

The impact of large  
scale land acquisitions  
on water resources – a  
background note



Tom Quick & Phil Woodhouse

October, 2014

This report has been produced by Tom Quick and Phil Woodhouse for Evidence on Demand with the assistance of the UK Department for International Development (DFID) contracted through the Climate, Environment, Infrastructure and Livelihoods Professional Evidence and Applied Knowledge Services (CEIL PEAKS) programme, jointly managed by DAI (which incorporates HTSPE Limited) and IMC Worldwide Limited. Our thanks in DFID to Jean-Paul Penrose who commissioned this paper and inputted together with Iris Krebber.

The views expressed in the report are entirely those of the authors and do not necessarily represent DFID's own views or policies, or those of Evidence on Demand. Comments and discussion on items related to content and opinion should be addressed to the author, via [enquiries@evidenceondemand.org](mailto:enquiries@evidenceondemand.org)

Your feedback helps us ensure the quality and usefulness of all knowledge products. Please email [enquiries@evidenceondemand.org](mailto:enquiries@evidenceondemand.org) and let us know whether or not you have found this material useful; in what ways it has helped build your knowledge base and informed your work; or how it could be improved.

DOI: [http://dx.doi.org/10.12774/eod\\_hd.october2014.quicketal](http://dx.doi.org/10.12774/eod_hd.october2014.quicketal)

First published (October 2014)  
© CROWN COPYRIGHT



## Contents

Background.....	1
Potential benefits of FDI for water resources management.....	4
Adverse Impacts of FDI on water resources .....	4
Improving the development impact of land acquisitions.....	6
The risks of land acquisitions for investors.....	7
Conclusion .....	9
Possible areas of further investigation.....	10
Key references.....	17

### List of Figures

Figure 1 Selected river basins and countries where land acquisitions have been concentrated (as % of total agricultural land) (Jägerskog et al, 2012) (With permission from SIWI).....	2
Figure 2 Stakeholder perceptions of the positive and negative impact of land acquisitions in ongoing agribusiness schemes.....	8



## Background

Since 2008 there has been a rapid increase in the level of Foreign Direct Investment (FDI) in agricultural land in Sub Saharan Africa and South East Asia.<sup>1</sup> In 2008-2009 land acquisitions were estimated to be approximately 56 million hectares, 70-75% of which were in Africa<sup>2</sup> (although it is likely that many leases are still pending or not yet executed).<sup>3</sup>

The increased investment in agricultural land was largely a response to a spike in world food prices, which led to protests and the introduction of export restrictions on food by some governments. The spike in food prices was itself the product of a number of factors including crop failures and the EU biofuel policy. Food importing countries felt the impact of these events on their food security, which motivated some to search for farmland abroad. Simultaneously, the financial crisis led investors to shift focus from financial products to other sectors, which were deemed 'safer', including agriculture.<sup>4</sup>

Large scale land acquisitions are primarily for agricultural development (circa 80%). The remaining 20% are dominated by extractives and infrastructure. Both agricultural development and extractives are potentially water intensive and water-polluting but high-quality research and understanding of these impacts is limited.

Analysis of the location of land acquisitions for the purposes of agricultural development and the types of crops that are grown strongly suggest that access to water is a primary rationale for acquiring land. The land is predominantly located close to access to blue water<sup>5</sup> resources, which suggests an intention to irrigate the land. Proposals to plant water-intensive crops such as sugarcane and rice further support the conclusion that many land acquisitions are de facto water resource acquisitions. This conclusion is also supported by anecdotal evidence from investors. For example, the chairman of Economic Zones World in Dubai stated that the most suitable countries for investing in land were those where "water was in abundance".<sup>6</sup> There are reports that investors from water scarce regions such as Saudi Arabia and parts of India are acquiring land in Africa to grow food crops in order to export it back to domestic consumers.<sup>7</sup> The UK, the US and China have acquired the most land but the picture in terms of water resources is different, with the US, the United Arab Emirates and India having acquired the most.<sup>8</sup> However, data on the amount of water appropriated under land deals is highly uncertain and disputed more than data on the area of land acquired.

Despite this evidence, consideration of water in current debates on the impact of foreign investment in agricultural land has been peripheral<sup>9</sup> and international guidelines and principles that seek to prevent damaging land acquisitions have not, until very recently, dealt

<sup>1</sup> Woodhouse and Ganho (2011) Is Water the Hidden Agenda of Agricultural Land Acquisition in Sub-Saharan Africa?

<sup>2</sup> World Bank (2011). Rising Global Interest in Farmland, Can it Yield Sustainable and equitable Benefits. Washington D.C., World Bank.

<sup>3</sup> SIWI (2012) Land Acquisitions: How will they Impact Transboundary Waters?

<sup>4</sup> UNDP (2012) The Political Economy of Large-Scale Agricultural Land Acquisitions: Implications for Food Security and Livelihoods/Employment Creation in Rural Mozambique  
Blue water refers to water from surface and ground water while green water refers to rainwater.

