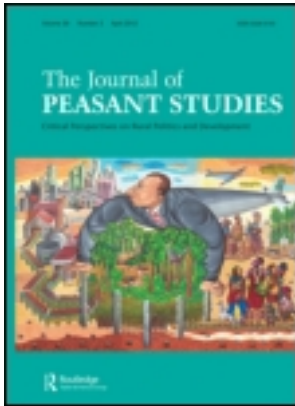


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Forum on Global Land Grabbing Part 2

Messy hectares: questions about the epistemology of land grabbing data

Marc Edelman

Recent research on land deals reports gigantic quantities of hectares seized, with relatively little regard for the solidity of the evidence or for considerations of scale other than area. This commentary questions the usefulness of aggregating data of uneven quality and transforming it into ‘facts’. Making claims on the basis of problematic evidence does not serve agrarian and human rights activists well, since it may undercut their legitimacy and make it difficult for them to identify their adversaries. Studying land tenure and corporate ownership is inherently complicated, with intractable legibility problems. Social scientists must subject their sources to critical scrutiny and understand the contexts of their production, preservation and dissemination. An accelerated process of dispossession is clearly in motion, but countering it effectively requires precise and accurate data, which are difficult to obtain. Oversimplified claims may not only undermine efforts to counter specific cases of land grabbing – and claims about land grabbing more generally – but may also divert attention from less publicized cases and from the actors behind the land grabbing. They also tend to reduce land grabbing to a quantitative problem rather than focusing on the social relations that it may or may not transform.

Keywords: land grabbing; large-scale land acquisitions; farm ownership; foreign investment; land tenure; Latin America; Africa

One hectare may not be equal to another... Adding up hectares whose value and profitability vary does not mean adding like to like, and there is nothing... that makes valid the assumption that the owner of ten hectares of land is twice as rich as the owner of five hectares... The old measures based on labor-time and on the amounts of seed are definitely more commensurable and ‘addable’.

– Witold Kula, *Measures and Men* (1986, 35)¹

Land grabbing, as Eric Holt-Giménez remarks, ‘is grabbing headlines’ (2012, 1). After GRAIN ignited a firestorm with its first report on land grabbing (2008) and *The*

This is a much revised and expanded version of a paper presented at the Plenary Session Roundtable on Methodologies: Identifying, Counting and Understanding, International Academic Conference on Global Land Grabbing II, organized by the Land Deals Politics Initiative (LDPI), Cornell University, 17–19 October 2012. I am grateful to Jun Borrás, Andrés León, Carlos Oya, Katherine Verdery and this journal’s reviewers for comments that contributed to sharpening an earlier draft.

¹The original Polish title of this important work, *Miary i ludzie*, might more accurately be rendered in English as ‘Measures and people’, though this non-gendered translation would lack the catchy alliteration.

New York Times Magazine gave its imprimatur to the concept with a lengthy article by Andrew Rice (2009), a veritable deluge ensued of op-eds, reports by non-governmental organizations (NGOs) and multilateral institutions, scholarly papers, books for specialist and non-specialist readers, and articles in leading social science and general science journals. In addition to GRAIN's extensive database, which formed the basis for the initial global analyses, the Oakland Institute maintains a catalogue of land deals in Africa, and a new website by The Land Matrix purports to provide comprehensive, up-to-date information on large-scale land acquisitions throughout the world.²

Claims about the scale of the problem appear to be escalating as well. As *The Economist* reported in 2011,

the International Land Coalition, a non-governmental organization, reckons almost 80 m hectares have been subject to some sort of negotiation with a foreign investor, more than half in Africa ... This estimate is far higher than a previous one, by the World Bank, which last year [i. e. 2010] said that foreign investors had expressed interest in 57 m hectares. It is higher still than one by the International Food Policy Research Institute (IFPRI) which put the figure in a 2009 study at 15 m–20 m hectares. (*Economist* 2011)³

In 2011 Oxfam asserted – topping all previous estimates – that ‘227 million hectares of land – an area the size of Western Europe – has been sold or leased since 2001, mostly to international investors. The bulk of these land acquisitions has taken place over the past two years’ (Oxfam GB 2011, 2). Michael Kugelman, who cites this Oxfam study, reports it as ‘nearly 230 million hectares’ (2012, 1).⁴ At times, the lowly hectare – even in multiples of a million – ceases to be a sufficient measure for communicating the immensity of the

²GRAIN [Genetic Resources Action International] and the Oakland Institute are both small NGOs, highly critical of land grabbing and of claims about ‘win-win’ scenarios (on the Oakland Institute’s approach, see Daniel and Mittal 2009). In contrast, the Land Matrix launched its database in April 2012 during the World Bank’s Annual Conference on Land and Poverty. The Bank has historically argued for market-based ‘win-win’ land projects that provide returns to investors and income streams for local populations (World Bank 2007, 92). The Land Matrix effort was initially a joint project of the International Land Coalition (ILC), the Center for Development and Environment (CDE, Switzerland), the German Institute of Global and Area Studies (GIGA), the German Society for International Cooperation (GIZ) and the Center for International Cooperation in Agronomic Research for Development (CIRAD, France). It has since grown to include many other funders and ‘partner’ organizations. See Land Matrix (2012).

³The *Economist* article acknowledges that ‘It would be wrong to draw a line between these numbers so as to conclude that land deals have grown fourfold. Since most are secret, knowing what to count is difficult, and the figures refer to different periods’ (2011). The article errs in describing the International Land Coalition as a non-governmental organization. It is, in fact, an alliance that includes international financial institutions, such as the World Bank and the International Fund for Agricultural Development (a United Nations agency); intergovernmental institutions, such as the UN Food and Agriculture Organization; donor NGOs, such as Oxfam; and various advocacy NGOs.

