## Scarcity, Abundance, and Conflict: A Complex New World

by Ravi Bhavnani

Memories of Lagos from the early 1980s are replete with striking contrasts. Private tennis lessons, a dip in the Ikoyi Club's vast side-by-side pools, and the grilled red-pepper crusted Suya treat that followed are pitted against the burned image of a rotting corpse on the Badagary expressway, the eerie silence and emptiness which characterized the coup overthrowing Shaghari's civilian regime, and the chaos accompanying the expulsion of over a million migrant workers from the country in 1983—our entire Ghanaian household staff included. These contradictions resonate even more powerfully today, as the country's abundant oil wealth is siphoned and squandered, leaving Lagos' millions to eke out an existence in slum-dwelling depravity.

With its contradictions, Lagos is hardly unique. In Dharavi, Asia's largest slum located across the Bandra-Kurla complex in Mumbai, a long-time resident recounted to me: "If it can be made in China, we can make it better and cheaper in Dharavi." This emerging industrial powerhouse, home to over 5,000 home-based manufacturing units, has a product line that includes export-quality leather goods, textiles, shoes, woodwork, pottery, and jewelry. In addition, it also houses vast reprocessing and recycling units, beauty parlors, bars, and clothing boutiques. Estimates place Dharavi's annual economic output at roughly USD 500 million.<sup>1</sup> Increasingly, Dharavi is becoming home to merchants and people working in Mumbai's booming IT sector. Amid the filth and squalor, the daily toil of Dharavi's some one million residents reflects mastery of the art of turning scarcity into abundance.

Heading further east, the Porega Gold mine, located in Papua New Guinea's Enga province about 600km north west of Port Moresby, illustrates just the reverse: the unpleasant but highly practiced trade of turning abundance into scarcity. Open pit and underground mining methods for ore extraction, in which cyanide is used to treat the gold ore, go hand in hand with the dumping of toxic tailings and other mine debris into the local river system. The resulting decline in safe water is accompanied by the loss of agricultural land and food security, attributed largely to mine encroachment. And the absence of adequate information on mining-related sources of contamination has taken a profound toll on the community's health.<sup>2</sup> Barrick

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Gold, the world's largest gold mining company and the majority shareholder in the Porega Joint Venture, serves as the mine's chief operator. In addition to environmental degradation, the beating, rape, torture, and killing of local community members by Venture security guards and the stalled Amid the filth and squalor, implementation of a plan to relocate members of the the daily toil of Dharavi's affected indigenous communities, underscore the some one million residents notion of abundance breeding scarcity.3

Voicing a concern about impending scarcity, the reflects mastery of the art UK government's Chief Scientific Adviser John of turning scarcity into Beddington warns that "a 'perfect storm' of food shortages, scarce water and insufficient energy

resources threatens to unleash public unrest, cross-border conflicts and mass migration as people flee from the worst-affected regions..."4 But scarcity theorists like Homer-Dixon, forecasted an equally bleak scenario almost a decade ago: rapid economic growth would trigger an increase in the demand for renewable resources like cropland, fresh water, and forests, leading to their degradation, depletion, and unequal distribution. In turn, resource scarcity would serve to increase poverty and migration, stretch institutional capacity to its limits, and deepen social cleavages, all of which would increase the likelihood of violent conflict.5 Even earlier, Robert Kaplan's piece in The Atlantic Monthly warned of "demographic, environmental, and societal stress, in which criminal anarchy emerges as the real strategic danger."6 Most political scientists, however, have been altogether more focused on the ills associated with resource windfalls or abundance, not scarcity, and their implication for violent conflict-most of it internal. Oil, diamonds, gold, gems, and timber-precious commodities, all of which should have promoted economic growth and development, lifting standards of living for the masses-led instead to economic deterioration, to unprecedented corruption, mismanagement, and even conflict over their control.