<sup>6</sup> From: <http://farmlandgrab.org/post/view/21956>

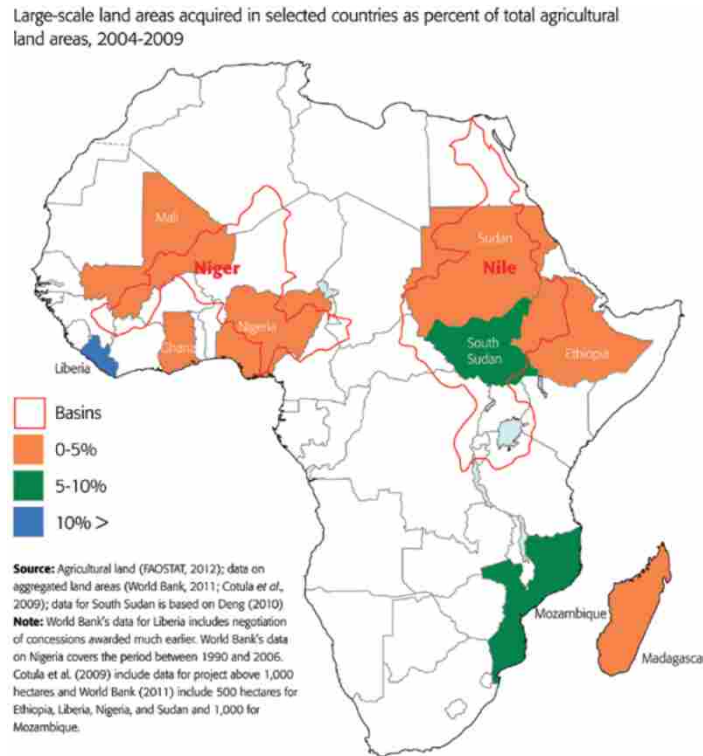
<sup>7</sup> GRAIN <http://www.grain.org/article/entries/4516-squeezing-africa-dry-behind-every-land-grab-is-a-water-grab>

<sup>8</sup> PNAS Global land and water grabbing  
<http://www.pnas.org/content/early/2013/01/02/1213163110.abstract>

<sup>9</sup> Woodhouse (2012) Foreign Agricultural Land Acquisition and the Visibility of Water Resource Impacts in Sub-Saharan Africa

with the risks land acquisitions pose to existing water resources and the risk water resources (or their scarcity) poses to successful investments in land.

**Figure 1 Selected river basins and countries where land acquisitions have been concentrated (as % of total agricultural land) (Jägerskog et al, 2012) (With permission from SIWI).**



The figure presents the countries that have experienced the highest levels of land acquisitions between 2004 and 2009. These countries are also considered to have large 'untapped' water resources.

Key Facts	
Where	Around 70-75% of the land acquired is in Sub Saharan Africa with a particularly large proportion of agricultural land acquired in Mozambique, South Sudan and Liberia.
How much	Estimates vary. The World Bank suggests 56m ha were leased in 2009. The Land Matrix Partnership estimates 227m ha were leased over the last decade. Other estimates are more conservative. Furthermore, many leases are still pending and have not been executed.
Who	Governments, corporates, institutional investors and Sovereign Wealth Funds. 41 countries are known to be acquiring land. According to one study, the three countries that have acquired the largest area of land are the United Kingdom (9.3%), The United States (7.8%) and China (7.2%). <sup>10</sup> However, there remains considerable uncertainty around who is investing since land acquisitions are often made through complex investment chains. <sup>11</sup> A global

<sup>10</sup> PNAS Global land and water grabbing  
<http://www.pnas.org/content/early/2013/01/02/1213163110.abstract>

<sup>11</sup> Cotula, L and Blackmore, E (2014) Understanding agricultural investment chains: Lessons to improve governance. Rome and London: FAO and IIED.



Key Facts	
	analysis of land acquisitions could not identify which country was behind circa 35% of large scale land acquisitions. <sup>12</sup> It is likely that this is a conservative estimate of uncertainty.
Why	Largely for producing agricultural commodities – although also for extractives and infrastructure. Reports of investors targeting the export market are common – but not substantiated. Instead, it is believed that a lot of acquisitions target the growing demand from urban centres within the countries where land is acquired. <sup>13</sup> However, evidence is often poor, partly because investors change crops and the markets they target regularly.
Duration	The length of the leases vary but they are often between 49 and 99 years
Issue	If the legal and institutional capacity of the host government is weak, the acquisitions can have negative impacts on local communities and ecosystems by competing for water resources and disenfranchising traditional land and water users. Furthermore, if water quality and availability is not factored into investment decisions there is a risk that crops may fail during periods of water stress, where demand exceeds supply. The impacts of climate change will be felt over the period of the leases and will lead to increasing water stress which may have a negative impact on investors, local users and ecosystems.
Opportunity	Well-structured and well-implemented land leases can meet a funding gap around agricultural development and provide a range of co-benefits to local communities and ecosystems. Factoring trends in water supply (quality and availability) and demand into land acquisition deals reduces the risk of adverse impacts on local communities and ecosystems and the risk of crop failure, which will undermine the success of the investment.
Realising the opportunity	In general there is a need to work with host governments to strengthen their institutional, legal and regulatory capacity to ensure they benefit from land acquisitions. More specifically there is a need for host governments to generate a better knowledge base of their water resources under different scenarios and to rigorously assess the potential risks and opportunities of land acquisitions. There is an opportunity to work with investors to support sustainable long-term investments that are not undermined by water resource scarcity and do not impinge negatively on local uses (leading to increased reputational and legal risk)

**Types of Foreign Direct Investment**


A number of different investors with different investment horizons and expectations around return on investment provide FDI. These include:

- Government investors
- Corporate investors
- Institutional investors (pension funds, hedge funds etc.)
- Sovereign Wealth Funds (SWF) from emerging economies

These investments are likely to have different impacts on the communities and environment.