⁴What, we might ask, is an additional three million hectares when the scale is this big or when it’s not clear what’s actually being aggregated? The Oxfam report appears to be seeking the largest number of hectares without any explicit methodological criteria or justification. The Land Matrix ‘database documented 1006 deals since the year 2000 amounting to 70,217,083 ha of land which equals the size of *half of Western Europe*’ (italics added), i.e. one-half of Oxfam’s estimate if Western Europe is the point of comparison and a bit less than one-third if the hectares themselves are compared. See ILC (2012). Cotula (2012, 653) points out that the Land Matrix estimate (on which the Oxfam claim is based) isn’t really dramatically greater than other estimates, since only 67 million hectares of the 227 million have been ‘verified’ and the database includes mining-, timber- and tourism-related acquisitions.

phenomenon and square miles are deployed both to drive home the vast scale and perhaps to placate Anglophone readers still ill at ease with the metric system.⁵ ‘In northern Mozambique, a Brazilian-Japanese venture plans to farm more than 54,000 square miles – an area comparable to Pennsylvania and New Jersey combined – for food exports’, Kugelman declares in a *New York Times* op-ed (2013).⁶ Lest this sort of US-centric reference appear obscure to non-US audiences, the aforementioned *Economist* article helpfully notes that the 80 million hectares of land that the International Land Coalition (ILC) says has been under negotiation ‘is more than the area of farmland of Britain, France, Germany and Italy combined’ (*Economist* 2011).

Sometimes grabbed area is reported as a percentage of national territory, to great dramatic effect. Oxfam declared in 2012 that

[m]ore than 30 per cent of the land in Liberia has been handed out in large-scale concessions in the past five years, often with disastrous results for local people. In Cambodia, NGOs estimate that an area equivalent to between 56 and 63 per cent of all arable land in the country has been handed out to private companies. (Geary 2012, 2)

Rulli *et al.*, similarly, claim that ‘up to 19.6% [of the national territory has been grabbed] in Uruguay’ (2013, 893).⁷ Surprisingly, a 17-country study by the United Nations (UN) Food and Agriculture Organization (FAO) failed to capture this troubling datum about Uruguay and indicated that ‘the phenomenon of land grabbing is in an early stage [in Latin America] and is restricted to two large countries: Argentina and Brazil’ (Gómez 2011, 13).⁸ Such contradictions speak to both the lack of consensus about how to define land grabbing and to less commonly discussed methodological and epistemological issues.

An additional problem involves the inclusion of defective data points in the databases and – all too often – maintaining cancelled, delayed, scaled-back or non-existent deals even after scholars and activists have issued correctives. Petrus Brenner (2012), for example, reports that when the Land Matrix database was first released,

In its investor top 10, I immediately noticed the entry of ZTE International in the DRC [Democratic Republic of Congo] (2.8 million ha), Wuhan Kaidi in Zambia (2 million ha), and Daewoo in Madagascar (1.6 million ha). How can these be included? These land deals have never come to fruition. This is fairly common knowledge amongst those acquainted with such developments. ZTE only received 100,000 ha, which it is failing to develop; Wuhan Kaidi received only 79,300 ha; and Daewoo never received any land – a final leasehold contract for the

⁵Pearce (2012), writing for a mainly US and British audience, usually reports areas in acres. Since one hectare equals 2.47 acres, this has the subtle effect of citing much larger numbers.

⁶As of early 2013, the full implementation of the ProSavana plan was still under discussion and far from certain. To gloss it simply as a single export-oriented ‘venture’ farming 54,000 square miles is a gross oversimplification of a highly complex project that includes research, extension and a regional master plan (see Chichava *et al.* 2013). ProSavana may end up facilitating land grabbing, even though its intention is to incorporate small producers. But the pathways through which any eventual land grabbing occurs there are certain to be considerably more varied and complicated than is suggested in most of the literature on this case. For contrasting views, see UNAC (2012) and GRAIN (2012), on the one hand, and *O Pais* (2012), on the other.

⁷They also suggest that ‘0.7–1.75% of the world’s agricultural land’ has been grabbed (Rulli *et al.* 2013, 892, italics added).

⁸For more nuanced views of the FAO data, see Borrás, Franco, *et al.* (2012) and Borrás, Kay *et al.* (2012).

land was in fact never signed (as the GIZ – one of the Land Matrix partners – already reported). The initial Daewoo MoU [memorandum of understanding] was also for 1.3 million ha, not 1.6 million ha.... I pulled out 127 entries of the 466 Africa entries that are either duplicates, unverifiable, or simply incorrect.

The Land Matrix, to its credit, has since taken additional measures to validate reports on the land deals it lists, but criteria for cross-checking are notably vague and inconsistent. The second-highest, “reliable” (confirmed) rating is conferred after checking by the Land Matrix Partnership through questionnaires submitted to organizations working in the host country....The exact process for in-country checking varies from country to country. It includes personal interviews or direct personal knowledge of the transaction as well as access to research that has not yet been published’. (Anseeuw, Boche *et al.* 2012, 48–49).

These qualifications notwithstanding, the very nature of such data compilations is to reinforce both the appearance of scientificity and the hectare-centric alarmism of the land grabbing discussion.

