining and quarrying, than the global hydrological cycle. Those little graphics of the hydrological cycle in children’s basic science textbooks that most of us saw in school, explaining how the natural systems move water and earth around the planet to form and reshape the environments in which we live, are now outdated. The updated versions need to add little bulldozers, smokestacks, and cities into the mix. Human-induced changes are now a basic parameter of the earth system. Such resource use, added to global agriculture, urbanization, and construction, illustrates the massive land-use and habitat changes human activities unleash around the globe — and these changes do not even consider the impacts of accelerating climate change.

Extractive industries are generally waste intensive and frequently highly polluting of local and regional environments. Mining wastes degrade surface and ground water in countries across the global North and the global South. North America is littered with areas of local and regional ecological damage from mining and oil and gas extraction (and pipelines). The U.K. and other parts of Europe are similarly dotted with such sites, some dating from the 20th century and others first mined by Romans. But the contemporary scale of mining operations around the world often dwarfs most those in Europe and North America. Today, a single mine can be large enough to remove (or contain) whole large mountains. Or small and shallow mines may dot a landscape by the thousands. Furthermore, extracted commodities must be refined substantially to be of value — using more resources (like energy and water) and generating enormous wastes. The ecological damage does not stop there. As extraction has moved deeper into mountain and tropical forest regions of the world, thousands of workers and the resulting development of previously undeveloped areas go with it. Thus, mining drives broad demographic, governmental, and ecosystem changes (Bridge 2004). In fact, the extended geographic reach of extracted industries coupled with their massive scale partially explains growing local and transnational activism aimed at shaming and changing extractive industry practices around the globe.

In terms of social and humanitarian implications, extractive industries’ record is poor. Globally and historically, mining and oil and gas extraction are frequently associated with serious human health risks posed by pollutants released into local and regional environments, as well as with damage to indigenous peoples and other groups whose environments, communities, and social and political organization may be substantially altered (O’Rourke and Connelly 2003; Bridge 2004; Watts 2005). In fact, the human security and humanitarian-related issues associated with the mining sector and the oil and gas industries are legion, spawning a huge popular and scholarly literature about “the resource curse” (Weinthal and Luong 2006; Luong and Weinthal 2010), with such themes turning up in blockbuster movies like Blood Diamond and some James Bond films.

Beyond Hollywood heroes and spectacular special effects inspired by the local and transnational violence sometimes associated with oil and mining, we find the normal, everyday operation of global, national, and local markets. Commodities prices have moved through dramatic booms and busts for as long as they have been bought and sold. In the early 21st century, goods traditionally prone to wild price cycles — such as oil, gold, copper,
Our “old” consumer driven, manufacturing economy and our “new” high technology, “green economy” both demand ever-more of such resources.

Paradoxically, while these commodities enable technological innovations needed to make human economies and societies more sustainable, they also require ecologically and energy-intensive extraction and processing operations. Countries dependent on resource exports must contend with boom-and-bust cycles, as well as the economic instability and underperformance that typically accompany these fluctuations. Such instability is one of the reasons that high-value commodity markets have long been associated with violent conflict, from local skirmishes and civil violence to international warfare and imperial competition. Increasingly, concerns are emerging that the environmental impacts of climate change may similarly endanger human security at the regional and international levels (Paskal 2010; Moran 2011). While climate change may well pose serious threats to human welfare and ecological health, it by no means exhausts the potential environmental security challenges linked to economic and technological change.

Nor can we assume that national and human security threats like the ones discussed here solve themselves. People in the world’s poorest and wealthiest societies both grapple with extractive industries governance and its ramifications. An internet Google search produces over 24 million results for the words “mining protest” and over 115 million for “oil protest,” covering countries in global North and South, and on every continent. Pick nearly any book on the history of the politics around oil or mining and one finds a seemingly endless string of tales of local violence and interstate warfare. While much of such violence now takes place distant from the large consumer markets of Europe, North America, and Japan, the recent publication of *Private Empire* (Coll 2012) reveals much about the enormous influence of extractive industries companies in developed states like the United States and the ways in which such firms structure themselves to increase and sustain such influence. Box 1 includes a short list of illustrative examples clipped from the headlines between 2010 and 2012. The concerns range from a host of environmental problems and labor disputes, to the connections of some extractive industry commodities to local violence and international terrorism and organized crime. And this is but a recent, visible set of examples. Less visible and less cinemagraphic then war, protest, or the bulldozing of villages is what Rob Nixon (2011: 2) calls “slow violence” — “violence that occurs gradually and out of sight… delayed destruction that is dispensed across time and space.” His work assesses the less visible and less dramatic looking death and harm meted out by slow-motion catastrophes like climate change, toxics pollution, and petro-despotism.

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2 Internet searches conducted on October 18, 2012.
Box 1: Extractive Industry Politics: Selected Controversies (2010-2012)

Afghanistan
• Intense domestic and international competition swirls around gaining access to the estimated $1 trillion in unexplored mineral deposits after 2010 U.S. assessments suggesting huge and diverse deposits were made public. Local and national corruption controversies, increased militia and Taliban competition for potential mining areas, national and international controversies about rewriting mining laws, and regulations the transparency of natural resource extraction contracts continue.

Angola
• The second largest oil exporter in Africa (after Nigeria) launches a $5 billion sovereign wealth fund to be used for investments aimed at diversifying the country beyond oil exports and diamond mines.

Australia
• Mining contributes over 10 percent of GDP and its growth over the last 20 years helped make Australia one of the OECD’s most successful economies. But the scale of mining operations engender some environmental and indigenous backlash, and the country’s high-profile attempts to begin regulating and reducing its extremely high per capita greenhouse gas emissions have put mining and fossil fuel interests in the center of national politics and foreign policy.

• Federal and provincial officials and multinational firms continue large-scale onshore and offshore expansion of the country’s oil and gas industry, accompanied by intermittent protest and opposition from environmental groups, indigenous peoples, and (sometimes) the tourism sector.

Brazil
• Discoveries of large off-shore oil reserves launch widespread domestic and international debate about how much oil can be extracted, how rapidly, and what costs and benefits such extraction holds for the Brazilian economy, society, and politics. Other concerns include the enormous financial and human capital needed to build an offshore oil industry and the physical and security infrastructures needed to sustain it.

Canada
• Like Australia, the Canadian economy benefits enormously from high global demand and high prices for mined commodities. Similarly, federal and provincial officials and mining firm interests have often clashed with environmental and indigenous groups, policies, and institutions.

• Rapidly expanding oil extraction from “tar sands” (also called “unconventional oil”) fuels political debate and controversies related to climate change, pipeline construction, and local, provincial, and global environmental impacts of such oil extraction. The country’s rapidly growing extractive industries sector drives much of its greenhouse gas emissions growth,

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1 List compiled by the author, based on reports in major media sources such as the Guardian, New York Times, Wall Street Journal, and Economist.
leading to Canada’s formal withdrawal and renunciation of the Kyoto Protocol in 2011 and its continued opposition to international agreements containing binding emissions reduction.

China
• Chinese restrictions on rare earths mining and processing in 2011 produced world-wide condemnation because of the country’s dominance of the global market and charges that such restrictions were related to political tensions with Japan. These developments led to joint U.S.-EU-Japanese complaint against China within the WTO.
• The enormous growth of the Chinese economy over the last 20 years, combined with its still inexpensive labor, results in China ranking as a top energy and mining commodities producer, consumer, and/or processor across a host of mining and energy commodities and products.
• Media reports inside and outside of China suggest that protests over environmental conditions, worker pay, safety and working conditions, and local and provincial corruption appear to be increasingly common.

Cuba
• Domestic hopes that offshore oil could provide much needed capital and energy appear to be dashed as scarce deep water rigs required for oil exploration and extraction go instead to larger, more lucrative markets like Angola, Brazil, and the U.S. Gulf of Mexico.

Democratic Republic of the Congo
• Civil violence, illegality, and the lack of a coherent state in the eastern regions of the country have propelled the Democratic Republic of the Congo (DRC) into the center of ongoing debates about “conflict minerals” and the connections of the illicit minerals trade to domestic human rights abuses and international security issues.

Haiti
• As recent exploratory drilling and other assessments located deposits potentially worth $20 billion, Haitian activists and international analysts and institutions worry that the country’s existing levels of corruption and poor government make it ripe for resource curse outcomes.

Hungary
• In 2010, pictures went global of a large flood of “red sludge” of caustic mining waste (from processes that convert bauxite to aluminum) washing over villages and down the length of the Danube.

India
• A series of far-reaching corruption scandals around iron ore and coal industries (including over $30 billion dollars) — centering around some of the country’s wealthiest individuals and firms and involving local, state and national parliamentary officials — damages the Indian government’s reputation at home and internationally and increases fears that the Indian state remains unable to tackle corruption. Indian and international human rights and development activists worked to publicize the graft and “mafia-style” activities involved.
Indonesia

- Mining workers striking and protesting over wages, working conditions, and firm violations of Indonesian law are more frequent, particularly as information about pay, benefits, and conditions of U.S. and other OECD miners increases. Strikers regularly point out that their mines contribute billions in profits to multinational firms while they make low wages and remain classified as temporary contract workers.

- National and local officials cancel the Indonesian mining licenses of London-based Churchill mining company, awarding the concessions to politically connected Indonesian firms, after Churchill announces that its assessment of the contracted areas yielded large reserves estimates.