In the first wave of the investment boom, from 2007-2009, corporate and government investors dominated. They were driven by expectations that future food and agro-fuel demand would increase the value of agricultural produce. Gradually, institutional investors, such as hedge funds, pension funds and portfolio investors have increased their presence, and have established themselves as significant agricultural investors in developing

<sup>12</sup> PNAS Global land and water grabbing <http://www.pnas.org/content/early/2013/01/02/1213163110.abstract>  
<sup>13</sup> Lorenzo Cotula – personal communication



economies<sup>14</sup>. This latter group of investors is primarily motivated by land investments as historically proven hedges against inflation. Acquisitions by Sovereign Wealth Funds are attracting increasing attention due to the terms of the land acquisition agreements, some of which earmark a certain proportion of production to be exported back to the SWF's country (Saudi Arabia's 'AgroGlobe 7x7' scheme aims to produce 7 million tons of rice in Africa, 70% of which is designated for export to Saudi Arabia).

## Potential benefits of FDI for water resources management

Domestic investment in irrigation projects has been falling at the same time as there has been a shift away from such investments by multilateral development banks (World Bank funding for agriculture dropped from 30% of its portfolio in 1990 to 7% in 2000). FDI is seen as a potential source of capital to meet this critical funding gap. As such, many African governments have taken a proactive stance over attracting FDI through land acquisitions.<sup>15</sup>

Irrigated agriculture is estimated to account for only 6% of African agriculture compared to 40% in South Asia.<sup>16</sup> Furthermore, the total withdrawals only account for 2-3% of African internal renewable water resources. Yet unreliable rainfall is a key constraint to agricultural productivity in the savannah zones that predominate in sub-Saharan Africa, with some research indicating critical dry spells can be expected during the growing season in 4 years out of 5.<sup>17</sup> Therefore, where FDI leads to increased irrigation and water infrastructure in Sub-Saharan Africa (SSA) it can increase agricultural productivity. SSA has been described as a 'sleeping giant' ready for agricultural modernisation and there is a belief that it has unused water resources to help scale up agricultural production.<sup>18</sup> However, this assumption requires critical appraisal, not least with respect to the underlying perceptions of productivity constraints in African agriculture.

## Adverse Impacts of FDI on water resources

Despite the proactive stance taken by host governments, it has been suggested that the narrative of untapped and abundant water resources in SSA fails to address the more complex reality on the ground.<sup>19</sup>

At an aggregate level it does appear that there are sufficient water resources in many SSA countries to meet demands from new and existing agricultural schemes (as well as for other uses and for the environment). However, consideration of inter and intra-annual variability in rainfall and run-off is essential. There is some evidence that FDI can compete with existing and traditional uses of water during periods of low rainfall (some land deals have included a clause which gives the investor priority access to water in times of water scarcity<sup>20</sup>). Research suggests that if all planned land acquisitions are implemented in Ethiopia (which is

---

<sup>14</sup> New York Times (2014) [http://dealbook.nytimes.com/2014/07/21/cash-crops-with-dividends-financiers-transforming-strawberries-into-securities/?\\_php=true&\\_type=blogs&\\_r=0](http://dealbook.nytimes.com/2014/07/21/cash-crops-with-dividends-financiers-transforming-strawberries-into-securities/?_php=true&_type=blogs&_r=0)

<sup>15</sup> Woodhouse and Ganho (2011) Is Water the Hidden Agenda of Agricultural Land Acquisition in sub-Saharan Africa?

<sup>16</sup> NEPAD (2013) African agriculture, transformation and outlook.


<sup>17</sup> Barron, J., Rockström, J., Gichuki F. and Hatibu, N. 2003. Dry spell analysis and maize yields for two semi-arid locations in east Africa. *Agricultural and Forest Meteorology* 117: 23-37

<sup>18</sup> Woodhouse and Ganho (2011) Is Water the Hidden Agenda of Agricultural Land Acquisition in sub-Saharan Africa?

<sup>19</sup> Bossio et al (2012) Water Implications of Foreign Direct Investment in Ethiopia's Agricultural Sector

<sup>20</sup> IIED Land deals in Africa: What is in the contracts?

Djiré, M., Keita, A. and Diawara A. (2012) Agricultural investments and land acquisitions in Mali: Context, trends and case studies. IIED, London



already considered ‘water-stressed’), water demand will double. As such there is a strong argument for building in water scarcity consideration in leases and prices.