Does abundance then constitute a more significant cause of conflict, or should we be more concerned about a rise in conflict induced by scarcity, being mindful of the warnings by Beddington, Homer-Dixon, and Kaplan? In the sections that follow, a brief survey of academic scholarship on the resource-conflict relationship distinguishes between arguments that focus on abundance versus scarcity as the primary driver of conflict. The mixed findings from this body of research question whether the relationship between abundance and scarcity should be examined more closely, focusing instead on how the two may interact: abundance breeding scarcity; scarcity breeding abundance; and how, in a complex new world in which abundance and scarcity coexist, we should craft policies that take these interdependencies into account. From this, five proposals for managing scarce and abundant resources, in an effort to mitigate conflict and promote cooperation, will be outlined.

#### **RESOURCE ABUNDANCE AND CONFLICT**

Work on the abundance-conflict connection was popularized by Collier and

abundance.

Hoeffler,<sup>7</sup> who found that greed-based incentives for rebellion were likely to dominate in countries with abundant natural resource deposits, in contrast to earlier scholarship that emphasized the primacy of ideological or grievance-based incentives for rebellion. Collier and Hoeffler's work has generated a veritable cottage industry of research, with findings that both reinforce<sup>8</sup> and undermine<sup>9</sup> their key propositions.

In an effort to move beyond this indeterminacy, the next generation of scholarship on the abundance-conflict relationship parses both dependent and independent variables into finer categories. Those focusing on the dependent variable, for instance, argue that lucrative, easy-to-procure resources—such as diamonds, gems, and precious hardwoods—do not affect the onset of conflict, as initially claimed by Collier and Hoeffler, but instead affect the duration of conflict, lengthening civil wars by generating discipline problems,<sup>10</sup> by sustaining the war effort,<sup>11</sup> or by shortening civil wars through dips in commodity prices which limit the availability of funds and curtail incentives for combatants.<sup>12</sup> Others argue that the effect of resources on conflict applies specifically to non-ethnic,<sup>13</sup> ethnic,<sup>14</sup> or separatist civil wars.<sup>15</sup>

In contrast, those parsing the independent variable to unpack the highly aggregated category of "primary commodity exports" argue that the distinctions between diamonds and oil,<sup>16</sup> lootable and nonlootable resources,<sup>17</sup> artisanal and industrial extraction,<sup>18</sup> physically diffuse and point-source resources and those proximate and distant to a national capital<sup>19</sup>—to name but a few salient dimensions—matter for the onset and/or the duration of conflict and that different predictors vary in their salience for different types of conflict, thereby underscoring the need to delineate the characteristics associated with the extraction of a given resource, and the need to describe the specific nature of any resulting conflict.

Taking this approach even further, fine-grained disaggregated analyses capture the local characteristics of variables, rather than simply breaking these variables down into categories that are then re-applied in the aggregate. Research in this vein divides countries into grid cells, treating each cell separately (often in combination with nationwide predictors). Disaggregated studies consequently utilize measures of conflict-type<sup>20</sup> and remoteness,<sup>21</sup> the size of the conflict-ridden territory,<sup>22</sup> the location of resources in a conflict zone,<sup>23</sup> and the location of rebellion.<sup>24</sup> Defined as a sub-national event, conflict may affect certain parts of a country's territory and not others, with the presence of resources increasing the size of the conflict zone,<sup>25</sup> generating longer conflicts,<sup>26</sup> or prolonging wars for control of government.<sup>27</sup>

Despite notable progress, the now voluminous body of scholarship on the abundance-conflict relationship has, to a large extent, fallen short of reaching a definitive consensus, hampered by differences in the coding of civil war, differences in model estimation, and uncertainty about the causal mechanisms underpinning the abundance-conflict relationship, which for the most part remain unspecified. Even the meta-analyses fail to find common ground. Ross's summary of the findings from thirteen cross-national studies suggests little apparent consensus on the resourceconflict relationship across five dimensions: conflict onset, conflict duration, the type of civil war, the type(s) of resource, and the underlying causal mechanisms.<sup>28</sup> The only identifiable regularity is that oil dependence affects civil war initiation, not duration, with the reverse holding true for gemstones, coca, opium and cannabis. Hegre and Sambanis' global sensitivity analysis of 88 variables finds the oil-exports-to-GDP variable to be a marginally significant predictor of low intensity armed conflict, not civil war, while other commonly used measures of resource dependence are insignificant.<sup>29</sup> And in a more recent study, Ross finds exogenous measures of oil, gas, and diamond wealth to be robustly correlated with the onset of civil war, with the caveat that these findings are based on a small number of cases and sensitive to certain assumptions.<sup>30</sup>