This commentary intends to inject three notes of caution into the land grabbing discussion. First, land tenure is not as easily studied or documented as many reports on land grabbing appear to assume. Second, the fetishization of the hectare – or, really, of large quantities of hectares or even of square miles – as the most important defining characteristic of land grabbing is fraught with conceptual problems and leads researchers and activists to ignore other, arguably more significant, issues of scale, such as the capital applied to the land, the control of supply chains, and the labour relations grounded or brought into being on those hectares. Third, claims with a questionable or dubious evidentiary base call into question the legitimacy and probity of those making the claims. Social movements and social justice-oriented NGOs are rightly concerned about the phenomenon of land grabbing, but their demands for better land governance at the national and international levels will have more credibility if buttressed not just by solid data on grabbed areas but by a more complex understanding of who the grabbers are, what they are doing or intend to do with the land, and what the social, economic and environmental impacts have been or are likely to be. Both GRAIN and the Land Matrix, and many researchers who employ their data sets, have clearly attempted to do this. However, a key conundrum remains for both researchers and agrarian and human rights activists. An accelerated process of dispossession is clearly in motion, but countering it effectively requires precise and accurate information, which is difficult to obtain. In the absence of accurate information, oversimplified, outlandish or sensational claims may not only undermine efforts to counter specific cases of land grabbing – and claims about land grabbing more generally – but may also divert attention from less publicized cases and from the actors behind the hectares.

It is not difficult to find caveats regarding the accuracy of the hectare-count in the literature on land deals. A major World Bank study, for example, acknowledged that

[c]ountry level data collection was complicated by the generally limited amount of information collected from investors preapproval and especially postapproval of the investment, the lack of data coordination between different agencies and levels of government, and in some cases the complete absence or questionable provenance of important details, such as the investment’s location and implementation status. (Deininger and Byerlee 2011, 145)

Rulli *et al.*, similarly, refer to ‘the imprecision and incompleteness of the land-grabbing data’ and concede that ‘[l]and grabbing data are inherently inaccurate and incomplete because of the rapid pace of the phenomenon, its lack of transparency, and the absence

of a standard criterion to classify and report these acquisitions' (2013, 893). An analysis of African case studies by Anseeuw, Cotula and Taylor warns that '[t]he evidence presented is indicative; much of it cannot be taken at face value, and neither can it necessarily be generalized' (2012, 422). The tables accompanying a 2009 report from the International Food Policy Research Institute (IFPRI) contain the following disclaimers:

IFPRI has compiled this table from media reports. The responsibility for the accuracy of the information presented here, however, lies with the reporting media... Well-documented examples are scarce, details on the deals are often murky, and some reports are contradictory'. (von Braun and Meinzen-Dick 2009, 2, 9)

Kugelman (2012, 3) inserts a small-print footer in a table of the 10 'largest land deals' which cautions that '[t]his information is largely derived from media reports. Its accuracy cannot be confirmed, and the status of these deals may have changed by the time of publication'. The Land Matrix website, which provides most of the data for Rulli *et al.*, among others, assigns each datum a low, intermediate or high 'reliability score' based on the source(s) of information (Anseeuw, Boche *et al.* 2012, 48). It concurs with the critics when it notes that

[m]any schemes have failed to materialise or have suffered serious delays, with the difficulties of creating and running large plantations in often complex contexts having often been underestimated. Where acquisitions bring good returns, this is often linked to rent capture, for instance through control of supply chains or increasing land prices. (Anseeuw, Wily *et al.* 2012, 4)

These cautions, however, are frequently given insufficient methodological expression, particularly in global analyses that aggregate data on grabbed area derived from a multiplicity of sources. In other words, many researchers acknowledge the obvious – that land deal data are frequently problematical – but they then go on and analyse those data as if they were generated in a highly rigorous way. Meta-analyses in medical research aggregate data from studies carried out under different criteria, but at least they have very strict benchmarks for including studies, weigh them according to sample size and attempt to adjust for other validity problems. Aggregating land deal hectares, in contrast, may produce and even augment statistical errors because the data probably do not vary randomly but very likely often vary all or mostly in one direction (i.e. up).⁹ By their very nature, as Gitelman and Jackson observe, '*data are aggregative*':

They pile up. They are collected in assortments of individual, homologous data entries and are accumulated into larger or smaller data sets. This aggregative quality of data helps to lend them their potential power, their rhetorical weight. (More is better, isn't it?) Indeed, data are so aggregative that English usage increasingly makes many into one. The word data has become what is called a mass noun, so it can take a singular verb. Sentences that include the phrase 'data is...' are now roughly four times as common... as those including 'data are...' despite countless grammarians out there who will insist that data is a plural. (2013, 8, original italics)

Assertions about large numbers of supposedly homologous hectares, when aggregated in tables in a journal, NGO report or online database, take on a precision and facticity that

⁹The World Bank concedes that 'both media coverage and postings by users are likely to impart an upward bias' (Deiningner and Byerlee 2011, 50).

may not be merited by the underlying evidence.¹⁰ Expressing the grabbed area as exponents or ‘scientific notation’ (e.g. ‘316 land deals covering a total area of 47×10^6 ha’, [Rulli *et al.* 2013, 897]), especially in an article in a major general science journal such as the *Proceedings of the National Academy of Sciences*, subtly increases the impression of scientificity and quantitative rigour.¹¹

Are land grabbing alarmists right to be alarmed? Certainly. Deeply troubling processes of dispossession are doubtless accelerating in various world regions. The question, however, is how this is to be understood. The focus on ever larger geographical extensions – measured in thousands or even millions of hectares – may distract from other critical questions about land grabbing and may also posit as social facts claims that are ultimately less clear cut or even dubious. A cavalier attitude toward data may complicate efforts to oppose land grabbing by simultaneously delegitimizing activists and leading them to charge quixotically at imaginary or poorly identified targets, which in turn contributes to their further delegitimization.