In the absence of more sophisticated understanding of how different types of water resources (e.g. riverbanks, swamplands, river flows, rainwater collection and storage) are used at different times of the year by different types of users, there is a risk that large-scale commercial agriculture will cause unforeseen but disproportionate damage to existing small-scale production systems and wider catchment populations, including to urban water supply systems. There are also reports that the water diverted for land acquisition schemes has led to ecological degradation.<sup>21</sup>

Disproportionate impacts to existing small scale production systems is likely even where small-scale water use has legal protection, because it may lack visibility, in part due to its small physical extent and (often) intermittent duration. This often remains the case, even where small-scale producers are themselves investing in techniques to improve water supply to crops (e.g. by diverting streams into irrigation furrows)<sup>22</sup>. There is also the wider issue that in some countries local water and land rights are customary and not afforded legal recognition. Where customary land tenure and water rights are recognised by the national government (e.g. Mozambique or Tanzania), they’re not always respected (e.g. customary land rights are often only protected where the land is in ‘productive use’). Furthermore, national governments have used ‘compulsory acquisition’ to procure large swathes of land at the expense of local users. The Munden Project<sup>23</sup> found that at least 31% of land granted to concessions in 12 emerging economies overlapped with demarcated territory of indigenous peoples. This is likely to underestimate the problem, since the study only considered ‘indigenous territories’ but not those of other local users. Local and indigenous people are therefore often not properly taken into account when national governments sign leases with international and domestic investors.

This power imbalance between local water users and the national government, which is often seeking to attract FDI, is concerning. There’s also a power imbalance between the national government and international investors. International Investors are often afforded legal protection under international investment law, especially where there are Bilateral Investment Treaties (BIT) or International Investment Agreements (IIA) in place. Under these, investors are granted wide-ranging protection and can take host governments to international courts of arbitration if they perceive that they are being treated unfairly. During previous arbitrations, the terms of BITs have been interpreted broadly – particularly the clause on ‘fair and equitable’ treatment of the investor. The cost of arbitration is likely to deter national governments from bringing in policies or legislation that may impact the investments, even where these are warranted for the social or environmental good. This raises the question as to the extent to which international investment agreements limit a host government’s ability to introduce progressive environmental and water resources policies. Evidence collected by Oxfam suggests this might be the case.<sup>24</sup>

---

<sup>21</sup> Richards et al. Social and Environmental Impacts of Agricultural Large-Scale Land Acquisitions in Africa—With a Focus on West and Central Africa

<sup>22</sup> Veldwisch G J., Beekman, W. and Bolding, A.( 2013) Smallholder Irrigators, Water Rights and Investments in Agriculture: Three Cases from Rural Mozambique *Water Alternatives* 6(1):125-141

<sup>23</sup> The Munden Project. (2013) Global Capital Local Concessions. The Munden Project. [http://www.rightsandresources.org/documents/files/doc\\_6301.pdf](http://www.rightsandresources.org/documents/files/doc_6301.pdf)

<sup>24</sup> Oxfam (2011) Sleeping Lions: International investment treaties, state-investor disputes and access to food, land and water. Oxfam Discussion Papers.





## Improving the development impact of land acquisitions

Part of assessing the risk posed by land acquisitions is to analyse the adequacy of existing regulatory and legal controls in the countries where the land and water acquisitions are occurring. It is apparent that some countries are better at extracting the benefits of FDI than others: In some countries, negotiations with local authorities are mandatory for a deal to be finalised. In Tanzania and Mozambique, for example, the village authority must be included, although the effectiveness of such ‘consultation’ processes in allowing communities to influence decisions has been questioned<sup>25</sup>. In Liberia, larger land deals have to contain precise clauses on investor’s commitment regarding jobs, training, local procurement and processing. In addition, they have to be ratified by the parliament and made available for public scrutiny. However other countries have much weaker legislation and administrative structures, and corruption in land services is very high. While investments in Liberia are typically regulated by 40-60 page contracts, in Mali one can find a lease for a 100,000 hectare property that is regulated by only six pages of text, despite the nation’s complicated land tenure system.<sup>26</sup>

There are real concerns that many contracts underpinning the recent wave of land acquisitions may not be fit for purpose. A number of the contracts appear to be short, unspecific documents that grant long-term rights to extensive areas of land, and in some cases priority rights over water, in exchange for seemingly little public revenue and/or apparently vague promises of investment and/or jobs.<sup>27</sup>

In an effort to prevent land acquisitions leading to adverse environmental and social impacts a number of international processes have proposed guidelines. These include the ‘voluntary guidelines for the responsible governance of tenure of land, forestry and fisheries in the context of national food security’ (VGGT), globally negotiated and endorsed in 2012, and the principles for responsible agricultural investment in agriculture and food systems (the “RAI”) whose negotiation was finalised at the Committee on World Food Security in August 2014 and endorsed in October 2014.

The VGGT represent negotiated global minimum standard guidance on land governance. They were negotiated by the UN Committee on World Food Security, including substantive representation of civil society and the private sector, and were endorsed by 193 Member States in 2012. Since then, an increasing number of states have started applying them. In 2013, under the UK Presidency, the G8 made a high level commitment to support their accelerated implementation and launched an initial 8 country partnerships for the purpose, with Tanzania (UK), Nigeria (UK), Ethiopia (UK, US, DE), Niger (EU), South Sudan (EU), Senegal (F), Sierra Leone (DE), and Burkina Faso (US). These Guidelines are the first globally negotiated policy framework on land governance. They aim to safeguard individuals’ and companies’ rightful claims to land, support the development of transparent and accountable institutions to administer land transactions, and establish effective measures to solve land disputes.<sup>28</sup> However, water is not covered by the VGGT. This was changed in the most recently negotiated “RAI” where water was added to a full reference to the VGGT under the RAI principle 5 on land tenure. It reads:

---

<sup>25</sup> Polack, E, Cotula, L. and Côte, M. (2013) *Accountability in Africa’s Land rush. What role for legal empowerment?* IIED, London.