Jordan

- Seeking to balance the state’s budget in turbulent times after reductions in financial aid and discounted gas from other Middle Eastern countries, Jordanian officials reduced the subsidies for automotive gasoline and cooking fuel, prompting widespread protests, strikes, and rioting across the county. A first attempt to cut the subsidy was withdrawn in September 2012, but the second attempt in November (accompanied by a partial compensation payment to most households) produced an even more widespread response.

Kazakhstan

- There is a seemingly endless stream of corruption scandals and accusations involving local and national political figures, and frequent labor unrest and well-documented reports of localized violence against strikers and other human rights abuses in and around extraction facilities.

Malaysia

- The construction by an Australian firm of what is expected to be the largest rare earth’s processing facility in the world engenders large protests and international and domestic concerns about design problems and significant environmental risks.

Malawi

- Large oil discoveries under Lake Malawi reinvigorate debate about resource curse dynamics within and outside this extremely poor country.

Mongolia

- Massive expansion of mining operations, riding high atop global commodities prices and proximity to growing Chinese markets, put Mongolia among the world’s fastest growing economies, driving rapidly changing urbanization and development patterns, high-profile domestic debate about foreign ownership and profits versus domestic development, and accompanying concerns about growing prospects of resource curse symptoms and geopolitical competition over Mongolian resources between Russia, China, U.S., and European interests. Protests by local peoples about mining expansion and local environmental damages and water access also become more common.
• In 2012, when global commodities prices softened at the same time that the Mongolian state attempted to alter the deals it signed with foreign investors in order to exact more financial resources from the mining sector, the boom appeared to be ending.

Myanmar
• Two female farmers — Aye Net and Thwe Thwe Win — gain national and international fame after their protests against mining operations result in repressive intimidation tactics and several nights in prison at the hands of local officials and police. The protests and the state’s response have been widely framed (domestically and internationally) as a test of recent democratization efforts in the country.

Peru
• Several years of protests and debate surround large proposed gold mining operations (upwards of $5 billion, ranking among Peru’s largest foreign investments) opposed by many local indigenous and non-indigenous farmers, environmentalists, and politicians (with support from some national and international environmental and human rights activists). They clashed with police and mining supporters including national government officials and foreign investors from China and the United States. Several such controversies exist around the country, as an estimated $50 billion in additional foreign investment in the mining sector is planned over 4-5 years. In 2011, the new government enacted a small tax on mining operations and a law requiring more consultation with effected local communities.

Russia
• The roles in Russian domestic and foreign politics of Russian private and state-affiliated oil and gas companies (and that of the “oligarchs” who own and run such companies) continue to make headlines. These industries seek to expand within and beyond Russia, and the financing of the Russian state depends almost exclusively on extractive industries.

South Africa
• In 2012, the worst labor unrest in the country since the end of Apartheid rule occurred between platinum and gold miners, domestic and international mining companies, police, and the state, resulting in more than 40 deaths (most shot by police).

Sudan and South Sudan
• Newly independent South Sudan negotiates for months with Sudan to attempt to strike a deal on sharing oil revenues and investing in the infrastructure needed to extract and transport the crude. Observers and participants repeatedly warn that failure to reach such agreements and effectively implement them increase the risks of a return to war.

Spain
• Miners and local and national security forces clashed in 2012, sometimes violently, over substantial government cuts to coal and other mining subsidies and large layoffs of workers under the government’s austerity program.

Uganda
• Recent large oil discoveries engender domestic and international debate over the prospects of avoiding or recreating resource curse dynamics.
United Kingdom
• London continues its recent tradition as a center of transnational protest, organized at offices or meeting locations of various international mining, oil and gas companies.

United States
• Fossil fuel policies regarding coal, oil and natural gas workers and companies figure prominently in the presidential and congressional election races across the country, campaign ads, and fundraising and voter mobilization efforts.
• After missing several deadlines, the SEC issued new rules in 2012 under the 2010 Dodd-Frank Act requiring firms to confirm that they have tried to insure that no “conflict minerals” from DRC have entered their produce stream. The rules were subject to intense lobbying for many months.
• The Obama administration announces that the United States will join the Extractive Industries Transparency Initiative (EITI), requiring firms and the U.S. government to disclose all transfer payments between them.
• Environmental and indigenous groups launch protests and coordinated campaigns against government and corporate-backed plans to substantially export coal export facilities along the Pacific coast.
• Corruption and incompetence are revealed within U.S. government offices tasked with regulating mining safety and offshore drilling during the increased media and public sector scrutiny that followed the 2010 BP oil spill in the Gulf of Mexico and the 2010 explosion that caused 29 deaths at Massey Energy’s Big Branch mine in West Virginia.
• BP pleads guilty to criminal charges, agreeing to pay $4.5 billion to the U.S. government in relation to the 2010 Gulf of Mexico oil spill, bringing the estimated costs to BP of the spill to over $36 billion. Additional fines of $20-30 billion under other federal law could be forthcoming.

Venezuela
• Continues its long struggle with corrupt, quasi-democratic governance (with myriad connections to extractive industries), nationalization of assets, and chronic under-investment in the resource extraction sector.

Zambia
• Zambian mining workers, while striking over pay and working conditions at a mine run by Chinese investors, killed a Chinese supervisor in 2012. This followed many months of acrimonious political debate about Chinese investments and management practices, including substantial anti-Chinese rhetoric by successful 2011 presidential candidate, Michael Sata.
It is difficult to overstate the importance of oil in economic and political history over the last century. Tremendous wealth has been produced by nations, corporations, and individuals and tremendous human progress has been achieved, fueled by oil. As Pulitzer Prize winner Dan Yergin famously made clear, oil is “The Prize” (Yergin 1991). Yet oil’s ecological costs include the pollution of land, freshwater, oceans, seas, and air in local, national, regional, and global environments. And its human costs include a host of adverse health impacts resulting from these environmental issues, as well as a litany of relationships to violence, oppression, and government incapacity and corruption. Oil- and gas-driven ecological changes result from extraction, pipelines and other transportation infrastructure, processing, and final consumption. The 2010 Deep Horizon oil spill in the Gulf of Mexico from a BP well, the 1989 Exxon-Valdez spill in Alaska, and 2002 Prestige sinking off the coast of Spain are merely a few recent and well-known examples of oil’s environmental costs. The everyday environmental “externalities” of oil and gas — the slow violence they mete out on millions of people and environments year after year — are far worse.

In terms of oil’s connections to human rights violations, a recent review included all of the following common problems: the human health damage from pollution and climate change, the common connection between oil interests and revenues with public and private sector corruption, lack of transparency and accountability, the violation and abuse of indigenous peoples rights, militarization and violent conflict, organized crime, and damage to community development (Watts 2005). The growing scholarly and policymaker attention to the so-called “resource curse” subsumes ecological and human rights concerns into a broad set of issues associated with governance incapacity and illegitimacy and poor economic performance and a lack of development over time (see Karl 1997; Collier 2000; Weithal and Luong 2006; Luong and Weithal 2010; Arezki et al. 2011; Ross 2012; Shaffer and Ziyador 2012). Few places illustrate the ecological, human rights, governance, and economic risks sometimes associated with oil wealth better than Nigeria and its Niger Delta region (see Box 2), where the normal, everyday conduct of the oil industry and the region’s inhabitants results in oil spillage estimated to be greater than the Exxon Valdez accident every year.

In international relations, the human rights and ecological costs associated with oil traditionally take a back seat to its geo-strategic importance for states and national economies, during peace time and war. Whole libraries chronicle the importance of oil in inter-state politics over the last century and a half (Yergin 1991, 2011; Ebel and Menon 2000; Kemp 2010; Klare 2002, 2004, 2008, 2012). As much of this work demonstrates, oil politics among states is often quite national security-oriented — or realist-based — in nature. This does not mean war over oil is common. It means that war between states, and within them, is a serious risk, in part because states associate oil access with national security. States have indeed used raw and overwhelming force to secure access to oil and other valuable commodities. But quite often they choose to cooperate and trade instead. As countless histories demonstrate, even the most valuable resources are rarely “the” reason for war or civil violence, but they can play a significant role in producing such outcomes. For example, the risks of inter-state conflict within and about the China Seas are evident — in scholarly analysis, in news coverage, and in the statements of officials in governments and international organizations. But, does the existence of valuable resources in disputed marine territories raise the risk of war? Or does it offer a valuable opportunity to settle disputes in ways that allow all parties some access to the
Box 2: Oil, Violence and Protest in the Niger Delta

Simply put, Nigeria and its Niger Delta region are the embodiment of nearly everything that can go wrong in a poor but resource rich country. It is an icon of the resource curse literature, frequently invoked across Africa and globally when new resource oil wealth is discovered or extracted as the model of what most domestic and international actors want to avoid.

Oil was discovered in the Niger Delta about 50 years ago, at around the same time that Nigeria gained its independence, propelling Nigeria to its rank as Africa’s largest oil exporter. When operating well, exports are between 2 and 2.6 million barrels per day, but accidents, political instability, and violence can reduce the figure to roughly 500,000 million barrels per day. Recent estimates suggest that over 70 percent of the country’s 167 million citizens live in poverty. The country’s struggles with corrupt and ineffectual government at many levels — in authoritarian and more democratic times — are legion. So too are the challenges faced by foreign firms in extracting and exporting petroleum from the Niger Delta and by workers and local communities in the region, where both protest and violence are common. The nine states of the Delta have witnessed massive protests, repeated periods of armed insurrection, and the state and non-state violence that come with it. Nearly constant threats of oil theft and sabotage of oil infrastructure have long been normal, joined more recently by large increases in piracy offshore and in coastal waters. In short, oil companies and their workers, local communities, and national and state officials experience security threats on a daily basis. Two well-received documentaries tackle the violent and complex human struggles involving local communities, oil companies, and the state in the Niger Delta: *Delta Boys* (2012) and *Sweet Crude* (2009). Also Kashi and Watts (2010) gathers an array of stunning photographs from across the Niger Delta region.