The proliferation of datasets, methods, and models, not to mention findings, underscores the inherently complex relationship between resource abundance and conflict; the existence of multiple mechanisms and causal pathways that—even holding resource characteristics constant—vary in their relevance over time and space. Add to this the fact that a related but largely disconnected literature argues that it is scarcity, not abundance, which constitutes the primary driver of conflict.

#### **RESOURCE SCARCITY AND CONFLICT**

Turning to the scarcity-conflict link, scholars argue that we are entering an era of warfare driven by resource scarcity—a global scramble for oil, natural gas, minerals, and water—particularly where competition for valuable resources overlaps with deep-rooted ethnic, religious, or tribal cleavages.<sup>31</sup> Others acknowledge that resource or environmental scarcity, while not sufficient as a cause of violent conflict, is more likely to be a trigger when accompanied by increases in population density or large-scale population displacements, which in turn give rise to changes in resource access or distribution. Still others point to the absence of a link between scarcity and conflict.

In contrast to claims by "abundance-theorists" that no statistical evidence and very little case study evidence exists to link agricultural commodities to either the initiation or the duration of civil war,<sup>32</sup> proponents of the scarcity hypothesis note that most armed conflict occurs in regions with agrarian economies—regions characterized by the absence of lucrative resource deposits.<sup>33</sup> An example is Rwanda, a distinctly agrarian economy, where several arguments suggest that the 1994 genocide was caused, in no small measure, by the scarcity of arable land, plummeting prices for agricultural produce, and poor institutional quality.<sup>34</sup> A related argument suggests that violence associated with agricultural production is more likely to be structural—whereby given social structures or institutions systematically deprive people of their basic needs—implying that the link between agriculture and violence may not be direct, running instead through factors such as poverty, an urban bias that results in excessive taxation of the agricultural sector, through the state and its finances, or through environmental scarcity.<sup>35</sup>

The Rwandan experience, while instructive, cannot be broadly generalized.

Findings from cross-national studies, such as Hauge and Ellingsen's<sup>36</sup> analysis of the determinants of civil war (between 1980-92) and armed conflict (between 1989-92), suggest that changes in population density, deforestation, land degradation, and water scarcity all have positive and significant effects on the number of battle deaths. Other cross-national studies utilize different variants of the dependent and independent variables to generate a wide range of findings:<sup>37</sup> that rural population density, together with renewable resource wealth, increases the risk of armed conflict;<sup>38</sup> that precipitation shortfalls affect growth, in turn affecting the incidence of armed conflict;<sup>39</sup> that water scarcity decreases while precipitation shortfalls increase conflict risk, with no significant effect for land degradation;<sup>40</sup> that population density, soil degradation, and water scarcity have a mixed effect on armed conflict;<sup>41</sup> that rapid climate changes exacerbates the migration-conflict link;<sup>42</sup> and that conflict can either cause the population to decline faster than resources are destroyed, leading to abundance, or resources can be destroyed faster than the population declines, leading to greater scarcity.<sup>43</sup>

Other scholars suggest that there is little in the way of evidence to support the scarcity-conflict relationship. Theisen<sup>44</sup> uncovers little support for the link between eco-scarcity—population density, soil degradation, deforestation, water scarcity—and civil war, finding more support for poverty and dysfunctional institutions as causes of civil violence. Hegre and Sambanis<sup>45</sup> also fail to substantiate the link between population density, civil war and armed conflict, as do Collier and Hoeffler<sup>46</sup> and Buhaug and Rød,<sup>47</sup> whereas Esty et al.<sup>48</sup> question the existence of a direct link. Simon<sup>49</sup> argues that population growth should help prevent conflict given an accompanying increase in state incentives to create conflict-preventing institutions with spillover effects in other problem areas. And Sukhre<sup>50</sup> and Klare<sup>51</sup> note that while environmental scarcity threatens livelihoods, it fails to effectively increase the potential for violent conflict with the state, absent a direct-threat to powerful political interests.