<sup>26</sup> IIED Land deals in Africa: What is in the contracts?

<sup>27</sup> IIED Land deals in Africa: What is in the contracts? <http://pubs.iied.org/12568IIED.html>

<sup>28</sup> FAO (2012) Voluntary guidelines on the responsible governance of tenure of land, fisheries and forests in the context of national food security



**\*Principle 5: Respect tenure of land, fisheries, forests and access to water\***

\*Responsible investment in agriculture and food systems respects legitimate tenure rights to land, fisheries, and forests, as well as existing and potential water uses in line with:\*

- i. \*The Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries, and Forests in the Context of National Food Security, in particular, but not limited to, Chapter 12.\*
- ii. \*The Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication.\*

<b>Voluntary guidelines for the responsible governance of tenure of land</b>
Recognize and respect all legitimate tenure right holders and their rights.
Safeguard legitimate tenure rights against threats and infringements.
Promote and facilitate the enjoyment of legitimate tenure rights.
Provide access to justice to deal with infringements of legitimate tenure rights.
Prevent tenure disputes, violent conflicts and corruption.

Both the VGGT and the “RAI” are voluntary guidelines and principles and there is no legal requirement to adhere to them. But, it is hoped that, as a soft law instrument under international law, both “RAI” and VGGT will make their way into voluntary and progressively then also into mandatory requirements over time.

## The risks of land acquisitions for investors<sup>29</sup>

While investment funds are playing a growing role in land acquisitions, they tend to be more familiar with financial deals than agricultural ones. Investors need to make realistic assessments of their capacity and that of the companies they invest through, to manage large-scale farming projects. There are a number of general risks they face, as well as more specific water risks.

General risks:

- Issues of image and reputational risk should not be underestimated. Investors can be seen as dealing with or propping up corrupt regimes and human rights violators. They may also be perceived as land grabbers in food-insecure countries.
- Long-term land leases – for 50 or even 99 years – are unsustainable unless there is some level of local satisfaction. In this context, innovative business models that promote local participation in economic activities may make even more commercial sense.
- At the local level, land rights may be hotly disputed as are water rights. This is bound to worsen with local populations increasing. The local tenure situation may be very complex, involving customary rights. Careful assessment of local contexts, including the existing dynamics of social and economic change, is critical, as well as long-term engagement with local interests (not just elites).
- Clarity is needed about the costs and benefits of the business transaction from the start. This includes realistic estimates and honest communication of what the project will bring – e.g. in terms of numbers and types of jobs and other positive and negative project impacts.

<sup>29</sup> Cotula, L, Vermeulen, S., Leonard, R. and Keeley, J., (2009), Land grab or development opportunity? IIED, FAO, IFAD <http://pubs.iied.org/pdfs/12561IIED.pdf>

## Water resource risks

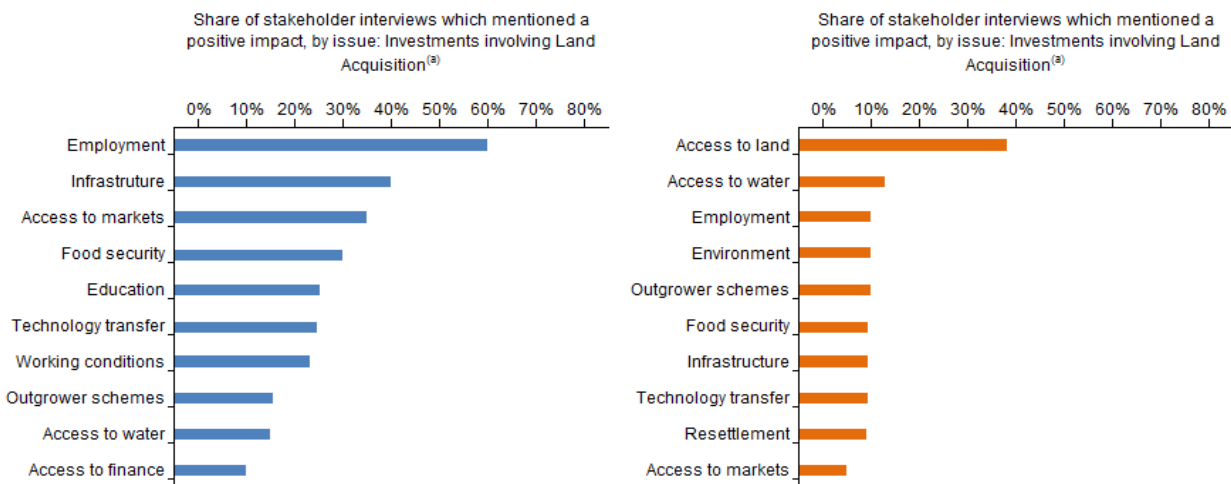
- Despite adequate aggregate water availability in many of the countries where land acquisitions are taking place, variability in supply and changes in demand under climate change scenarios are likely to lead to pinch points in the future where demand exceeds supply. This poses a risk both to investors and existing users, but also offers opportunities for positive externalities to be generated, for example from private investment in new water storage capacity which may also improve security of water supply to local communities.