The Niger Delta has achieved global infamy, making most lists of the worst ecological disasters on earth. It is estimated, for example, that the region experiences the equivalent of one *Exxon Valdez* oil spill every year. The once-rich soils, drinking water, forests, and fisheries of the region are heavily contaminated or destroyed, even as they continue to supply hundreds of local communities a subsistence living. Among foreign companies, Shell’s poor environmental, safety, and human rights records have been singled out by groups such as Amnesty International, Global Witness, Oxfam, and Friends of the Earth for years. For example, Amnesty charged that a 2008 spill that Shell claimed released about 1,600 barrels of crude was estimated by third party investigators to be in the range of 100,000-300,000 barrels. A similar dispute was repeated over the size a large 2011 offshore spill, much of which washed ashore. While companies often blame sabotage and theft for high levels of spillage (Shell estimates that 150,000 barrels are stolen per day), other analysts note that well over half seems to be related to firms’ operations failures. A 2011 United Nations Environment Program (UNEP 2012) report suggested it would require over $1 billion and as much as thirty years to clean up the worst of the oil-related environmental damage.

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Most of us have only a vague sense of just how central oil and gas are to our lifestyles.

Meanwhile, popular resentment about corruption and the lack of broad-based economic development extend across the country, well beyond the Delta region. Since 2011, the government of President Goodluck Jonathan has been attempting to reduce the national subsidies for gas and cooking fuel, said to have a total cost to the national government of over $8 billion. But attempts to cut the subsidy produced massive protests and strikes across the country in 2012 and the government backed down. In addition to keeping fuel prices low, government and outside experts note that the subsidy perpetuates state and fuel trader corruption, substantially reduces funds available for government investments, and sustains the problem of a failed oil refinery and fuel distribution system — all drags on national development. But the country’s poor and middle class see the subsidy and the cheap fuels it begets as among the only visible benefits to most Nigerians of the country’s billions in oil exports. For tens of millions of Nigerians, a doubling (or more) of the costs of cooking and transportation fuel threatens their ability to survive. In short, the subsidy itself, the massive corruption associated with it, and attempts to eliminate it all illustrate the seemingly intractable nature of decades of poor economic performance and ineffectual and corrupt governance.

The Nigerian experience also illustrates the Realist international politics involved, as oil consuming states such as the U.K., the United States, and Netherlands have generally prioritized their interest in keeping Nigerian oil flowing as highly, or higher than, the need to improve governance in Nigeria in the public or private sectors. Finally, the problems of violence, corruption, and illegality have not remained contained within Nigeria, as the sophisticated and well-funded organized crime organizations developed over decades within the country have seen considerable success in their attempts to expand into a host of “new markets” in Africa, Europe, and North America.

resources and the economic, social, and political benefits they might provide? The answer to both questions is “yes.” Box 3, on current debates around “the scramble” for the earth’s remaining resources briefly takes up similar questions about how we frame and understand competition, cooperation and conflict over vital resources.

Most of us have only a vague sense of just how central oil and gas are to our lifestyles. Over 80 percent of world energy comes from fossil fuels — oil, gas and coal — and the global energy market exceeds $6 trillion annually (in a global economy of about $65 trillion) (Yergin 2011). Oil remains the single most valuable global commodity, and about 70 percent of oil produced each year is exported to another country. Only the top 15 oil companies, a list that includes private international companies and national oil companies, produce over 48 million barrels per day and have a market capitalization of over $4.3 trillion (Bridge and Le Billon 2013). Over 95 percent of oil production is burned as fuel (mostly in transportation), with a small minority of the resource directed toward petrochemicals. Even the “minor” uses of oil are impressive in scale. While only about 2 percent of petrochemicals are turned into chemicals for consumer product uses, they can be found in a nearly infinite set of goods, including food, clothing, perfumes, lotions and cosmetics, hair dye, deodorant, toothpaste, ice cream, preservatives, pain relievers, vitamins and pill capsules, plastics, detergents, and golf balls, to name only a few (Clifford 2011).
Box 3: The Global Oil “Scramble”?
The state-based, self-interested, and potentially violent dynamics of the Realist international relations perspectives — often including a substantial dose of nationalism — are well captured by common references to a “scramble” or a “race” to secure and maintain access to remaining resource reserves. This framing of international competition for oil and other resources has a long history, returning to popularity in recent years as global resource prices and global demand continue to grow. An early 2013 Google search on the words “scramble resources,” for example, returns 9.8 million hits. Recent book titles exemplifying this framing include The Race for What’s Left: The Global Scramble for the World’s Last Resources (Klare 2012), Winner Take All: China’s Race for Resources and What It Means for the World (Moyo 2012), The Scramble for African Oil (Yates 2012), and The New Scramble for Africa (Carmody 2011). Many such books garner comparatively large policymaker, media, and academic attention, outlining the diplomatic and military power politics often deployed by states — and by state owned and state-backed firms — as they compete with one another to secure access rights and contacts for the extraction, processing, and transportation of needed energy, mineral, and other resources. This competitive, geopolitical frame does include some diversity of perspective, however, even in its generally Realist agreement. For example, Klare’s work tends to take a U.S. national security perspective, outlining the risks to the U.S. economy and U.S. security interests inherent in the further securitization of U.S. foreign and diplomatic approaches to securing resource access (especially oil) as well as the risks of being drawn into conflicts with small and larger powers in the Middle East, Central Asia, Africa, or other regions. Others take as their primary concern the impacts of such competition on people and institutions in the developing world, focusing of late on the economic, political, and social changes in Africa resulting from the combination of decades-old neocolonialist relations and the entry of China and other newer, power players (Carmody 2011; Yates 2012). This perspective, often more informed by neo-Marxist assumptions about power, politics, and capitalism, sees the actions of powerful states and firms as overlapping and consistently self-interested over time. Moyo (2012) and others add to these Realist perspectives a debate between contemporary Liberal, private sector-focused ideologies and institutions and those pursuing more mercantilist or statist ideas and strategies. Such analysts often cannot agree on the extent to which actors like China or the United States pursue economic interests with state power, or more often pursue statist, security interests with their economic power.

The Liberal internationalist rejoinder to this dominant geopolitical Realist frame is well summarized by Dinar (2011: 1), “while resource scarcity and environmental degradation may well constitute sources of conflict, political dispute, and mismanagement between states, they may also be the impetus for cooperation, coordination, and negotiation between them... Indeed, conflict frequently motivates cooperation, and resources scarcity and environmental degradation are important elements of this relationship.” While Dinar’s view may be well supported by the evidence that interstate warfare of all kinds is in decline, even as resource scarcity fears have increased, it does not explain why the civil violence and oppression that so often surrounds resource extraction and trading has remained such a low priority for powerful importing states, firms, and citizens. Realist and neo-Marxist approaches are better at explaining the indifference of the powerful to the plights of the weak.
In most developed economies, natural gas — once considered a troublesome by-product of oil exploration and extraction — has grown to become a major source of energy in recent decades. As demand grew in North America and Europe, it drove construction of massive transcontinental and cross-border pipelines and huge liquefied natural gas (LNG) import and export terminals around the world to facilitate the shipping of gas. The United States is a huge gas producer and consumer, while Russia, Qatar, and Australia rank among the top exporters. The mostly state-owned Russian gas company, Gazprom, joined the ranks of the world’s largest companies and is famously entangled in Russia domestic and foreign policy. Gas geopolitics between Russia, Ukraine, and parts of Western Europe demonstrate that by the 1990s and 2000s, gas had taken its place in the pantheon of high stakes international commodities ranking among the top priorities of presidents, prime ministers, and foreign and defense ministers.

While supply of oil and natural gas is finite, it are not “running out” in any meaningful sense in either the short or medium term. The International Energy Agency (IEA) estimates that proven reserves can last 45-55 years, and this does not take ongoing discoveries and new reserve confirmations into account. However, this “good news” comes with several caveats. First, it suggests that there is more than enough oil and gas to continue to warm the global climate well beyond the internationally agreed goal of 2 degrees Celsius or less. Second, a growing share of these oil resources are “marginal,” “unconventional,” or “frontier” in nature. While all of these terms have contested definitions, they essentially refer to oil that requires more effort, more investment, and different technologies and processes to extract and refine than conventional oil. For example, newly discovered reserves of conventional oil are increasingly located far offshore, often in ultra-deep water areas, or in the Arctic region or other territories not previously associated with oil exploration. Extraction in such areas is more expensive and riskier — environmentally, economically, and politically (Heinrich Boll Stiftung 2012; Bridge and Le Billon 2013). Already 30 percent of global oil production is from offshore locations. Unconventional oil might be held in sand and clay over large areas, like the “tar sands” of Alberta, Canada, while unconventional gas is often held in shale formations that require “fracking” to extract (see Box 4). Importantly, unconventional oil narrows the gap between the amount of energy required to produce a barrel of oil and the amount released by the same barrel when it is used. Some conventional oil reserves produced a ratio of 100:1, while some recent unconventional oil has only a 5:1 ratio. Such declines suggest less profit per barrel and growing investment costs per unit of energy. Similar trends can be seen in the gas market. These declining energy gaps underlie the common assumption that oil and gas are likely to be characterized by generally higher and more volatile prices in the future.