Still other scholars have identified problems with the way in which the scarcityconflict relationship has been examined. Gleditsch,<sup>52</sup> in particular, suggests that much of the empirical work addressing this relationship has been overly simplified, insofar as it ignores the potential mediating roles of key economic and political variables, fails to address issues of reverse causality, uses the potential for future conflict as evidence to support the argument, selects on the dependent variable, and is unclear about the appropriate level of analysis. Gleditsch also notes that case studies have rarely, if ever, included control groups and that international and civil environmental conflicts should be studied as different phenomena. Along similar lines, Theisen<sup>53</sup> suggests that the use of aggregate data obscure smaller and more local conflicts, conflicts short of full-blown civil wars, in which the state plays a marginal role. He indicates that methods which permit us to uncover the mechanisms and feedback loops underlying the scarcity-conflict relationship are clearly needed to move beyond tests for a direct link between scarcity and violence and distinguish between absolute scarcity and distributional issues.<sup>54</sup>

### FIGURE 1: POSSIBLE PATHWAYS RELATING ABUNDANCE, SCARCITY, AND CONFLICT



Note: Path 1 specifies resource abundance as the primary cause of violent conflict; path 2 specifies resource scarcity as the primary driver of conflict; paths 3 and 4 depict the links between scarcity and abundance, with scarcity breeding abundance and abundance breeding scarcity, respectively.

Add to these concerns, many of which are applicable to empirical studies examining the abundance-conflict link, the need to analyze abundance and scarcity in tandem, rather than as rival hypotheses. For if "every economic era is based on a key abundance and a key scarcity,"<sup>55</sup> then it seems reasonable to suggest that the two could be inextricably linked, as depicted in Figure 1. Thus, rather than considering abundance and scarcity as rival causes of conflict (paths 1 and 2), we could consider their effects in tandem (path 3 or path 4), paying greater attention to the underlying mechanisms connecting scarcity to abundance, and vice versa. Alternatively stated, does abundance, under certain conditions, breed scarcity? And does scarcity, under the right conditions, breed abundance? Consider some potential linkages between abundance and scarcity.

### COMPLEX INTERDEPENDENCIES: THE "ABUNDANCE OF SCARCITY" AND THE "SCARCITY OF ABUNDANCE"

#### Does Abundance Breed Scarcity?

The idea behind the resource curse, which is also referred to as the paradox of plenty, is the counterintuitive finding that countries rich in natural resources, such as minerals and fuels, tend to experience lower levels of economic growth and poorer development outcomes, when compared to countries with fewer natural resources.<sup>56</sup> Focusing on growth and not conflict, pioneering studies by Auty<sup>57</sup> and Sachs and Warner<sup>58</sup> were among the first to test the resource curse hypothesis systematically,

pointing to outcomes such as the Dutch disease, revenue volatility, excessive borrowing, and corruption. Extending the basic logic behind the resource curse helps us connect the dots from resource abundance to scarcity.

In economies dominated by natural resources, the resource profile—the balance between lootable and nonlootable<sup>59</sup> resources in the economy—and the mode of extraction—whether extraction is carried out by small-scale artisans or large industrial firms—form a revenue opportunity structure for rulers and rebels alike.<sup>60</sup> If revenue forms the "sinews" of the state and a lack of revenue increases the risk of state collapse, then the resource profile determines the ability of rulers to get revenue whereas state spending determines how rulers actually use the revenue at their disposal; whether they consume it frivolously or invest it prudently in strengthening the military, providing social welfare, and improving their capacity to earn future revenue. Taken together, the revenue opportunity structure and patterns of state spending determine the ability of rulers to achieve political order.