## Existing research

There is a growing literature around land acquisitions and ‘land grabs’ which is of varying quality and tends to be polemic. On the one hand there are a number of NGOs producing material on ‘land grabs’, which focuses on the adverse impacts for communities and environment (e.g. Oxfam, GRAIN etc.). On the other hand, there is literature produced by the World Bank, FAO and IFAD that argues that there is a place for FDI to plug a funding gap and that this can benefit local populations and environments if it is structured correctly. Academic journals and those published by think-tanks (most notably IIED in this field) stress the lack of data and transparency to objectively appraise the risks and opportunities of land acquisition deals. Emerging research findings do, however, signal shifts in the focus of policy debate, notably emphasising the very small proportion of agreed land deals that are implemented, and the relatively large number of local or national investors involved in land deals (rather than only international investors).<sup>30</sup>

Clearer understanding of the actual progress of growing food and cash crops following land deals offers the prospect of a less polarised and more nuanced understanding of the opportunities and risks associated with land deals in specific contexts. A field based survey of 39 large scale, mature agribusiness investments undertaken by the World Bank demonstrates the range of impacts (both positive and negative) that large scale land acquisitions are having in practice.

**Figure 2 Stakeholder perceptions of the positive and negative impact of land acquisitions in ongoing agribusiness schemes**



Source: Adapted from: World Bank (2014) *The practice of responsible investment principles in larger scale agricultural investments – implications for corporate performance and impact on local communities*.

<sup>30</sup> Djiré, et al.. (2012) Agricultural investments and land acquisitions in Mali: Context, trends and case studies. IIED



Overall the positive impacts perceived by stakeholders outweigh the negative impacts. Reduced access to land is perceived as the most negative impact. Around 10% of stakeholders perceive land acquisitions to have a positive impact on access to water, with a similar proportion perceiving a negative impact. However, the World Bank concluded that, the overall environmental impacts of the large scale agri-business investments were likely to be negative due to intensive farming practices including high use of chemical applications and significant water usage.

A recent ODI paper<sup>31</sup> summarised studies that have used hydrological models to try and understand the impact in Ethiopia (Bues and Theesfeld 2012) the Limpopo basin in Mozambique and the Tana delta in Kenya (van der Zaag et al 2010). The authors of these studies question how far countries receiving investment are aware of hydrological constraints when leasing land to investors, taking account of factors including: likely crop water requirements; the assurance (probability that water will be available in a given year) required for commercial irrigation; and an appropriate measure for available water (dry season flows, rather than a simple annual average). The calculation undertaken for Mozambique suggested that the maximum area that could be irrigated with 80% assurance (i.e., with the probability of insufficient water in one out of five years) was less than the area for which the government was, at the time, seeking irrigation investment.

The ODI paper<sup>32</sup> using evidence assembled through key informant interviews in London and the Middle East suggests that many investors including governments and the private sector are largely unaware of the role that water resources will play in the success, or otherwise, of their investments. This contrasts with their comparatively greater understanding of social issues, including land rights, and some non-water environmental risks (Keulertz 2012).

A more complete account of the current status of the research is available in DFID's Topic Guide on land, available here: <http://www.evidenceondemand.info/topic-guide-land>

## Conclusion

This background note argues that land acquisitions are neither inevitably negative nor positive in terms of their impact on water resources; rather the way they are structured and implemented determine their outcomes. The arguments for and against land acquisitions are often polemical and not always based on facts (partly because facts are difficult to come by). At present, a review of published literature indicates that the wider impacts of land acquisitions tend to be negative rather than positive and experience suggests that land acquisitions have greater detrimental impacts for all concerned when compared to alternative investment models such as out grower schemes or contract farming. Evidence for the impact on water resources is still piecemeal but there is significant potential for them to be detrimental if pending land leases are executed, water demand continues to increase and supply becomes more erratic due to climate change.

A major reason for the negative impacts include the weak policy and regulatory frameworks covering land and water in many developing countries combined with poor governance in terms of allocating access to water resources for different users. These are often contested and based on poor evidence and they do not allow for responsible and sustainable acquisitions of land and water resources. A harder to verify reason is the purported wave of investments that have sought to secure priority access to water and have disenfranchised traditional, and often poorly visible, users (including the environment).

---

<sup>31</sup> ODI (2013) Property Rights and Development - Water Rights and Rural Household Welfare  
<sup>32</sup> ODI (2013) Property Rights and Development - Water Rights and Rural Household Welfare



However, the impacts do not need to be negative. Indeed, well-structured deals have the potential to improve water security for both investors and traditional users. Recent research by the World Bank on the impacts of agribusiness investments suggests that the positives can outweigh the negatives – even in relation to access to water. However, they sound a cautionary note to this conclusion, arguing that longer term impacts may well become negative, especially given the intensive nature of the farming models being deployed.<sup>33</sup>

The background note has thrown up a number of areas for future investigation, which would help 1) to develop a better evidence base to understand the actual impacts on water resources and 2) to demonstrate and communicate best practice, both on behalf of country governments but also on behalf of investors, with a view to de-risk land acquisitions and make them mutually beneficial.