Global demand for both oil and gas continues to grow. But growth patterns are changing, as many OECD countries in Europe, North America, and Asia seek to reduce demand though conservation, efficiency, taxation, and environmental policies even as high-growth developing countries push global demand higher. Nevertheless, the United States still consumes about one out of every five barrels of oil produced each year around the globe and it is by far the largest gas market on earth. While U.S. oil consumption is expected to level off or decline slightly in the years ahead, its natural gas consumption continues to grow rapidly in both the residential and electricity generation sectors.

U.S. politicians have been promising greater “energy independence” and “energy security” since the 1970s, with such phrases commonly batted around after the September 11th attacks of 2001 and the oil (and gasoline) price spike of 2008. Every U.S. president since Richard Nixon (1969-1974), Republican and Democrat, vowed to reduce dependence on foreign oil. European leaders — Northern, Southern, Eastern, and Western — have a similar rhetorical history with such concepts. In recent years, the same rhetoric surrounds U.S. domestic debate about the Keystone XL pipeline project (to move petroleum from Canada to the U.S. coast of Gulf of Mexico) and the ongoing “shale gas revolution” (the expanding development of natural gas extraction from shale rock formations via the use of horizontal drilling and hydraulic fracturing, or “fracking”). Advocates of both promise energy security and independence. Who doesn’t want to be more secure and more independent? Such discourses are great ways to frame investments from which firms, shareholders, and some workers and communities are likely to profit substantially as being in the national interest. How well does this national security framing of U.S. energy policies and investments hold up to scrutiny?

In 2012, environmental activists (and attorneys) successfully pressured U.S. officials to delay approval of the additions to the large Keystone XL pipeline system, but a final decision to approve the pipeline seems likely in 2013. Opponents have used a set of arguments, including local environmental degradation and risks along the additional 1,000 miles (1,700 km) pipeline route, but their central mobilizing objections are around climate change. They argue that the pipeline expands, rather than reduces, U.S. and global reliance on fossil fuels since it is designed to help Canada export more oil from the “tar sands” (as opponents call unconventional oil extraction from sand and shale). Such oil, they note, results in even more carbon emissions than does conventional oil because more energy and technology are required to extract and process it. Keystone XL, along with growing onshore and offshore conventional and unconventional oil extraction across the United States suggests that domestic oil consumption, even U.S. oil exports, are likely to increase in the years ahead.

The U.S. shale gas boom relies on fracking technologies — horizontal drilling and the injection of highly pressurized cocktails of water and chemicals — to increase natural gas production and supply in the United States market, creating newly expanded areas of extraction and fueling local economic booms in parts of Montana, North Dakota, Pennsylvania, and elsewhere. Since 2000 — and mostly since 2007 — shale gas has grown from about 1 percent of U.S. gas production to over 25 percent. The International Energy Agency (IEA) and the U.S. Energy Information Agency (EIA) both expect growth in U.S. gas production and demand through at least 2035. In fact, the United States is poised to become the world’s largest producer of natural gas by 2015 and the leading producer of oil by 2017, largely by extracting oil and gas from shale rock. U.S. state and local responses to the environmental risks and apparent economic benefits of unconventional gas extraction vary substantially, from blanket bans on the process to substantial community and government encouragement of such development. Environmental concerns

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1 On shale gas, see Johnson and Boersma 2012, forthcoming; Yergin 2011. On both shale gas issues and the Keystone XL controversy, see the substantial coverage in New York Times and Washington Post.
about unconventional gas include possible ground and surface water contamination, toxics use in the fracking “cocktails” injected underground, methane and other air pollutants, and local aesthetic, community, and ecological changes. If these concerns can be addressed, regulated, or controlled, local communities may be left wealthier and more secure. If this does not occur, many locals will not be left secure in their health or economic well-being.

Whether the United States is made more secure by projects like Keystone XL and the shale gas revolution depends entirely on what one posits as the most important threats to the county. If, as the “national security frame” often suggests, we focus on the amount of U.S. energy that comes from more unstable and/or unfriendly (to the United States) countries around the globe, one might conclude that the projects do make many Americans more secure. If, however, we focus on the greenhouse gas emissions driving global climate change and the fact that global and U.S. oil prices will continue to be set by a host of factors shaping the global oil market, one sees considerably less security in expanding North American oil and gas extraction. The specter of climate change similarly lurks in a host of other U.S. energy debates, such as those around planned investments in ports to facilitate increased U.S. coal exports even as U.S. coal use stagnates or declines. Is it wise over the medium and long term to convert or build hundreds of new natural gas power plants as the United States is doing now? Gas-fired, electricity generating power plants may replace some dirtier coal plants in the short-term, but if they emit carbon dioxide for 30-60 years and slow the country’s transition to renewable and other lower carbon energy sources, do they actually leave Americans more secure and economically better off?
Mineral resources are essential to contemporary economies and societies around the globe, and the accompanying ecological and human costs are high. Today, mined commodities remain essential for the “old” industrial economy and the much-debated “new” or “greener” high-tech, communications, and renewable energy economy often described in popular media. Environmental, human rights, and national security issues remain ever-present in the growing and dynamic mining sector, as demand for most mined commodities has grown substantially over the last 15-20 years.

To many, mining and minerals sound old fashioned, part of the dirty, old 20th century industrial economy that relied on heavy manufacturing. But mining is not simply about “old” products and technologies, like steel, tin, and aluminum. Public and private sector concern about the scarcity and concentrated control of some rare minerals used in electronics, wind power, electric and hybrid cars, and missile technologies has led to a rapid global search for additional deposits and increasing investment on several continents (Bradsher 2009; VanDeveer forthcoming). Lithium is another resource that may also bring new, greener technologies together with the resource curse and geopolitical concerns outlined above. Bolivia contains perhaps half of the world’s lithium deposits even as it already manifests many of the political and economic dynamics common in petro-states.

Trade in nearly every mined commodity has trended upward in price in recent years, though overall prices remain volatile. Large-scale mining operations take place on every inhabited continent, often involving some of the largest multinational corporations in the world and millions of miners. Contemporary products and industrial processes keep metals in high demand, including iron, bauxite, copper, lead, nickel, zinc, silver, gold, mercury, cadmium, cobalt, titanium, tin, manganese, chromium, tungsten, coltan, lithium, the rare earth minerals, and a host of others. But metals are not the only commodities mined from the earth; others include stone, sand and gravel, clays, salt, phosphates, potash, lime, gypsum, and soda ash.

Extraction of these commodities is accompanied by high ecological and (often high) human costs (Young 1992; Bridge 2004; Spitz and Trudinger 2008; Ali 2009a,b; Richards 2010). While mining’s environmental externalities have long been known, the growing scale of mining operations and increasing demand mean that the cumulative effect of extractive industries is unprecedented. From an environmental perspective, the sheer scale of today’s mining operations is unprecedented, with massive volumes of earth moved in the extraction process. In addition to producing large amounts of airborne pollutants, mining industries are also waste-intensive, degrading the quality of surface- and groundwater supplies around the world. Such environmental impacts threaten human security by heightening health risks for populations participating in or living near mining operations, destroying indigenous cultures and local environments, and fostering arms trading and militia violence. And global price competition and economies of scale dynamics mean that the largest mines, most often located in developing countries, are the most price competitive. This, coupled with high regulatory standards of all kinds and frequent population density in OECD countries, has driven a growing share of global mining operations to the developing world (and to a small set of large, more sparsely populated states like Australia and Canada).

3 See, for example, the many well-documented reports and photographs of mining operations and their environmental and social impacts available on the non-governmental organization Global Witness’s website: http://www.globalwitness.org/
Global competition in the mining sector and the growth in global demand for many minerals have resulted in the dramatic expansion of mining operations and the consolidation and growth of a number of large multinational mining conglomerates, often primarily owned by North American, European, Chinese, Australian, and South African investors with headquarters in those countries as well. In order to safeguard their assets (and maintain control) while mining in politically unstable areas, some mines are protected or managed by military officials, or companies construct what amounts to armed camps around facilities, to protect personnel from militia activity and other forms of violence engendered by resentment among local communities (Global Witness 2005a,b; 2011). Such facilities can be seen in various parts of Africa, Asia, and Latin America.

The financial interests at stake are substantial. A large, new mine such as the one built by Rio Tinto in Mongolia can require an investment of $12 billion before any salable resources are extracted. Similarly, a proposed Vale-owned iron ore mine expansion in Brazil’s Carajas national forest has an estimated cost of over $20 billion. Vale, which accounts for over 15 percent of Brazil’s total exports, says 30,000 jobs will be created, adding to the thousands in the region already. The new mine will also destroy huge sections of the forest and dozens of archaeologically significant caves with often undocumented art and other evidence of human habitation from 10,000-12,000 years ago.

Between 2007 and 2009, the globe’s top 40 mining companies had annual revenues between US$310 and $350 billion (PricewaterhouseCoopers 2010). These figures mean that the global mining industry is larger than the GDP of over 150 countries, and these sums do not include the (certainly much larger) economic value of the thousands of products requiring mined materials in their production. The size of needed investments and global economies of scale dynamics in competitive markets have driven many large and small mergers and acquisitions over the last two decades. In 2012, the many months of effort around the $90 billion merger of mining and commodities trading giants Xstrata and Glencore (with combined yearly revenues of over $200 billion) also illustrates the scale of global mining firms and the growing complexity of their ownership and operational structures. A large mining firm is likely to own some of its mining operations outright, as well as partial shares of many more operations around the world. This means that many mining concessions are owned by a complex and dynamic set of international and domestic companies and individuals, with operations tasked to a contractor or some subset of the owners. Clear lines of authority over operations, management, mine security, and other on-the-ground practices are frequently difficult to discern.