Land grabbing alarmists are also insufficiently appreciative of the complexities and ambiguities of studying and measuring land tenure on the ground. Ethnographic or historical analyses of landholding patterns force researchers to confront the quality of the data in ways that analyses at larger scales or advocacy tracts are not required to consider.¹² While such approaches are necessarily micro-focused and labour-intensive, and thus of limited usefulness for making claims about global trends, they are much more promising for uncovering on-the-ground realities and for avoiding the delegitimizing impact of making spurious claims.¹³

Studying land tenure on the ground

In the 1980s and 1990s, I was involved in on-the-ground and historical studies of land appropriation, tenure and conflicts in two regions of Costa Rica, one a province and the other a cantón (roughly equivalent to a county) (Edelman 1992, Edelman and Seligson 1994). Both regions were obviously small and at opposite ends of a small country, and

¹⁰In some cases, the grabbers themselves are not even sure of how much land they have grabbed. Pearce quotes one would-be investor in South Sudan as saying ‘The size of the land leased to us came from the Sudanese side. It wasn’t a scientific figure, not well defined. For me it’s not consequential whether it is really 600,000 hectares or 200,000 hectares. We can renegotiate if necessary’ (2012, 43, see also 95).

¹¹Pearce (2013) provides a succinct critique of Rulli *et al.*’s data on land and water grabs.

¹²This is true not just for land tenure data. The national accounts statistics used by the International Monetary Fund (IMF) – widely considered ‘objective’ and reliable – are developed through a remarkably contentious process of give-and-take between IMF missions and national governments (Harper 2000, Jerven 2013). Overzealous advocacy presents a series of problems beyond the contentious processes that may lie behind the generation of national accounts and similar statistics. Chapin, for example, in a hard-hitting review of several environmental advocates’ works on deforestation in Central America, catalogued numerous instances of authors’ deploying for their shock value mistaken, distorted, irrelevant or ‘strange’ data (Chapin 1995).

¹³Brütigam, among many others, describes various cases of problematical data being recycled. For example, ‘Loro Horta’s reports that Chinese interests were seeking or had acquired large land leases in Mozambique turned out to be false, but nonetheless appeared as hard data in land grabbing reports by reputable scholars and institutions, including IIED [International Institute for Environment and Development], FAO, IFAD [International Fund for Agricultural Development], IFPRI and GRAIN’ (2013, 97). World Bank researchers in Pakistan reportedly made ‘[f]ield trips to cross-check the projects cited in media reports cataloged on the GRAIN blog. In none of these cases could evidence of any investments be found’ (Deininger and Byerlee 2011, 59).

one might reasonably question their relevance to debates over global land grabbing. In each place at various times, however, large landowners – many of them foreign – had amassed vast estates. When the recent furore over land grabbing began, two main questions occurred to me. The first was historical: How did the current wave of land acquisitions or land grabbing differ from what had occurred, say, in the Costa Rican Province of Guanacaste in the 1920s, when a single *latifundista* – a North American – had consolidated control over properties that I estimated at 133,808 hectares (Edelman 1992, 66, 364)? Here I will bracket the historical question, although in future work I hope to sketch out differences between this older land grabbing and new features of the current wave of land deals. These probably have to do mainly with issues of scale, the biofuels boom and energy extraction projects, the intensifying financialization of land and commodities markets, urbanization and industrialization (particularly in special economic zones), and the rise of sovereign wealth funds and state-run companies that operate abroad (Hall 2012, White *et al.* 2012).

The second question that occurred to me when concerns about global land grabbing emerged was epistemological and certainly much more complicated. Studying land tenure on the ground and over time is extraordinarily messy. It inevitably confronts the researcher with numerous methodological and epistemological enigmas. These come to the fore in local and regional studies, but they tend to be elided or at best downplayed in global analyses of the recent wave of land acquisitions. Carrying out rigorous small-scale, regional studies of land tenure involves a kind of labour-intensive archival research and local knowledge that is likely impractical for analyses of larger scale phenomena. Nevertheless, the question of ‘how do we know what we know’, which small-scale research unavoidably highlights, remains important in evaluating the evidentiary basis of the claims that are made about larger scales. To put it bluntly, scholars of land grabbing may need to be reminded of the old computer science adage, abbreviated politely with the acronym GIGO and, less decorously, as SISO.¹⁴ That is, if we input lousy data, we can only output questionable findings.

This section can only begin to enumerate the multiple forms of confusion and ambiguity that make understanding land tenure on the ground difficult. My main empirical referents here are Mexico and Central America, but it should be emphasized that other researchers’ work on different world regions (Verdery 2003) and on the history of measurement (Kula 1986) suggests that the problems I point to are not particular to the Americas.