### **Possible areas of further investigation**

The rapid review of the literature has suggested four areas where further research would be beneficial and would help nuance the, often polemical, debate and bring the impacts on water resources to the fore. These are:

1. Modelling the impact of land acquisitions on water availability in a number of countries with relatively high levels of land investments to understand the demand versus supply balance. This should take into account current and future variability in supply and changes in demand;
2. Analysis of the strengths and weaknesses of different country systems governing foreign direct investment (FDI) in land and water resources with a view to highlight best practice;
3. Understanding the implications of International Investment Agreements and Bilateral Investment Treaties on a host government's ability to introduce progressive water resource policy and legislation.
4. Profiling the types of investors in large scale land acquisitions to demonstrate the drivers behind their investments. To highlight poor and good practice in terms of investors understanding their impact on local water resources and users but also understanding the risk variable water supply poses to their long term investment. There is potential for investors to make positive contributions to water security through developing water storage facilities or spreading best practice in terms of water-efficient irrigation but evidence for this is limited.

The first three of these areas are explored in greater detail in annex A.

---

<sup>33</sup> World Bank (2014) The practice of responsible investment principles in larger scale agricultural investments – implications for corporate performance and impact on local communities



## Annex A Possible areas of further investigation

The rapid review of the literature has suggested three areas where further research would help DFID and other donors respond to the challenge that large scale land acquisition on water resources pose. These are discussed below:

### 1. **Modelling the impact of land acquisitions on water availability in a small number of countries with relatively high levels of land acquisitions.**

Assessment of the water resource available for agricultural development is strikingly rudimentary, often being based on little more than assessments of annual average rainfall, or total annual river flow, or some similar measure (e.g. Mean annual runoff in a river basin). In African rivers there are large seasonal variations (e.g. wet season flow may be 30 times dry season) and year to year (e.g. maximum flows may be 10 times average). This is recognised by FAO<sup>34</sup> in the terms ‘exploitable water resources: regular renewable surface/groundwater’ (minimum flow levels) and ‘exploitable water resources: irregular renewable surface/ground water (flood flows), but subsequent discussion of potential water for irrigation is entirely in terms of ‘renewable water resources’ – “the average annual flow of rivers and recharge of aquifers generated from endogenous precipitation”.

This may be a reasonable indicator for drawing up comparisons of geographical regions or countries, but it needs to be recognised that such data do not easily translate into an assessment of the likelihood of water availability at the key times of the year when water flows are lowest. The question then, is what data and methods of analysis can most effectively assess:

- a) water availability and the existing demand for, and use of, water at the driest times of the year;
- b) the impacts of new irrigation demand on existing users.
- c) the sensitivity of such assessments to increased intensity of inter and intra-annual variability (as predicted to occur due to climate change).

There are a number of complexities in making such assessments. For example, to what extent is existing water use ‘visible’: is it registered or (more commonly) unregistered? If the latter, is it recognised as legitimate by water management agencies? Do existing patterns of water use signify unmet demand: are there reductions in household water use due to increasing effort required to access/transport water? Is there evidence of market-oriented agricultural production using low investment methods (cultivation of valley bottoms and riverbanks, stream diversions into furrows, ‘informal’ irrigation fields at the periphery of existing irrigation infrastructure) that suggest initiatives towards water-based agricultural intensification? How can such dispersed, seasonal demands for water, both actual and latent, be adequately characterised and aggregated?

Conceptualising existing demands on water resources in such terms signals that the impact of new water demands associated with large-scale agricultural development need to be seen not only in terms of volumetric consumption but also in terms of the wider impacts on local hydrology: how will the new development affect the patterns of drainage of water in neighbouring areas? Will there be construction of water storage? What effects will this have on seasonal distribution of water flows? What consequences might this have on existing resource use (e.g. fisheries, grazing, irrigated agriculture), particularly at times of least availability of water?

---

<sup>34</sup> Irrigation in Africa in Figures AQUASTAT survey (2005) FAO Water Report 29.



Given that in many cases proposals for new agricultural investment are identified in rural areas with low levels of existing water infrastructure, particular attention should be given to the potential positive impacts of investment in water management. One of the most obvious possibilities is the mitigation of seasonal water scarcity through increased storage of floodwater in small-to-medium scale dams. Possible positive impacts might include: greater recharge of groundwater; and higher levels of dry-season river flow (directly or via drainage from irrigated fields).

A variety of further 'public interest' possibilities might arise from investments in increased water storage for commercial agriculture. In general, volumes of water demanded by irrigation are much larger than water consumed by primary use (drinking, washing, livestock). It should therefore perhaps be considered whether investments for agricultural water management can be used to increase the security and availability of supply of water for primary use (e.g. by allocating a portion of stored water for primary use). This type of assessment would also gain greater importance where local people obtain part of their water supply from sources liable to contamination from agricultural drainage containing pesticides and fertilizer.

In order to assess the feasibility of modelling the potential positive and negative impacts of land acquisitions and their associated water use, work is needed to determine whether suitable data exist. There is a large literature on modelling water availability and demand, but much of it has been focussed either on 'global water scarcity'<sup>35</sup>, or on the impacts of climate change<sup>36</sup>. These studies work at too large a scale. An initial short-term study is needed to assess data availability at the level of river basins. Detailed data is most likely to have been assembled for major river basins, but the quality of such data needs to be assessed, since actual monitoring of surface water may be sparse and records are often short and fragmentary. To be useful, modelling would need to examine water availability and demand at a much more local scale than that of the entire river basin, so specific sub-catchments of interest would need to be identified.