Absent this ability, the bargain between rulers and subjects—the notion that in exchange for paying their taxes, citizens receive government-enforced rights and government-provided services—is effectively eroded. Under these conditions, the powerful have little stake in providing protection, enforceable rights to land or water, or public services necessary to induce subjects to pay taxes in the first place. Apart from ensuring resource extraction under the most profitable terms, the social compact is all but nullified, with rulers engaging in a progressive de-institutionalization or withdrawal from the public realm. This of course, is an extreme, though not altogether an uncommon, scenario.

The abundance of raw materials can and does open the door to exploitation and the rapid descent into scarcity, as exemplified by countries rich in timber, such as Myanmar (Burma), Cambodia, and Liberia,<sup>61</sup> where leaders reap significant profits from timber exports. Timber is a relatively easy to extract resource. Forests can be cleared at a rapid pace, thus making room for new population centers or new farmland, meanwhile intensifying environmental degradation.<sup>62</sup> Even absent a predatory state, as in Brazil, the low quality of arable land available to farmers from deforestation<sup>63</sup> means that rainforest must be continually cleared to maintain access to nutrient-rich farmland. Conflict over land increases as farmers attempt to eke out a living in closer proximity to other farmers.

Paradoxically, in case after case, the benefits of resource abundance are largely unfelt by local residents. A study of Chinese provinces by Zhang, Xing, Fan, and Luo<sup>64</sup> reveals that residents of provinces with abundant resources have lower per capita incomes than their counterparts in resource-poor provinces.

#### Does Scarcity Breed Abundance?

In a different era, natural resources were freely abundant, while manufactured commodities were scarce. Technology—instrumental in turning scarcity into abundance<sup>65</sup>—changed the equation. Today, it is largely reversed. There is a growing

scarcity of natural resources and a flood of low-cost manufactured goods, raising the associated question of whether scarcity breeds abundance.

In the 1960s, Boserup<sup>66</sup> argued that pressure on resources in agriculturallydependent societies lead to innovation and economic diversification. Population growth, in particular, was the key driver of technological change in agriculture. Boserup's theory, contra Malthus, who argued that the "power of population" far outweighed the earth's ability to provide subsistence,67 explained why successive stages of agrarian change were characterized by denser human settlement and higher productivity as a result of innovation. As rural populations increased, the transition was made from forest fallow to bush and short-rotation fallow, and finally to annual and multi-cropping systems, with each successive stage characterized by higher levels of productivity.

And yet, if we stand to lose somewhere in the area of 7-10 million hectares of arable land each year as a result of urbanization, erosion, and salinification,68 will our reliance on technology, our sequencing of the rice genome for instance, result in a successful reconfiguration of the plant's photosynthetic system to ensure future food security? Given the dependence of some 3 billion people, most of the world's poor in particular, on rice as a primary food source,69 we simply cannot afford failure. Krautkraemer<sup>70</sup> notes that while scarcity might lead to technological change and spur

as two sides of the same coin.

- growth, it comes at a high cost. Disaggregating Most scholars don't grapple growth, it commodities—goods used in with abundance and scarcity production-and amenities-goods with no selective benefits or basic necessities such as clean water and air-he argues that humanity has transformed

scarcity into abundance in commodity terms, but the same cannot be said for amenities, which have gone unprotected as a result of market and government failures.

### **CRAFTING POLICY FOR A COMPLEX NEW WORLD**

A necessary first step towards crafting effective policy involves a richer conceptualization of conflict, its key drivers, and their connections. One approach is to consider the onset of civil war in resource abundant and resource-scarce countries as influenced by a set of processes that interconnect political, economic, and social factors, a prime example of a complex adaptive system, in which many decisionmakers, each with their own characteristics and behaviors, interact with and change both the physical environment and others, leading to nonlinear and path-dependent dynamics, as depicted in Figure 2. While multivariate statistical models of the resource-conflict relationship have established select empirical regularities, these studies are constrained by their subscription to either the abundance-conflict or scarcity-conflict paradigm. Most scholars don't grapple with abundance and scarcity as two sides of the same coin.