Many titles specify areas that are in archaic units of measurement and that were calculated with antiquated surveying techniques. In much of Central America and Mexico, for example, surveyors from the seventeenth to the nineteenth centuries, who often did not know the rudiments of Euclidean geometry, measured large properties with a crude compass and a waxed cord of 50 ‘*varas castellanas*’ (‘Castilian yards’ or 41.9 meters) in order to inscribe titles in ‘*caballerías*’, a measurement of surface area variously described as the amount of land that a horse can plough in one day, a reward given to conquistadores who served in the cavalry, or a number of hectares that changed over time and that legal authorities considered to have distinct extensions in different countries and at different moments (Ots Capdequí 1959, 25–27, Barrett 1979, Edelman 1992, 379–380, Aguilar-Robledo 2009). When the boundaries of properties titled in this way were re-measured with modern surveying techniques in the early twentieth century and after, they frequently contained areas in hectares that were much larger than the supposed equivalent in

¹⁴For those whose memories don’t stretch back to the early years of computing, ‘Garbage In, Garbage Out’ or ‘Shit In, Shit Out.’

caballerías contained in the deeds. Landowners were then often permitted to claim the *demasías* or ‘excess lands’ and register them.

Smallholders, too, commonly registered titles or at least measured their holdings in old units, most commonly (in Central America) the *manzana*, equivalent to 0.69 hectares or (in Guatemala) the *cuerda* (with diverse equivalents). It is still not unusual to encounter peasants who report that they own, say, ten hectares and who then, in the next breath, indicate that it might really be ten *manzanas*.¹⁵

In Mexico, small maize farmers frequently reported the amount of land they cultivated in *almudes*, an old Spanish (and Arabic) unit of volume, not of area. This practice of measuring surface area with units of volume is so widespread around the world that Witold Kula, in his magisterial work *Measures and men*, termed it ‘astonishing’ (1986, 32).¹⁶ Typically, crop yields in such contexts are reported as the ratio of the volume of seed harvested to the volume sown. When harvests began to be measured instead in relation to the area sown, it often reflected a growing scarcity of land combined with an abundant labour supply (Warman 2003, 16). In Mexico, one *almud* of land was the surface on which a farmer could sow one *almud* of maize, spacing the plants at distances that presumably hadn’t changed much since before the arrival of the Spanish in the New World or, alternatively, adjusting the spacing according to the fertility of the soil. The *almud* in Puebla was roughly equivalent to 0.5 hectares, though in Chiapas it was closer to 0.67 hectares (Collier 1975, 153, Edelman 1980, 40).

In northwestern Costa Rica, boundaries between properties increased in importance in the late nineteenth and early twentieth centuries when cattle ranchers began to improve their breeds and when markets sprung up for agricultural commodities and valuable hardwoods, which, unlike transhumant livestock, were fixed in place. But property boundaries were often specified in vague terms in title documents or were natural features, such as rivers, that could and did shift over time, or large trees that died, fell down and rotted. Some boundaries were delineated with concrete markers (*mojones*) or stone cairns, but these too deteriorated and sometimes disappeared. A common judicial procedure in nineteenth- and early twentieth-century Guatemala and Costa Rica was called ‘*avivamiento de mojones*’, literally ‘reviving’ or ‘giving life’ to the boundary markers (Edelman 1992, Gaitán Lara 2010). Not surprisingly, bringing missing property markers back to life provided landlords with ample opportunities for expanding their holdings.

Smallholders often don’t have a precise idea of the extension of the land that they own or work and large landowners, when asked, frequently intentionally understate how much land they have, fearful of agrarian reform agencies, peasant land recuperators and

¹⁵Verdery’s book, *The vanishing hectare*, is a compelling account of on-the-ground land tenure messiness in post-socialist Romania. She also reports that smallholders sometimes expressed confusion about whether they owned an area in hectares or in ‘yokes’, an older local measure (2003, 152).

¹⁶According to Kula (1986, 29), ‘In Europe, from the early Middle Ages until the introduction of the metric system, there were two types of measures for cultivable areas: those derived from the labor-time for plowing and those derived from the amount of seed required’. Regarding the practice of using a volume of seed to measure surface area, Kula points out that seed tends to be sown thickly on good soils and sparsely on poor ones. This observation provides a pertinent reminder for land grab analysts who fetishize hectares. ‘[I]f we appraise the matter in terms of the economic value of a piece of arable land,’ Kula declares, ‘the measuring by the amount of seed had considerable merit because the value of one hectare may be far from equal to that of another, though the two are identical in area. The seed measure would offset the differences, and two plots of unequal area might thereby be “equated”, that is, shown to have virtually the same productive potential’ (1986, 31).

neighbouring property owners who might have designs on their holdings. This generalization is consistent with the manuals on rural survey research that have long warned that questions about resources – and land in particular – are likely to generate unreliable responses and dubious data (Yang 1955, 63). Indeed, as I remarked at the 2012 Cornell Conference on Land Grabbing, it is sometimes easier for a researcher to elicit information about wealthy individuals' sex lives than about their property or net worth. This also has implications, of course, for today's land deal databases, which accord higher reliability ratings to information that is 'locally verified' (see Brenner 2012).

Large landowners also often divide holdings into sections controlled by different family members or corporate entities, even though the sum of the parts functions as a single investment or production unit. Different aspects of a single unit, similarly, may be held by distinct legal entities. A single farm may, for example, have several corporations owning or leasing its land, others owning its livestock or crops, and still others owning its vehicles or buildings, or providing machinery, fumigation and management services. Such 'paper' divisions are likely to increase in the face of political pressure, whether government agrarian reform programs in the past or civil society scrutiny of large-scale land acquisitions in the present.¹⁷

The corporate entities involved in farming and ranching (in Central America, at least) have been extraordinarily complex for a very long time, and may very well be more so now in the post-2007 land grab era. They consist of astounding combinations of national, regional and extra-regional capital, originating in diverse activities and sectors. Frequently, land-rich-money-poor rural elites who inherited large estates form companies with money-rich urbanites and foreigners (much as land-rich-money-poor governments now grant concessions to capital-rich outsiders). The mercantile registry entries that record these coalitions rarely contain accurate information about real levels of capitalization. They often refer to corporate owners or subsidiaries domiciled elsewhere, which makes identifying the capital behind any particular farm quite challenging.