Environmental and humanitarian challenges are not simply particular to a small number of extracted commodities in a few places. They are endemic to the sector across many continents and countries. And once institutions and practices facilitating ecological destruction and humanitarian exploitation are established around an industry, they are difficult to curb. For example, as discussed in Box 5, even though a coltan price collapse deprived some Congolese militias of a major source of funding in early 2002, by 2008, the mining of tin ore was funding militia activities, violence, and abuses (Polgeen 2008). The almost 20-year struggle to reduce worker abuse, environmental degradation, violence, weapons trading, and money laundering associated with diamond mining and trading illustrate challenges to governing global mining and the complex host of actors and initiatives already engaged (see Box 6). The “blood diamonds” campaign discussed there also exemplifies similar campaigns around “dirty gold,” “conflict free tin,” and other lesser known commodities.
The technology boom of the 1990s and 2000s drove boom-and-bust price cycles in columbite-tantalite (or coltan), a mineral commonly used in cell phones, laptops, iPods, and dozens of other products and industrial processes. While frequently reported that the Democratic Republic of Congo (DRC) dominated global coltan reserves and production in the 2000s, this claim is incorrect (Nest 2011). Coltan is mined around the world, with primary production often greatest in Australia, Brazil, and a few areas of sub-Saharan Africa. When the price of coltan increased rapidly, due to rising demand, speculation, and poor information about supply, a rush to extract the mineral swept across parts of the Congo. Rampant coltan mining, often performed under dangerous conditions and with ecologically destructive processes, left thousands of giant pits in or near agricultural land, national parks and reserves, and river basins, while money from the coltan trade fueled state and non-state militia violence and arms transfers among local warlords. In 2000, prices spiked from US$30-40 per pound to about $300, before falling back to $30-something again (Nest 2011). Once the coltan boom subsided and the mineral’s price on global markets fell steeply, extraction activity declined, but environmental damage, weapons, and a painful legacy of civil violence remained (Albertyn 2004; Global Witness 2005b).

Connections between coltan mining and trading and child labor, child soldiers, widespread sexual violence, and other serious social disruption are well documented. However, coltan was not (nor is it now) the most important cause of violent conflict in and around the Congo. War in this region has had many causes. But coltan mining has aggravated ethnic tensions and, particularly when the coltan price was high, was both an important object of civil and international conflict in the region, as warring parties fought to control it, and a centrally important mechanism through which such violence was funded (Nest 2011). International activists’ campaigns about “blood on mobile phones” and “Playstations made with child labor” explicitly connected Western consumers, products, and firms to Congolese violence via coltan.

Such challenges to environmental and human security are certainly not unique to coltan. Indeed, once this type of cause-and-effect cycle has been established in a given region, it can prove hard to avoid in the future. Demand for one mineral can simply be replaced by demand for another. For example, although the coltan price collapse deprived some Congolese militias of a major source of revenue in early 2002, by 2008 United National reports indicated that the mining of gold, tin ore, and other commodities was helping to fund both the government military and localized militia activity (Nest 2011). As during the coltan boom, workers are exploited while the environment suffered new rounds of degradation. Militias reasserted their control not only by profiting from tin ore sales (often selling to the multinational corporations that ostensibly owned the concession for the tin), but also by levying taxes on bars, brothels, and other commercial establishments used by miners and other members of nearby communities (Polgeen 2008).

Coltan is only one of the resources exploited and exported in the DRC — and it is far from the highest value resource — but it illustrates the dangers of boom-and-bust commodity price cycles, as well as accompanying unregulated, ungoverned mining interests and the scramble

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1 This box draws heavily from VanDeveer, forthcoming.
by well-armed state and non-state actors over resources. DRC relies heavily on oil exports and the mining of diamonds, gold, columbium, copper, cobalt, manganese, lead, and zinc. It is clearly a resource export-dependent country. The coltan boom and the dramatic changes and events it engendered did not last long, but the legacy continues as extractive industries — large corporations and thousands of small mines — remain implicated and involved in the reproduction of violence, poor governance, and poor economic performance in the DRC.

In 2010, concern about the connections of “conflict minerals” to widespread human rights abuses and international security concerns resulted in the inclusion of provisions in the U.S. Dodd-Frank Act on financial service reform, requiring companies to report information about the minerals they use and about how they certify these are not from conflict areas to the U.S. Securities and Exchange Commission. The provision has engendered substantial debate in Washington about the ethics and efficacy of using U.S. law to push for such transparency (see Null 2010 and 2011, for example). This debate has expanded among analysts around the world about possibly modeling EU and other regulations on the Dodd-Frank provisions, illustrating that wealthier consumer states and societies continue to grapple with the challenge of addressing their role in the creation and maintenance of resource curse dynamics in the developing world. Confirming the challenges inherent in attempting to regulate such trade, Bleischwitz, Dittrich, and Pierdicca (2012) recently used trade statistics to estimate that as much as 20 percent of the global coltan trade was from illicit sources in the DRC and its neighbors.
The terms “conflict diamonds” and “blood diamonds” became famous in the 1990s and 2000s, as African diamond mining became increasingly enmeshed with civil war, state corruption and oppression, widespread environmental degradation, and severe human rights abuses (Bieri 2010; Smillie 2010; Campbell 2012). Estimates suggested that over 1 million miners toil in unregulated, slavery-like conditions, while funds from the diamond trade fuel weapons transfers, civil war, and international terrorism. Since 2003, the diamond trade has been governed by a detailed certification scheme developed and endorsed by UN officials, NGOs, exporting and importing states, and diamond industry firms called the Kimberley Process Certification Scheme or KPCS. (The 2006 movie Blood Diamonds ends with an international conference in which participants are trying to address blood diamonds issues — a nod to the 2000 meeting at Kimberley, South Africa.) The KPCS scheme was negotiated and implemented as the result of parallel interest and awareness-raising activities within the UN (as its members grappled with how to make sanctions against war-torn states more effective and more humane), NGOs (campaigning to raise consumer awareness about a host of humanitarian issues as they pushed for transnational norms making international corporations take more responsibility for violence, environmental degradation, and poverty in developing countries), and the highly organized nature of the global diamond industry (Bieri 2010; Haufler 2010). Also important was the broader context of the growing transnational discourse of corporate responsibility within transnational activism (Tarrow 2005) and the dramatic growth of certification schemes as a possible solution to identified environmental and social problems (Cashore et al. 2004; Vogel 2008), evident in UN initiatives, anti-globalization activism, and rapidly growing numbers of NGO, share-holder, and firm initiatives.

The KPCS is a voluntary certification scheme combined with a state-based enforcement regime. States choose to join, enacting legislation and implementing enforcement policies for export and import control. Firms are required to certify that rough diamonds come from other participating states via a detailed “chain-of-command” system designed to track diamonds from their mining through to final sale. Rough diamonds are to be shipped in tamper-resistant containers and accompanied by government-issued certificates with unique tracking numbers and designed to be forgery-resistant. In other words, all legal diamonds must be traced from their origins through their various product chains. In this way, uncertified diamonds are supposed to be excluded from the legal and legitimate global market.

Initial results of KPCS implementation were judged to be quite effective by participants and third-party verifiers, with industry participants claiming that illicit diamonds had been reduced to less than 1 percent of the market, while several countries most associated with “conflict diamonds” were either excluded because of non-participation or brought into the scheme and thereby certifying and legitimizing their diamond trade (Global Witness and Wexler 2006; Haufler 2010). The scheme appeared to help reduce violent conflict in some African countries, and it protected the diamond industry and retailers from the threat of brand damage.

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For details, histories, and more information, see the many web-based reports by the Global Witness (at www.globalwitness.org) and the UN-sponsored Kimberley Process (http://www.kimberleyprocess.com)
However, the initially positive reviews also noted persistent structural and procedural challenges within KPCS, several of which have become substantial liabilities and the sources of high-profile criticism in recent years. These challenges include state weakness, corruption, and incapacity in a number of mining nations, likely growth in illicit actors ability to falsify certification documents and procedures, lagging border enforcement in importing states, and the system’s lack of clarity about what happens when individual parties are found to have poor-quality monitoring procedural controls or if they are found to be in non-compliance. Such concerns came to a head in 2011 and 2012 as a founding NGO member, Global Witness, announced it was leaving KPCS because of its failures to take effective action in the face of clear violations in Côte d'Ivoire, Venezuela, and Zimbabwe (Global Witness 2011, 2012a, 2012b; Smillie forthcoming). The latter case, Zimbabwe under Robert Mugabe, has proven particularly ugly as the country’s mines and mining region have been heavily militarized, with persistent reports of violent oppression. Global Witness reports document high-level involvement of Zimbabwean secret police, defense ministry officials, and other Mugabe associates (with extensive international financing from China and elsewhere and highly opaque syndicates of investors and owners), and extensive violations of domestic and international laws, regulations, and norms in the country. In late 2012, the organization Partnership Africa Canada (2012) estimated that at least $2 billion worth of diamonds had been stolen from the country’s eastern diamond fields recently, going to Mugabe associates. The group’s report called this “perhaps the biggest single plunder of diamonds since Cecil Rhodes.”