If scarcity can give rise to abundance, and abundance to scarcity, then the coexistence of the two-as in the Delta Region of Nigeria-takes us into a complex new world, characterized by unprecedented wealth and unrivalled poverty, a rise in violent conflict between local communities; between members of nominally rival ethnic groups; between insurgents and the government; and between various organs of the government itself. The region's vast oil wealth generates some USD 10 billion in yearly revenue, while the host environment is devastated by oil spills, gas fires, global warming, soil and water pollution. Contrast the daily struggle of the Delta's inhabitants with the vast wealth generated by the revolving door of army coups in the 1980s and 1990s, making Nigeria's military dictators—Abacha, Abubakar, and Babangida—some of the wealthiest men on the planet.

In crafting policy, we therefore need to take into account the multiplicity of causal factors for conflict, as well as complicated interactions between actors and associated factors, on the one hand, and interactions between the factors themselves on the other hand. All this while acknowledging the difficulty associated with collecting useful data in conflict zones and the existence of a limited set of "natural experiments" to test our arguments. For if "the cyclical problems of scarcity and abundance are deeply rooted in the human condition and human society,"<sup>71</sup> and if the "blowback" is only just beginning,<sup>72</sup> then we need to be far more attuned to the united consequences of our actions. Under these circumstances, five policy suggestions are recommended: differentiate, decentralize, downplay, decertify, and disaggregate.





Note: This figure maps the relationship between ruler and rebel spending, revenue from natural resource extraction, and conflict that emerges when rival actors vie for control of the same, lucrative, resource rich territory. This particular schema was implemented computationally, to capture distinct mechanisms and feedback loops, and then assess the effect of actor behavior, resource type and location, and factors such as ethnicity and relative deprivation on conflict incidence and duration.<sup>73</sup>

#### Differentiate: "Bloody" from Conflict-Free Commodities

As a first step towards preventing abundance from turning into scarcity, governments must ensure transparency in resource management and utilize windfalls for societal development.<sup>74</sup> Taking this a step further by arguing for effective regulation and enforcement beyond transparency, and in an effort to ensure that economic actors profit less from war and more from peace, Snyder<sup>75</sup> advocates the creation of a "two-tier market" for precious hardwoods, coltan, and other gemstones linked to armed conflict. The idea is that the governments of resourceabundant countries would be responsible for certifying extraction in conflict-free zones. By failing to do so, they would receive substantially discounted prices for their commodities, given market restrictions against purchasing uncertified, "bloody," or "conflict" commodities. This method has enjoyed a modicum of success with diamonds. De Beer's, a single company, retains a monopoly over distribution and, rather ironically, has artificially curtailed abundance in order to produce scarcity. The problem, however, in applying the same model to other extractive sectors such as precious hardwoods, is that these sectors are characterized by a broader array of players-an abundance of the wrong kind.

#### Decentralize: Empower Small Holders, Local Communities, and Local Governments

In order for local communities to benefit from extraction where abundance prevails, and in an effort to prohibit reckless extraction that breeds eco-scarcity, decision-making needs to be decentralized. As such, decentralization needs to address the problems of social exclusion and government non-responsiveness-key drivers of disaffection and armed opposition<sup>76</sup>—providing those directly affected a greater stake in ensuring sustainable resource use as well as a greater share of the profits. Citing Chile as a model for the successful use of mining resourcesfacilitating growth by increasing social spending on essential goods such as health and education-Labonne<sup>77</sup> suggests that an ideal mining project would meet the following four-fold criteria: "Be mindful of internalizing negative externalities (environmental impacts, provisions for mine closure, social costs); provide revenue to the government; provide income and social benefits to the local communities; generate good returns on investments for shareholders."78 In other instances, shifting ownership of the means of food production has made a substantial difference to food security. Efforts by the Komati Downstream Development Project (KDDP) in Swaziland to irrigate 7400 hectares of land, the costs of which were borne by the Government of Swaziland and participating smallholders, resulted in the establishment of self-governed smallholder associations, the design and implementation of measures to mitigate the environmental and social impacts of the scheme, and the development of irrigated smallholder farms growing sugar cane.79