For all of the above reasons, titles and leasing contracts often are overlapping, imprecise, legally defective, misleading and sources of contention (see also Wily 2012a, 13), while ownership information is often obscure, partial and imprecise. These are not only historical curiosities or problems of yesteryear.¹⁸ A World Bank report on the contemporary land rush observes that

[e]ven if the land transferred to investors is quite valuable, many countries devote little attention to administrative records, particularly the geographical description of boundaries for land allocations. Potential negative consequences include the double allocation of land to different parties, the inability to unambiguously ascertain who has rights to a given piece of land without costly field investigation, and boundary disputes that undermine local rights. (Deininger and Byerlee 2011, 60–61)

¹⁷Referring to today's land rush in the Democratic Republic of the Congo, a World Bank report notes '[m]ultiple concessions for grants up to 1000 ha to the same investor to circumvent [the] national concession approval process' (Deininger and Byerlee 2011, 58).

¹⁸Overlapping titles and cadastral plans continue to be a problem, for example in Paraguay (Hetherington 2012, 4). In the Brazilian Amazon, a lack of correspondence between the actual area of properties and the area specified in titles is one basis of the contemporary phenomenon of *grilagem*, i.e. the acquisition of properties via the registration of defective titles. In 2009, judicial authorities cancelled one title for 410 million hectares in Vitória do Xingu in Pará state, in part because its total area was three times larger than the entire state (Brito and Barreto 2011, 4).

Moreover, land grabbing always involves a confrontation with pre-existing class structures and local and regional peculiarities, especially historical patterns of land use and ownership. Understanding this process – and the social conflicts that may result from it – requires scholars to develop an in-depth knowledge of ‘traditional’ tenure patterns. Similarly, establishing a baseline from which to measure the impacts of land deals necessarily entails a serious consideration of pre-land-deal social formations.

The epistemology of datasets and sources

Every dataset has an implicit epistemology behind it. Different kinds of datasets are created for different administrative, bureaucratic, political or other purposes and always contain systematic biases. The same is true for the individual documentary or other sources that become the data points or entries in the datasets. But what are those biases and how do we identify them and compensate for them?

The social scientist or historian is obligated to account for the existence of the source she or he employs. Who created it and why? What were the circumstances and context of its production? What accounts for its preservation, its location in an archive or its diffusion? What does it say and what are its silences? In the context of the current discussion of land deals, one might interrogate in these ways sources as diverse as the articles in the business press that often constitute the first reports on particular grabs, or the crowd sourcing reports that lead investigators to highlight new grabs or to ‘verify’ unconfirmed reports. Who leaked the story to the journalist from the *Financial Times* (or similar media) or, alternatively, how did the journalist stumble upon it or decide to cover it? Why did that story and not something else serve as the first indication that a land grab was in the works? Was the leaking (if that’s what it was) done to denounce an injustice, to attract new investment partners or lenders, to increase shareholder value, or to establish legitimacy vis-à-vis sceptics in a government bureaucracy?¹⁹ Do journalists tend to highlight international investors and ignore domestic ones, as well as investors of any provenance that acquire existing farms and plantations instead of ‘new’ lands (as Cotula [2012, 651], for example, suggests may often be the case)? Who constitutes the ‘crowd’ that does the ‘sourcing’? What motivates them to become ‘sources’ and how does that affect what they report?

In addition to these fundamental concerns, there is the question of the biases in the databases themselves. Is the emphasis on certain geographical zones (e.g., sub-Saharan Africa) an artefact of available sources or, alternatively, a reflection of on-the-ground realities, or – most likely – a combination of both? And if the latter, how ‘knowable’ are the proportions of the combination? As Matt Collin (2013) observes,

while we might expect a diligent activist to record a local land deal in the Philippines, is anyone bothering to do the same for the UK? A simple measure of ‘are there any large scale land deals taking place?’ might just be picking up ‘is your country one [about] which people are bothering to record things in the Land Matrix?’

Surely the land grabbing databases are influenced by both ‘over-’ and ‘under-reporting’ (Pearce 2013). The difficulties of identifying and compensating for these biases are not

¹⁹World Bank economists acknowledge the biases resulting from the ‘strategic use of press reports by some types of investors’ (Deininger and Byerlee 2011, 53).

easily addressed. Yet ‘data’ compiled in a ‘base’, ‘set’, or table has a way of assuming a credibility that may not be merited when its origins are examined more closely.

My scepticism about these matters is rooted in part in a study that Mitchell Seligson and I carried out in the 1990s in a single cantón (similar to a county) in southern Costa Rica that had been settled by non-indigenous people for about 50 years. We compared the pictures of land tenure change in this zone that derived from agricultural census data and from cadastral, property and mercantile registry data (Edelman and Seligson 1994). In the same physical area over the same three-decade time period, these two datasets provided what were essentially diametrically opposed pictures of land tenure change. Agricultural census data generated a picture of rising inequality over time. Land records, in contrast, showed declining inequality. It is worth emphasizing the point: These two contrasting data-based pictures were of the same physical area during the same period.²⁰

We found that an inverse relationship existed between farm size and the probability of a landowner reporting that farm to a census taker. We also found that a positive relationship existed between the size of a farm and the probability of a landowner legally registering the property (cf. Wily 2012b, 2). Large landowners are interested in using properties as collateral for loans and in protecting them from competing claims. They are less likely to provide accurate information on farm size to census takers for several reasons. Censuses, in Costa Rica, were administered by rural schoolteachers, whom large landowners frequently considered politically suspect. Census reports have also historically been used by agrarian reform agencies to identify areas with potential for agrarian reform. We documented the disappearance from the agricultural censuses of thousands of hectares that large owners failed to report in a small jurisdiction. Smallholders, on the other hand, frequently cannot afford the time and money necessary to fully legalize their lands. Some even view reporting land to a census taker as a kind of official recognition of their holdings.

