

A Parched Future: Global Land and Water Grabbing

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“This is the bond of water. We know the rites. A man’s flesh is his own; the water belongs to the tribe.”

– Frank Herbert, *Dune* (1)



Land grabbing refers to the large-scale acquisition of comparatively inexpensive agricultural land in foreign countries by foreign governments or corporations. In most cases, the acquired land is located in under-developed countries in Africa, Asia, or South America, while the grabbers are investment funds based in Europe, North America, and the Middle East. The acquisition can take the form of an outright purchase or a long-term-lease, ranging from 25 to 99 years, that gives the grabbing entity extensive control over the acquired land. Proponents of such large-scale acquisitions have criticized the term “land grabbing” because it carries the stigma of illegitimacy and conjures up images of colonialism or other forms of unethical land acquisitions that were so common in the not-so-distant past. They point out that land acquisitions by foreign investors are made in accordance with the local laws and that the investments could create jobs and development opportunities in impoverished countries. However, recent reports suggest that these land acquisitions are indeed “land grabs.” NGOs and not-for-profit organizations such as [GRAIN](#) (2), [TNI](#) (3), and [Oxfam](#) (4) have documented the disastrous consequences of large-scale land acquisitions for the local communities. More often than not, [the promised jobs are not created](#) (5), and families that were farming the land for generations [are evicted from their ancestral land and lose their livelihoods](#). (4) The money provided to the government by the investors frequently disappears into the coffers of corrupt officials while the evicted farmers receive little or no compensation.

One aspect of land grabbing that has received comparatively little attention is the fact that land grabbing is invariably linked to [water grabbing](#). (6) When the newly acquired land is used for growing crops, it requires some combination of rainwater (referred to as “green water”) and irrigation from freshwater resources (referred to as “blue water”). The amount of required blue water depends on the rainfall in the grabbed land. For example, land that is grabbed in a country with heavy rainfalls, such as Indonesia, may require very little irrigation and tapping of its blue water resources. The link between land grabbing

and water grabbing is very obvious in the case of Saudi Arabia, which used to be a major exporter of wheat in the 1990s, when there were few concerns about the country's water resources. The kingdom provided water at minimal costs to its heavily subsidized farmers, thus resulting in a very inefficient usage of the water. Instead of the global average of 1,000 tons of water per ton of wheat, [Saudi farmers used 3,000 and 6,000 tons of water.](#) (7) Fred Pearce describes the depletion of the Saudi water resources in his book [The Land Grabbers](#): (8)

Saudis thought they had water to waste because, beneath the Arabian sands, lay one of the world's largest underground reservoirs of water. In the late 1970s, when pumping started, the pores of the sandstone rocks contained around 400 million acre-feet of water, enough to fill Lake Erie. The water had percolated underground during the last ice age, when Arabia was wet. So it was not being replaced. It was fossil water — and like Saudi oil, once it is gone it will be gone for good. And that time is now coming. In recent years, the Saudis have been pumping up the underground reserves of water at a rate of 16 million acre-feet a year. Hydrologists estimate that only a fifth of the reserve remains, and it could be gone before the decade is out.

Saudi Arabia responded to this depletion of its water resources by deciding to gradually phase out all wheat production. Instead of growing wheat in Saudi Arabia, it would import wheat from African farmlands that were leased and operated by Saudi investors. This way, the kingdom could conserve its own water resources while using African water resources for the production of the wheat that would be consumed by Saudis.



The study [Global land and water grabbing](#) (9) published in the *Proceedings of the National Academy of Sciences* (2013) by Maria Rulli and colleagues examined how land grabbing leads to water grabbing and can deplete the water resources of a country. The basic idea is that when the grabbed land is irrigated, the use of freshwater resources reduces the availability of irrigation water for neighboring farmland areas, i.e. the areas that have not been grabbed. This in turn can cause widespread water stress and affect the ability of other farmers to grow crops, ultimately leading to poverty and social unrest. Land grabbing is often shrouded in secrecy since local governments do not want to be perceived as selling off valuable land to foreigners, but some details regarding the size of

the land grab are eventually made public. The associated water needs of the investors that grab the land are even less clear, and very little is publicly divulged about how the land grabbing will affect the water availability for other farmers. In the case of Sudan, for example, grabbed land is often located on the fertile banks of the Blue Nile, and while large-scale commercial farmland is expanding as part of the foreign investments, local farmers are losing access to land and water and gradually becoming dependent on food aid, even though Sudan is a major exporter of food produced by the large-scale farms.

Using the [global land grabbing database of GRAIN](#) (10) and the [Land Matrix Database](#) (11), Rulli and colleagues analyzed the extent of land-grabbing and identify the Democratic Republic of Congo (8.05 million hectares), Indonesia (7.14 million hectares), Philippines (5.17 million hectares), Sudan (4.69 million hectares), and Australia (4.65 million hectares) as the five countries in which the most area of land has been grabbed by foreign investors. The total amount of grabbed land in these five countries is 29.7 million hectares and accounts for nearly 63% of global land grabbing. To put this in perspective, the size of the United Kingdom is 24.4 million hectares.