#### Downplay: Prevent Ethnically-Biased Policy

In multi-ethnic societies, the temptation to distribute resources along ethnic

lines can be politically expedient, and ethnicity, in turn, can be used to secure group benefits through the control of government. Take the case of Kenva, where the most ethnically diverse districts also tend to be the most conflict-prone, and where conflict over land rights is the central cause of ethnic clashes.<sup>80</sup> Ethnic voting occurs when members of a cultural sub-group group show a disproportionate affinity at the polls for a particular political party and tend to vote as a bloc. By expressing solidarity, members of ethnic groups seek to elevate their leaders to positions of power, thereby gaining collective political representation. If voter turnout is high, and if all voters choose parties associated with their own ethnic identities, then elections effectively resemble an ethnic "census." The stakes are high when either abundance or scarcity is predominant, and higher still when the two co-exist, further highlighting disparities in wealth. Downplaying the ethnic card by eliminating clearly identifiable and, at times, state-mandated ethnic markers, discarding ethnically biased or preferential policies, ensuring adequate representation of minorities (or majorities as the case may be), and tying the distribution of revenue and aid to programs that require interethnic cooperation, all serve to defuse ethnic tensions and move groups away from a zero-sum mentality where one group's gain is viewed in terms of another's loss.

#### Decertify: Recognize Breakaway Units that Provide Greater Order

With the population of conflict-ridden societies like the DRC, Afghanistan, and Ethiopia expected to double in the next twenty years and the "unprecedented" number of refugees fleeing conflict and persecution, some 37 million in 2007,<sup>81</sup> there are significant reasons for concern. If the problem of state failure, aided and abetted by resource abundance and scarcity, and the resulting rise in violent conflict are to be addressed, we need to acknowledge the growing disconnect between actual levels of

control and a state's territorial boundaries. The decertification of states that no longer exercise sovereign control or generally lack legitimacy—the creation of "halfway-house for countries that are at some later point able to reconstitute their sovereign authority"<sup>82</sup>—is a controversial affair, but one that deserves serious consideration given the apparent paucity of alternatives. If, as Herbst suggests, the litmus test for the participation and recognition of sub-national units should be whether the breakaway area provides more political order alone than provided for by the sovereign government,<sup>83</sup> then

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equally clear and conventional criteria defining the inability to project authority and provide basic services need to be specified. This would constitute an important first step towards decertifying those quasi-states that would vanish absent the protection afforded to them by the egalitarian ideology of the prevailing international normative regime.<sup>84</sup>

#### Disaggregate: Actors, Resources, Revenue, and Conflict

The plea for disaggregation is one that seems to have fallen largely on deaf ears. The highly aggregated "primary commodity export-to-GDP" ratio continues to surface in study after study. Distinctions between resource characteristics, ruler and rebel attributes, different types of conflict, and the size of affected territories are just a few of the factors that would advance our understanding of the complexity outlined here. A shift to methods that are more process-oriented would also help us sort through some of the indeterminacy, explaining at the most basic level why different conditions lead to similar outcomes, and why similar conditions lead to divergent outcomes. As would the ability to conduct "what-if" types of experiments, with more sophisticated natural resource extraction models, more realistic environments, strategy sets for relevant actors, and a range of natural resources types and distributions. Running experiments to first capture or retrace (in a statistical sense) dynamics and characteristics of real conflicts, and then exploring counterfactual or virtual histories would add immensely to our knowledge of variables and mechanisms pertinent to the relationship between abundance, scarcity, and violent conflict.

#### CONCLUSION

Ours is a complex new world, characterized by unprecentedent wealth and unrivalled poverty, in which resources will play an ever more critical role. Crafting effective policy therefore requires a richer conceptualization of conflict and its key drivers, paying particular attention to the connections between resource abundance and scarcity.

#### SCARCITY, ABUNDANCE, AND CONFLICT

#### Notes

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