KPCS illustrates Liberal internationalist, hybrid governance dynamics as NGOs, international organizations, and exporting and importing states build cooperative institutions to address diamond issues. But participating states and firms guard their authority and self-interest carefully, as illustrated by their refusal to establish a KPCS secretariat with a permanent and reasonably autonomous administrative and research staff. It also shows that as governance is constructed to regulate the international resource market, some actors seek to move outside of legal channels, engaging in cheating and smuggling and taking diamond trading into illicit markets associated with drugs and weapons. Lastly, the existence of KPCS rests in part on the exposure of the diamond industry to threats to its luxury brand via consumer views and values. In other words, it matters what retail consumers think about diamonds, and with what they associate them — eternal love versus war, terrorism, and child soldiers, for example. Such brand exposure is unusual for other globally traded commodities such as iron ore, rare earths, aluminum, or oil.
Perhaps the clearest case of political and economic damage done by oil and gas resources is provided by the extensive research done on the "resource curse." The resource curse concept refers to the correlation between a country's high level of dependence on high-value resource exports and the likelihood that the country will exhibit subpar economic performance over time and have undemocratic, corrupt, and/or ineffective governing institutions (Karl 1997; Weinthal and Luong 2006; Steven and Dietsche 2008; Ali 2009a). Over the past generation, "petro states" have served as prime illustrations of the curse. Highly reliant on oil exports, these nations include Nigeria, Bolivia, Angola, Chad, and several states in the Caspian, Persian Gulf, and Central Asian regions. Not only do they tend to be deeply indebted, but many also tend to have closed political systems. In 2000, for example, 18 of the world's top 20 oil-exporting nations were run by non-democratic regimes. But the curse is not limited to petro states. Many states with large, export-oriented agricultural and mining sectors face a similar set of economic and political challenges, with citizens of mineral-exporting countries often experiencing high levels of poverty and child mortality, despite significant resource-related revenues.

While analysts differ on the specific causes of the resource curse, key factors typically include: 1) a lack of economic diversification; 2) boom-and-bust price cycles that trigger instability in commodity-dependent economies; and 3) governing bodies that are weak, corrupt, or heavily entangled in patronage networks. State institutions in resource curse-afflicted nations tend to exercise little independent authority over resource sectors, and often demonstrate comparatively low levels of capacity to deliver basic services to citizens.

However the notion that oil or other resource commodities are really "curses" has been the subject of growing debate in recent years (Luong and Weinthal 2010; Haber and Menaldo 2011). Perhaps resource curse dynamics are merely an artifact of a particular era and/or a particular set of institutional configurations. Luong and Weinthal (2010) argue that the resource curse is largely a myth, as it does not account for the wide variation in ownership structures in resource extraction sectors across countries. If one distinguished state ownership from state control and examined more cases of resource wealth over a longer time frame, they contend, the curse would not be the rule, but rather the exception. According to this view, the circumstances most likely to produce outcomes associated with the resource curse are complete state ownership and control of the resource extraction sector, coupled with an extreme dependence on those resources for state revenue. Accordingly, these analysts blame policy failure and ownership structure for resource-related political and economic instability, rather than resource wealth itself or its associated funds.

The recent critiques on the resource curse concept are intellectually valuable and have important political implications. They focus attention not on the presence of a valuable resource alone but on the particular economic and political institutions in "cursed" countries and the relationship of these countries to international markets and institutions. Michael Ross's (2011) work suggests, for example, that the most oil-dependent states are the most likely to experience curse dynamics and that this pattern is particularly acute since the 1970s. Resource wealth, when prices are high, allows state leaders to fund patronage networks and comparatively large and well-paid militaries. In Ross's words, "geology need not be destiny," but if autocrats can keep their finances hidden and consumers are indifferent to the autocracy (and...
Box 7: Proposed Solutions to the Resource Curse

Fiscal and Monetary Policy
Resource rich states are advised to prioritize policies that moderate currency appreciation, minimize borrowing, balance state budgets, and accumulate financial surpluses to help weather eras of low resource commodity prices without borrowing. Botswana is often cited as a success case for this strategy.

Economic Diversification
From the 1960s through the 1980s, resource rich states were often advised to invest in non-resource sectors of the economy in attempts to diversify the national economy beyond near complete dependence of wealth from resource exports. Such strategies frequently included state-sponsored industrialization, import substitution and protectionism, and agricultural subsidies and other spending.

Natural Resource Funds
Resource rich states are encouraged to establish and build large funds with defined portions of wealth accrued via recourse exports. Some funds are to be used during periods of low resource prices to stimulate the economy and fund state expenditures without borrowing, while others should be saved for long term benefit for future generations. Building such funds also reduces excessive, inflationary spending during high resource price boom times, moderating negative economic influences of resource wealth. Norway is generally cited as the most successful case.

Transparency, Accountability, and Public Involvement
In recent years, NGOs, international organizations like the World Bank and the IMF, and many Western governments have pushed for greater financial transparency, accountability of public officials and firms, and increased public involvement in governmental processes and decision-making as a linked set of strategies to improve governance in resource rich states. NGOs have led this broad transparency and accountability movement, targeting firms, states, and international organizations with campaigns demanding greater financial and information transparency. Originally focusing on the publication of all financial transfers between states and firms along with some form of third-party accounting and auditing, many initiatives are now pushing for public disclosure of firm-state contracts and other agreements, substantial human rights and democratic procedural standards, and processes to engage and involve local communities and national publics (and mass media) in decision-making about resource extraction, revenues, and state expenditures of all kinds.

Direct Distribution
Direct distribution of resource wealth to citizens is a strategy designed to deny the state, and the people in it, access to and control over resource wealth. In states with long histories of naked corruption among many public officials, this option is politically attractive, if potentially inflationary in boom times. It allows recipients of payments to spend or invest funds as they see fit. Alaska is most often cited as a success case.

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1 This box draws on and expands the set of options discussed in Weinhall & Luong 2006. See Also Stiglitz 2006.
violence) they may be funding, resource wealth can remain an obstacle to more efficient, effective, and democratic governance.

If green energy sources — all of which require substantial quantities of mineral and metal resources — eventually meet a large percentage of future energy demand, should we expect these resources to produce different economic, social, and political outcomes than oil, gas, and forestry have in the past century? Are we likely to see biofuel or lithium-funded oppressive, authoritarian governments or the return of coltan-funded militias and international criminal organizations? Will large commodity-dependent consumer states plan military and defense strategy around secure access to critical materials? Viewed another way, could the much-debated “resource curse” be repeated, recreated, and redefined with a new set of commodities? Among scholars, activists, and policymakers in states and international organizations, the set of economic and political challenges associated with the resource curse has spawned a large set of proposed solutions. Box

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**Private Ownership**
Recently, a number of influential analysts have concluded that the most critical strategy to address resource curse symptoms and outcomes is to separate the resource wealth from direct state ownership via various forms of privatization. Since most of the other solutions rely heavily on effective state institutions, and these are too often absent in many countries, privatization would deny the state direct control of resource wealth and, it is hoped, induce the construction of a more efficient and innovative resource sector and improved state-citizen relations and institution building over time. In other words, if the state is denied direct access to resource wealth, state officials and citizens would share an interest in building a more effective state over time, financed at least in part by taxation of citizens and various economic sectors. Such taxation, in turn, gives citizens and firms a more concrete interest in their own state and its effectiveness.

**Institutional Modeling and Capacity Building**
Another set of proposed responses and ongoing initiatives focuses on modeling more effective or more just institutional arrangements and/or explicit attempts by international actors (NGOs, states, or international organizations) to build and enhance the capacity of developing country states and civil society actors to govern resource sectors. Such initiatives include sample codes of conduct and sample contracts, third party training and consulting with development and regulations experts, and grant programs for state regulators and NGOs to enhance oversight, management, and community/stakeholder involvement.

**International and Transnational Standards**
Analysts and participants have also called for many types of international standards, some of them aimed at augmenting other strategies listed above, such as transparency and accountability, or at specific industrial, sectoral, or state conduct. Examples include stricter transnational regulation of liability or bribery and corruption, industrial or financial sector regulation in OECD markets, greater protections for contract and property rights, and expanded labor rights and worker safety guarantees.
7 summarizes ideas about possible policy and institutional responses to resource curse symptoms and dynamics.

If solving all of the problems associated with the resource curse was easy, it would already be done. Each of the solutions described in Box 7 have clear limitations and none is likely to work in all cases. In fact, one of the few things upon which analysts and policymakers engaged in the resource curse challenge agree is that no single magic bullet exists to produce human and economic development and good governance. One important challenge to the set of solutions is the need for substantial state capacity to enact nearly all of the options, including the presence of strong public institutions not captured by resource wealth-related interests and technocratic experts reasonably independent from political influence and manipulation (to manage resource funds and fiscal and monetary policy, for example). Similarly, transparency, accountability, and public involvement require a host of strong state and civil society institutions that cannot be built quickly, or without years of effort and significant opposition. Such developments require substantial state and private sector support and participation, and they are considerably more difficult to construct when large portions of the state, private sector, and/or citizenry are opposed to them. The problem, of course, is that states and societies in the grip of resource curse dynamics generally lack the conditions for success.