The researchers calculated the amount of rainfall (green water) on the grabbed land, which is the minimum amount of water that would be grabbed with the acquisition of the land. However, since the grabbed land is also used for agriculture and many crops require additional freshwater irrigation (blue water), the researchers also determined a range of predicted blue water grabbing for land irrigation. For the low end of the blue water grabbing range, the researchers assumed that the land would be irrigated in the same fashion as other agricultural land in the country. On the higher end of the range, the researchers also calculated how much blue water would be grabbed if the investors irrigated the land in a manner to maximize the agricultural production of the land. This is not an unreasonable assumption, since foreign investors probably do have the financial resources to maximally irrigate the acquired land in a manner that maximizes the return on their investment.

Rulli and colleagues estimated that global land grabbing is associated with the grabbing of 308 billion m³ of green water (i.e. rain water) and an additional grabbing of blue water that can range from 11 billion m³ (current irrigation practices) to 146 billion m³ (maximal irrigation) per year. Again, to put these numbers in perspective, the [average daily household consumption of water in the United Kingdom is 150 liters](#) (12) (0.15 m³) per person. This results in a total annual household consumption of 3.5 billion m³ (0.15 m³ x 365 days x 63,181,775 U.K. population) of water in the U.K. Therefore, the total household water consumption in the U.K. is a fraction of what would be the predicted blue water usage of the grabbed land, even if one were to use very conservative estimates of required irrigation.

The researchers then also list the top 25 countries in which the investors are based that engage in land and water grabbing. They find that about “60% of the total grabbed water is appropriated, through land grabbing, by the United States, United Arab Emirates, India, United Kingdom, Egypt, China, and Israel.” The researchers gloss over the fact that in many cases, land and associated water resources are grabbed by foreign investment

groups and not by foreign governments. Just because certain investment funds are based in Singapore, U.K., or the United Arab Emirates does not mean that these countries are “appropriating” the land or water. In fact, many investment groups that are involved in land grabbing may have multinational investors or investors whose nationality is not disclosed. Nevertheless, there are probably cases in which land and water grabbing are not merely conducted as a form of private investment but might involve foreign governments. One such example is the above-mentioned case of Saudi Arabia, in which the Saudi government actively encouraged and helped Saudi investors to acquire agricultural land in Africa. While perusing the list of the top 25 countries in which land and water grabbing investors are based, one cannot help but notice that the list contains a number of Middle Eastern countries that are themselves experiencing severe water stress and scarcity, such as [Saudi Arabia, Qatar, United Arab Emirates, or Israel](#) (13). Transferring their water burden to Africa by acquiring agricultural land would allow them to preserve their own water resources and may indeed be of strategic value to these countries. However, the precise degree of government involvement in these investment decisions often remains unclear.

The paper by Rulli and colleagues is an important reminder of how land grabbing and water grabbing are entwined and that land grabbing could potentially deplete valuable water resources from under-developed countries, especially in Africa, which accounts for more than half of the globally grabbed land. Even villagers that continue to own and farm their own land adjacent to the large-scale farms on grabbed lands could be affected by new forms of water stress, especially if the foreign investors decide to maximally irrigate the acquired land. There are some key limitations to the study, such as the lack of distinction between private foreign investors or foreign governments that are engaged in land grabbing and the fact that all the calculations of blue water grabbing are based on very broad estimates without solid data on how much blue water is actually consumed by the grabbed lands. These numbers may be very difficult to obtain but should be the focus of future studies in this area.

After reading this study, I have become far more aware of ongoing land and water grabbing. [Excessive commodification of our lives was already criticized by Karl Polanyi](#) (14) in 1944, and now that water is also becoming a “fictitious commodity,” we have to be extremely watchful of its consequences. The extent of land grabbing that has already taken place is quite extensive. An [interactive map based on the GRAIN database](#) (15) allows us to visualize the areas in the world that are most affected by land grabbing since 2006 as well as where the foreign investors are located. The map shows that in recent years, Pakistan has emerged as one of the prime targets of land grabbing in Asia, while Sudan, South Sudan, Tanzania, and Ethiopia are major targets of recent land grabbing in Africa. The world economic crisis and the recent food price crisis will likely increase the degree of land grabbing and associated water grabbing. The targets of land grabbing are often countries with fragile economies, widespread poverty, and significant malnourishment.

As a global society, we have to ensure that people living in these countries do not suffer as a consequence of land grabbing deals. The recent [Voluntary Guidelines on the](#)

Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security (16) released by the FAO are an important step in the right direction because they attempt to provide food security for all, even when large-scale land acquisitions occur. However, they do not specify water access and they are, as the title reveals, “voluntary.” It is not clear who will abide by them. Therefore, we also need a complementary approach in which clients of land grabbing investment funds ask the fund managers to abide by the FAO guidelines and that they maximally ensure food security and water access for the general population in grabbed lands. One specific example is that of the American retirement fund TIAA-CREF (Teachers Insurance and Annuity Association – College Retirement Equities Fund), which is one of the leading retirement providers for people who work in education, research, and medicine. *Investment in agriculture and land grabbing appears to be a priority for TIAA-CREF* (17), but American educators or academics that use TIAA-CREF as their retirement fund could use their leverage to ensure socially conscientious investments. Even though land and water grabbing are becoming a major concern, the growing awareness of the problem may also result in solutions that limit the negative impact of land and water grabbing.

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