Legibility problems of the poor and the well-to-do

The messiness on the ground and in the datasets points to some legibility problems (Scott 1998). In numerous developing countries, national governments and international institutions (notably the World Bank) have been encouraging the creation of modern cadastres in order to bring some order to the illegible mess on the ground (Hetherington 2012). With the widespread use of global positioning system (GPS) mapping and surveying technology, the precision of this endeavour has greatly increased, even as its costs have fallen.

Behind this effort to convert everything into hectares – and not just hectares, but verifiable and registered ones – is not just an epistemological assumption (that the domain of landed property is easily knowable) but also a theory of property. In essence, this theory, with roots in the work of Harold Demsetz (1967), Hernando de Soto (1989) and others, holds that property law and guarantees, especially clear titles, are the *sine qua non* of economic development. This principle, so the argument goes, is scale-neutral, so that the poor should be equally interested in receiving clear property titles as the well-to-do. With titles, they can become subjects of credit, expand and intensify their operations and generate new income flows. Improved and digitalized land information will make markets function optimally and generate a more efficient allocation of resources (see Hetherington 2012).

²⁰The study also documented numerous land acquisitions in the 1000- to 10,000-hectare range by Costa Rican, French, US, Chinese and Italian landowners.

What is missing from this analysis, however, is the element of power (and – not unrelated – the very substantial costs of titling). In the messy contexts of rural zones in poor and developing countries in particular, larger, more powerful actors are almost always better equipped to take advantage of clear property titles than are smallholders. While customary and informal tenure systems may facilitate land deals and buttress grabbers' claims about *terra nullius*, it is hardly the case that titling or what Hetherington (2012) terms 'cadastral fixes' necessarily provide smallholders protection.²¹ Indeed, for the rural poor, property titles can and do operate as a double-edged sword, facilitating access to formal (and informal) credit, with all of its real and potential benefits, but also exposing them to the risks of indebtedness and, in the worst of cases, foreclosure and proletarianization (cf. De Schutter 2011, 268–271, White *et al.* 2012, 637). In many societies, the rural poor's possibilities of accessing formal credit have diminished significantly with the decline or demise of public-sector development banks since the 1980s. Under current conditions, one way that some of the rural poor reduce risk and maintain a modicum of autonomy is to cultivate illegibility. This, of course, has costs and implies other kinds of risks, but it is also for many a historically rooted, familiar and thus attractive strategy. When a historically illegible land tenure pattern becomes a land grabbing target, however, it may be difficult to specify with any certainty the extent of the loss to smallholder communities.

If the poor may cultivate illegibility about the land areas they control, the wealthy seek to make their own areas legible for the purposes of obtaining legal guarantees (registration, leases, etc.) while simultaneously cultivating illegibility about ownership (as noted above) through the use of corporate holding companies, subsidiaries and cut-outs. Both of these zones of illegibility pose significant challenges to land deal researchers.

Concluding remarks: methodology 'lite' and the dilemmas of local knowledge

Paradoxically, as Nassim Taleb suggests, 'the abundance of data [can be] extremely harmful to knowledge. More data means more information, perhaps, but it also means more false information' (2012, 416). Hectare-centric analyses of global land grabbing, almost from the beginning, have suffered from indiscriminately including data points in the datasets (cf. Cotula 2012, 672). If the very researchers involved in constructing the databases frequently lament the inclusion of cases that represent cancelled, delayed, modified or even non-existent deals (see note 13 above), this has not resulted in any fundamental rethinking of their objectives, their theoretical and methodological framing concepts or their approaches to studying land grabbing on the ground.

Deborah Bräutigam, writing on the Chinese presence in Africa, argues that assertions about land deals have a tendency to solidify 'into... widely accepted, unquestioned "fact[s]"':

The Economist repeated (without endorsing) a report that more than 1 million Chinese farmers were cultivating crops in Africa... *The Atlantic* repeated a story that the Chinese had set up a US \$5 billion fund to invest in agriculture in Africa... CBS news posted an article stating 'It has

²¹ Assertions of *terra nullius* – that particular lands do not belong to or are not used by anybody – have a history that predates by well over a century their current use by states that facilitate land grabbing. In Argentina's nineteenth-century 'wars of the desert', for example, '*desierto*' did not refer to arid lands (some were dense humid forests), but rather to spaces that elites regarded as 'empty geographies with enormous yet dormant economic potential defined by their absence of civilization, market relations and state presence' (Gordillo 2004, 46–48).

been widely reported that China recently purchased half the farm land under cultivation in the Congo'... Think tanks published stories that China had 'pledged' to invest \$800 million to modernise agriculture in Mozambique in order to export rice to China, secured 2.8 million hectares (ha) of land in the Democratic republic of Congo (DRC), or were farming over 100,000 ha in Zimbabwe... None of these stories has turned out to be true. (2013, 91)

It is worth reflecting on the process of 'solidification' and fact creation that Bräutigam highlights. In this commentary, I have called attention to several mechanisms through which this occurs. Among these are the inclusion of preliminary, anecdotal, unverified and moribund cases in databases and published reports which then, inevitably, appear to be 'written in stone'; the aggregation of dissimilar and sometimes faulty data followed by the trumpeting of ever larger, increasingly alarming totals of hectares grabbed; the use of exponents to report these totals, as if these were the findings of a physics experiment; and the deployment of disclaimers which, while perhaps covering the authors' hindquarters, rarely seem to have altered the underlying assumptions and methodologies even one iota.