Economic diversification and natural resource funds (NRFs) illustrate the institutional challenges. The record of successful economic diversification based on state investment choices is generally quite poor, characterized more often by lack of transparency, corruption, poor investment choices, economic protectionism, and wasted resources. NRFs grew in popularity in the 1990s and 2000s, but their record in reducing corruption and increasing economic stability remains poor in states without pre-existing strong, transparent institutions able to separate short term interests of individual leaders (or large segments of the population) from raiding of the funds, as seen in Venezuela and elsewhere. Beyond NRF’s ineffectiveness as a solution to the resource curse, Stiglitz (2006) goes further in his critique, arguing that the presence of such a fund makes weak states even more vulnerable to capture by a particular group or individual. If there is a “cookie jar” with billions of dollars controlled by the state, he argues, then more of the wrong sort of people will seek to acquire state power to get access to the fund. On the other hand, direct distribution of resource funds to citizens may partially curb aspects of the rapacious state and individual public officials that too often emerge in resource rich countries. However, its record at producing a diversified, resilient economy over time remains poor. In short, citizen recipients tend to consume (read spend) their distributed funds, rather than invest them for future growth. And if most funds are distributed to individuals, needed public investments cannot be funded.

The evidence that privatization of mineral wealth has produced substantial economic benefits, and some governance benefits, over the last century is substantial (Luong and Weinthal 2010; Ross 2012). But how you convince current state owners to privatize is harder to see, and dislodging the common view among many populations that public ownership via the state is superior — fairer, more just, more important to national power, and so on — has also proved to be difficult.
The sheer number of economic, environmental, human, and international security issues associated with the extractive industries and the trade and use of the commodities they produce suggest skepticism about the existence of simple solutions or single all-powerful policies to address the identified and complex challenges. So what can be done and what is being tried already? A 2012 report by the Heinrich Boll Foundation (Bleischwitz et al. 2012) on resource governance included a list of 16 selected ongoing initiatives intended to improve such governance, while Bridge and Le Billon (2013) assess several more international efforts aimed at improving oil sector governance. All involve participants in multiple political and economic sectors, involving some combination of state, private, and civil society actors. In fact, the literature on the many forms and functions of emerging transnational governance is increasingly taken up with understanding the growing diversity of governance forms and institutionalized connections between different types of participating actors (Cashore et al. 2004; Avant et al. 2010; Bulkeley et al. 2012a,b). One way to organize a brief discussion of such efforts is to do so along a state, non-state axis, dividing them into two groups: those characterized primarily by non-state leadership and sponsorship and those characterized either by state leadership or backed by state authority (O’Neill 2009; VanDeveer 2011a,b). This first set of transnational initiatives, non-state led efforts, includes the following five overlapping types of efforts:

- **Awareness Raising and Education Campaigns and Organizations**: A large and growing number of NGOs work to raise awareness of the environmental and human security issues associated with extractive industries and commodities trading, including long-standing, multinational organizations such as Oxfam, Friends of the Earth, and Amnesty International. More recently, groups such as Global Witness and Transparency International have achieved wide-spread recognition among public and private sector policymakers, civil society activists, and journalists. London-based Global Witness has focused on the intersections of environmental, human rights, and corruption issues around extractive industries (oil and gas, mining, and forestry). Transparency International and “Public What You Pay” campaigns have spearheaded a global, transnational movement focused on enhancing financial transparency of states and firms. High profile NGO-driven campaigns specifically aimed at extractive industries include those around “blood diamonds,” “coltan,” “dirty gold,” “conflict minerals,” and “conflict-free tin.” Most such campaigns are coordinated among (and funded by) a number of NGOs and foundations. Internet and social media distribution of text and digital photos and video — as well as more traditional marketing, activists, and protest tactics — have expanded and accelerated the reach of such initiatives. These campaigns tend to use increased public awareness as a tool to leverage influence with firms and public officials, helping NGO activists gain access to such decision-makers and demand behavior and policy changes from them. In general, firms and products with direct consumer exposure (like diamonds and diamond retailers) offer greater opportunities to such campaigners than to those better insulated from consumers, like aluminum production, oil shipping and refineries, or copper and iron ore mining.

- **Certification and Labeling Schemes**: The number of certification and labeling schemes in the marketplace and launched by NGO and private sector associations has grown dramatically in the last two decades (Cashore et al. 2004), illustrating both the influence of
the awareness campaigns discussed above and the ethical consumption movements discussed below. Certification and labeling schemes are designed to inform consumers about a set of values and practices associated with a product or set of products. Among the most famous are the KPSC diamond certification (see Box 6); the Fair Trade certification for thousands of food, agricultural, and other consumer goods; and the Forest Stewardship Council’s scheme associated with forest practices and products. In part because the extractive industries are inherently environmentally and socially disruptive and often well insulated from direct consumer exposure, certification and labeling schemes are not well developed beyond products such as diamonds and gold. The development of all such schemes is contentious, but it is hard to imagine shared agreement among various stakeholders and activists about how to set standards for “sustainable” oil companies, for example. Lastly, it should be noted that not all certification and labeling schemes are non-state led. Though voluntary, the “Energy Star” scheme, which rates and ranks the energy efficiency of energy-using products and services, is organized and operated by the U.S. Environmental Protection Agency. It has achieved high levels of consumer recognition and industry participation.

- Ethical consumption/purchasing movements and campaigns: Some NGO and firm-based initiatives are aimed less at publicizing problems and advocating private sector and public sector policy changes, and more at encouraging consumers (individuals, firms, and other organizations) to change their consumption and purchasing behaviors. Across much of North America and Europe, for example, NGOs and local businesses have teamed up to build niche markets for locally or nationally produced goods, or goods certified as more sustainable, environmentally friendlier, organic, or fairer or more just. Such products might be marketed as having lower carbon emissions (due to transportation differences or the use of renewable energy in their production) or certified as free of conflict minerals or illegally mined substances. A very small subset of these types of initiatives encourages people to consume less (generally) or to reject the messages and products of large firms in favor of home or locally made necessities. Here one would include AdBusters, for example, an organization that mocks advertising, attacks well-known brands, and organizes campaigns like “Buy Nothing Day” and “Buy Nothing Christmas,” using its magazine, video, and social, traditional, and grassroots media.5

- Corporate Social Responsibility (CSR): The CSR movement has occurred broadly across large and small corporations and businesses over the past two decades, and extractive industries companies have been frequent and long-standing participants. High profile oil companies have long had CSR programs, practices, and guidelines that simultaneously seek to improve companies’ public image and brand identification, employee morale and commitment, shareholder value and profits, and environmental and social justice performance indicators (Gallagher and Weinthal 2012). Many large oil, gas, and mining firms have institutionalized sustainability assessment and goals within the company structure and attempted to improve community engagement, volunteerism, and donation programs in the communities in which they operate or on a subset of issues they have prioritized. Many organize CSR programs both at the corporate and individual facility levels to facilitate multiple

5 See www.adbusters.org
levels and areas of engagement and improve firm-community and public relations, and to reduce financial risks stemming from accidents and poor relations. While large international mining companies were generally not early CSR adopters, recent years of increased activist, shareholder, policymaker, and public scrutiny have changed this substantially. The global spread of CSR is changing the relationships between state, private, and civil society actors in developing and developed countries, sometimes moving from a defensive strategy enacted by firms to more pro-active forms of self-regulation (Gallagher and Weinthal 2012).

- **Research and Assessment Initiatives:**
  Generally speaking, improved public and private sector governance relies in part on quality information, research, and learning over time. Such research and assessment is conducted in universities, research institutes, and think-tanks; inside individual firms; and within activist and industry-supported organizations. In universities, centers of excellence are often found in regions that play host to (or once hosted) the industries under assessment, so one is not surprised to find that the United States, Norway, Saudi Arabia, the U.K., and Qatar are home to substantial oil and gas research in which university and industry participants cooperate extensively. Mining research demonstrates similar patterns, where countries with long traditions of mining operations (and a reasonably well-functioning public sector) host centers of excellence. The increasingly high-profile environmental and humanitarian concerns, driven partially by activities listed above, have pushed such research to focus more on environmental, human security, and governance issues and encouraged the founding and expansion of newer initiatives such as the International Council on Mining and Metals (ICMM). ICMM is an industry association involving many leading global firms and mining and commodity associations that develops and seeks to help industry participants promulgate and implement sets of principles and practices for more economically, environmentally, and socially sustainable mining, smelting, and commodities trading. ICMM has produced a substantial body of information, including case studies and best practices, about more sustainable mining and smelting. What it does not, or cannot, do is assess widespread implementation by firms or how well global mining practice approximates recommended practices. Furthermore substantial gaps remain in many areas of basic data about extractive industries environmental and social costs, general practices globally, the consumption of other resources they drive, and many aspects of their material flows (Andrews-Speed et al. 2012).