The almost obsessive focus on hectares, while no doubt effective in attracting the attention of major media, foundations, policymakers and civil society organizations, leads analysts to downplay other dynamics and to assume a commensurability that is likely spurious. Questions of scale do not only involve extensions of land, but also the application of capital to that land, the availability of water, and the types of accumulation and social reproduction that these factors facilitate or impede (see Marston 2000). Surely, a medium-size irrigated farm dedicated to a high-value-added crop or a rare metal mining concession of similar size is worth vastly more than a much larger tree plantation or a massive expanse of semi-arid grazing land (Borras, Franco *et al.* 2012, 851, Mehta *et al.* 2012, 195).

The point could be made with more emphasis. Some portion of the land being grabbed is no doubt held purely for speculative purposes and will never be developed. But for that part which is acquired for cultivation, the amount of capital required to bring some of the extensions that are being talked about into actual production is likely beyond the capability of even the largest transnational corporations. For example, the '54,000-square-mile' (14-million-hectare) ProSavana project in Mozambique, mentioned in the introduction to this paper, is roughly the size of Pennsylvania and New Jersey (Kugelman 2013) – or, we might add, of Nepal, Greece or Nicaragua. What begs the imagination is how even the most massive 'Brazilian-Japanese venture' could mobilize sufficient capital to produce 'food for export' on such a large farm.²² Moreover, in the land deal literature there has been little, if any, discussion of the *diseconomies* of scale that would surely be operative for such an enormous enterprise.

What, then, is to be done? The increase in land deals in recent years is doubtless real, but the evidentiary basis for understanding it is frequently very weak. A key word in thinking about the evidence might be 'indicative', a term employed in one of the caveats cited above (Anseeuw, Cotula, and Taylor 2012, 422). 'Indicative', of course, means 'pointing to', but it also implies a certain epistemological caution and a need for developing more solid evidence before making claims. Certainly many media and crowd sourcing reports are little more than indications or guides about where to look or where to pursue a more in-depth investigation.²³ Treating such reports as more than that leads to a slippery slope where

²²Nor is it intended to be a single farm, as the more alarmist accounts (GRAIN 2012) repeatedly suggest (see note 6 above).

²³'Indicative' evidence nonetheless raises other methodological concerns. As Carlos Oya (2013) points out in this forum, there is an additional danger if problematical databases become the 'sampling

almost anything qualifies as firm evidence. We need case studies that are both more numerous and more rigorous, and – perhaps even more importantly – a deeper discussion about the kinds of inferences and generalizations that we can reasonably make from case studies (on this, see Schrank 2006a, 2006b). Case studies of land deals are not only useful for shedding light on aggregate phenomena or filling gaps in knowledge. They are likely and unavoidably the main means through which scholars and activists can reliably understand what has occurred and what is occurring on the ground and to establish baselines for measuring subsequent impacts.

The hectare-centric emphasis of much of the land grabbing literature also tends to obscure two critical issues. The first, mentioned above, is the need to specify the kinds of hectares (cleared and levelled, highly fertile, irrigated, arid grassland, etc.) and the levels of capitalization that are actually or potentially involved in particular land deals. The profitability of farmland is famously affected by ‘differential rent’, yet analysts of land grabbing have paid insufficient attention to differences linked to different kinds of production systems and natural endowments. A second critical concern is the tendency to conflate the grabbers with their countries of origin (e.g., Rulli *et al.* 2013). This arguably makes sense in cases that involve state-owned companies, sovereign wealth funds or corporations that are closely identified with or owned by heads of state or ruling families. But this is not the case with most land deals. Many involve complex combinations of domestic and foreign capital of distinct origins (see Pearce 2012). The social movements and NGOs that seek to combat land grabbing require detailed and precise information on their adversaries. They are not well served by analyses that describe the enemy as ‘China’ or ‘Brazil’, especially if they are seeking to generate solidarity within the Global South.²⁴

Scholars of land grabbing (e.g. Pearce 2012, vii, Kugelman 2013) are fond of quoting an adage attributed to Mark Twain: ‘Buy land, they’re not making it anymore’. Unfortunately some of the more alarmist analyses seem to take literally another of Twain’s aphorisms: ‘Get your facts first, and then you can distort ‘em as much as you please’.²⁵

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frames’ that researchers employ to identify cases for in-depth analysis. The biases in the sampling frame (e.g. the Land Matrix or GRAIN databases) will generate a biased body of case studies that will tend to focus on some cases and not on others, even though these might be at least as relevant as and possibly quite different from the ‘known’ cases.

²⁴Moreover, such analyses almost always place much more emphasis on the buyers than on the sellers.

²⁵And here is a final irony regarding sources. This maxim – widely cited in various forms – was ascribed to Twain by Rudyard Kipling (1907, 2: 282). While Kipling – the archetypal novelist of British colonialism – professed unbounded admiration for Twain – the US writer who often put his famously acid wit at the service of his anti-racist and anti-imperialist politics – the quotation should obviously be taken with at least one grain of salt.

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