A second set of state-led and state-backed policy options currently being pursued and suggested by analysts and activists around the world include the following four broad approaches:

- **Public Sector Regulations:** A growing analytical literature suggests that state action remains powerful and often uniquely essential in contemporary politics and markets if environmental and social standards are to be raised. For example, if U.S. energy efficiency is to be rapidly improved (thereby reducing energy consumption and polluting emissions), national policies and regulations of many different types are likely required. As energy efficiency and climate change issues illustrate, however, any level of public sector can engage in some measure of regulation. It is U.S. states and cities,
Many states need not wait for global agreement on everything (or anything) to act. Not the federal government, that has generally led U.S. energy efficiency, renewable energy, and greenhouse gas reduction efforts over the last two decades (Rabe 2004; Selin and VanDeveer 2007, 2009, 2012a, 2012b). Furthermore, research in developed and developing countries suggests that states can accomplish tasks and accrue advantages by enacting such policies even when other states have not. In other words, many regulatory efforts do not undermine economic competitiveness. In fact, some can enhance it. As such, many states need not wait for global agreement on everything (or anything) to act. Reasonable national policies to reduce some types of consumption or increase efficiencies — such as carbon or energy taxes, product efficiency standards, or the reduction of ecologically damaging subsidies — can be effective absent global agreement about them. Some states can and do act unilaterally, while others may seek to do so in groups (such as the European Union). In many areas of energy and environmental policy, the European Union has demonstrated that setting and implementing the globe’s most stringent policies can advance (not limit) one’s economic and political interests (Selin and VanDeveer 2006; Schruers et al. 2009). Where extractive industries are a concern, import-dependent states may seek to reduce their vulnerability to supply disruption or the costs of exporting massive amounts of capital by attempting to reduce domestic consumption/demand. European states, the EU, and Japan have often led the world in energy efficiency policymaking and, in the case of the EU, greenhouse gas reduction policies that curb oil consumption. Large market importing consumer countries can also leverage their market size to push or impose standards outside their borders, as the United States is seeking to do with provisions in the 2010 Dodd-Frank financial services law and regulation that cover financial transparency and “conflict minerals” concerns. Dodd-Frank charges the U.S. Securities and Exchange Commission with issuing rules that require greater financial transparency of most publicly traded extractive industries firms, and that require that a large array of companies disclose information about their use of minerals from the Congo and its neighbors (so called “conflict minerals). If the EU follows suit with similar requirements, large portions of the global market and a significant number of multinational firms will be covered.

- **Effective International Standards**: Like regulation above, this is a large and diverse set of strategies including many that are much more easily called for and proclaimed than actually enacted. States regularly work together through existing and newly established international organizations to set and implement standards and guidelines for their own behavior and for the behavior of firms and individuals. Such efforts can be imbedded in global international law, such as those within legally binding international trade or environmental agreements, or developed and promulgated by non-legally binding or voluntary initiatives, such as those spearheaded by many UN organizations or the OECD. For example, the Kimberley Process was partially facilitated and administered by participating UN bodies and pushed and developed in partnership with NGOs and importing and exporting states. Yet, the KPCS relies on state enactment and implementation of import and export laws and regulations to function, thereby illustrating hybridized state, private, and civil society authority in some forms of contemporary transnational governance. The Extractive Industries Transparency Initiative (EITI) is backed and co-organized by the World Bank and a set of other sponsoring
states and organizations. State participation is voluntary, but once states join, they enact laws and regulations to administer and implement a set of principles and practices required under EITI to enhance the transparency and usability of financial transfers between the states. After several years of operation, EITI is undergoing a thorough review of its accomplishments and limitations with a view toward institutional reform and possible expansion.

- **Subsidies and Taxation**: States can and often do use subsidies and taxes to encourage some behaviors and industries and discourage others. Globally, billions of dollars annually subsidize oil and gas extraction, refining, and consumption, while in only a few states are taxes on these energy sources high enough to offer significant disincentives on their consumption. In short, in states where fuel prices are generally low compared to the global average, subsidies are responsible for this price. Where fuel garners the highest prices, taxation tends to make a large share of the price. International organizations like the IEA and the World Bank have long urged states to reduce subsidies to curb demand and improve public finances, while many economists have traditionally advocated greater energy or carbon-based taxation as the most efficient strategy to reduce demand. Similarly, mining companies often pay quite low royalties to public institutions for extraction rights, effectively receiving subsidies for such extraction. Few states levy resource extraction taxes or fees at levels high enough to noticeably influence extraction levels (or the subsequent prices or demand for extracted commodities). Even fewer schemes exist to exact fees or taxes that effectively internalize the environmental and social costs of resource extraction.

- **Build Governance Capacities**: A final set of initiatives focuses not on state leadership or on the use of state authority, but on the improvement of governance capacities within the public sector and outside of it. Faced with energy crises in the 1970s, the United States and other OECD members expanded the set of energy data gathering, monitoring, and assessment institutions at their disposal, dramatically expanding national energy-related organizations and establishing the International Energy Agency to help them jointly pursue oil supply security. As the discussions of the resource curse and the political and economic influence of the extractive industries suggests, states or smaller portions of the public sector often lack the authority, independence, expertise, or ability to improve resource governance. Whether one seeks to reduce violence and environmental damage in the Niger Delta, or to improve worker safety in U.S. coal mines, the ability to effectively implement changes in the practices and performance of extractive industry participants often encounters public sector incapacity. High-profile accidents can offer opportunity to focus public, civil society, and private sector actors on needed public sector improvements. Newly discovered resource reserves also offer local, national, and international actors such opportunities. For example, organizations like the World Bank and small NGOs now seek to advise governments, firms, and civil society actors on best practices for negotiating resource extraction contracts and setting up resource extraction regulations and inspectorates. Efforts like EITI and ICMM are intended in part to enhance the effectiveness of firm and public sector governance.

In short, a large and growing number of non-state and state-backed initiatives exist, often at relatively modest scale. Viewed as ongoing experiments to be assessed in terms of effectiveness, efficiency, and equity or fairness, these governance initiatives...
offer innumerable opportunities to learn lessons over time, expand future research and enjoin efforts to incrementally and substantially improve local, national, and transnational resource governance. While the section above is organized into non-state and state-backed efforts, many of the examples discussed illustrate the growing hybridization of state and non-state transnational governance institutions. Older forms of state and non-state governance are changing and newer forms of hybrid authority are emerging, and all of these changes offer opportunities to improve our understanding and practice of resource governance and thereby reduce environmental degradation and human insecurity.
For centuries, boom-and-bust cycles for resource commodities have been linked to political and social instability. Unfortunately, it appears unlikely that the raw materials demanded by 21st century economies and technologies will break such cycles — at least not without concentrated attempts by policymakers to curb such patterns. Concern about the environmental degradation, potential violent conflicts, and injustices that may accompany the much heralded high-tech, greener economy continue to grow (Rothkopf 2009; Bleischwitz et al. 2011; Netherlands Environmental Assessment Agency 2011; NICE 2008, 2012; Andrews-Speed et al. 2012; VanDeveer forthcoming). Such challenges are complex, as are their causes, and little faith in simple or single solutions can be found. Nevertheless, ever-expanding demand for the resources extracted from the earth seems a recipe for increased ecological and humanitarian degradation. Demand reduction — using less — is emerging as a reasonable option under discussion, but only scant policymaker attention has focused on this goal to date.

We humans are not likely to stop extracting resources from the earth anytime soon. However, it is possible to substantially reduce the environmental externalities and humanitarian side effects of extractive industries. We know this because in some places, mines already operate under comparatively high standards for environmental and worker-safety protection, showing that all states reliant on mineral or oil extraction are not necessarily “cursed.” While such operations’ environmental, social, and worker safety standards and records certainly can be improved — as even a cursory glance at the U.S., Australian, and Canadian environmental and workers safety records in the extractive industries demonstrates — they are generally not the sources of the same set of massive local and regional ecological damages and human health threats. Nor are they armed camps where money flows directly into weapons procurement, dangerously corrupt state actors, and/or well-armed oppressors. Still, without additional research and greater attention from policymakers at the domestic and international levels, it seems likely that the resources needed to transition to a greener, more sustainable global economy may simply recreate the resource curse, both in states already afflicted and in a new list of countries.

Putting a stop to the escalating ecological and human costs of these activities and reducing the environmental and humanitarian externalities is possible. We know it can be done, because some mines already meet much higher environmental and labor standards. High standard mining operations still have ecological and human health effects, of course, but they are minimized substantially. Significantly increasing energy and materials efficiency levels, recycling, and reuse is also possible. In the end, the resources needed to develop renewable energy technologies will not automatically be mined, processed, or harvested via ecologically sustainable industrial practices or under more sustainable social conditions.

Effective governance does not spring from the ground like a mushroom. Further, even if these resources are widely used to develop and produce more sustainable energy systems, they may not help produce more ecologically and socially sustainable societies around the planet without attention to the effectiveness of governance institutions from the local to global levels. Instead, making progress toward a new global economy that prioritizes environmental sustainability and places a premium on human security will require the ongoing commitment of capable states and the careful regulation of markets and firms. Lessons about how to achieve these ends can be drawn from a host of on-going attempts to increase information, financial, and price transparency around some
commodities — for example, via requirements in national law and regulation like those added to the U.S. Dodd-Frank Act; international efforts via initiatives like the Extractive Industries Transparency Initiative, the Kimberley Process, and other certification schemes; and the development of a Natural Resources Charter. By themselves, these experiments in better governance around resources cannot solve all of the problems associated with the resource curse. They can, however, provide valuable lessons about how more effective and sustainable governance can be built. They can help us all build better governance over time, in both consumer and producer/exporter countries. This will most certainly not happen if we ignore the way the “new” and “greener” economy might recreate many of the most ecologically and socially unsustainable aspects of the national and global economies we now have.

But improving the environmental, worker-safety, and poverty alleviation records of extractive industries remains insufficient to meet the challenges of the Anthropocene. If truly catastrophic climate change is to be avoided, for example, global consumption of all of the fossil fuels must decline substantially. Pushing the extractive industries to internalize all of the environmental and human costs of their operations, and reducing their role as a substantial impediment to effective and efficient governance in developed and developing countries are important steps toward building economies and societies that can continue to produce additional wealth and human progress without continuously accelerating material consumption.