An initial study should select river basins in which land acquisitions are occurring (Nile, Niger, Volta, Zambezi and Limpopo) and examine data availability for sub-catchments. In some cases, smaller river basins (e.g. in Ethiopia) may be of particular interest. In order to model the probability of water availability and water use monthly over the year, data is available for rainfall (FAO Aquastat/CRU dataset)<sup>37</sup>, and some surface flow records will generally be available from government water authorities. Groundwater data may be very limited and/or unreliable, but work by the UPgro programme<sup>38</sup> should be consulted to check on recent results of groundwater surveys. The study will need to identify what data is available on existing water use, with particular attention to non-formal irrigation and water supply for primary (household) use. Estimates are made by the FAO (Aquastat) on the basis of data from government agencies and agricultural surveys, but the quality and reliability of these (including data on population growth and land use change) need to be assessed. The study should allow for visits to relevant agencies in African countries to make such an assessment.


---

<sup>35</sup> Rijsberman, F. (2006) Water Scarcity: fact or fiction? *Agricultural Water Management* 80:5-22; Vörösmarty et al. (2010) Global threats to human water security and river biodiversity. *Nature*, 467: 556-561 doi:10.1038/nature09440

<sup>36</sup> Goulden, M., Conway, D. and Persechino, A. (2009) Adaptation to climate change in international river basins in Africa: a review. *Hydrological Sciences – Journal des Sciences Hydrologiques*, 54(5): 805-828

<sup>37</sup> <http://www.cru.uea.ac.uk/cru/data/hrg/>

<sup>38</sup> <http://www.nerc.ac.uk/research/funded/programmes/upgro/>



Following the initial assessment of data, a number of modelling exercises could be undertaken for specific land acquisition proposals. In the longer term, studies to identify effective methodologies for identifying water demands of existing land use by small-scale producers will be needed.

## **2. Analysis of the strengths and weaknesses of different country systems governing foreign direct investment (FDI) in land and water resources.**

Water and land are typically managed by different government agencies. This in part reflects the technical and political priorities associated with the different resources, such as the need for cadastral and property registers for land, and the need for infrastructure to manage water and deliver water services. Yet the fundamental roles of water management for agriculture, and of land management in controlling runoff rates in watersheds, means that coordinated policies are required. This suggests that there may be a tension between the 'sectoral' emphasis of government agencies and policy-making processes on the one hand, and the needs of effective governance of land and water, on the other. Yet it is possible that recent 'best practice' reforms that emphasise 'intra-sectoral' coordination, such as specialised river basin agencies coordinating water allocation among water users, may further separate decision-making about water from that about land. It is also not uncommon for separate government agencies to be responsible for irrigation and water resources, from ministerial to local level. At the same time, there is a growing recognition that design of allocation mechanisms, such as water pricing, cannot be separated from specific contexts of competing water uses, in which their legitimacy is conditional on reconciling different, possibly incommensurable, systems of water values<sup>39</sup> recognised by different water users.

This suggests the importance of more holistic, rather than sectoral, perspectives in achieving effective natural resource governance. This is consistent with the findings of recent work that identifies weaknesses in coordinated resource planning at a strategic level as one important element contributing to a failure of land deals to gain legitimacy<sup>40</sup>. Further research is needed to understand whether this is the case and, if so, whether such weaknesses have different implications for the governance of land and water. Possible avenues of research could ascertain to what extent planning weaknesses are due to a lack of technical and managerial capacity to formulate a coherent vision of development for a particular region<sup>41</sup>, or whether the binding constraint is essentially political: a need for more effective accountability of planning agencies to the population on whose behalf they work.

Recent writing on how accountability works has highlighted the need for both formal, legal processes ('accountability as rights') and informal processes of collective political mobilisation ('accountability as power')<sup>42</sup>. This suggests that the provision routinely made in planning procedures for 'consultation' of local communities about proposed land deals needs more critical scrutiny to understand its effectiveness in establishing conditions for accountability. Relevant questions would include:

---

<sup>39</sup> Global Agenda Council on Water Security (2014) *Water Security. Towards a Values-based Approach*. World Economic Forum.  
[http://www3.weforum.org/docs/GAC/2014/WEF\\_GAC\\_WaterSecurity\\_ValuesbasedApproach\\_Report\\_2014.pdf](http://www3.weforum.org/docs/GAC/2014/WEF_GAC_WaterSecurity_ValuesbasedApproach_Report_2014.pdf)

<sup>40</sup> Polack, E, Cotula, L. and Côte, M. (2013) *Accountability in Africa's Land rush. What role for legal empowerment?* IIED, London.

<sup>41</sup> Bruns, B., Ringler, C. and Meinzen-Dick, R (eds) (2005) *Water rights reform: lessons for institutional design*. International Food Policy research Institute, Washington DC.

<sup>42</sup> Polack, E, Cotula, L. and Côte, M. (2013) *Accountability in Africa's Land rush. What role for legal empowerment?* IIED, London.





- to what extent do development agencies and existing land and water users understand the legal provisions of consultation processes?
- to what extent do consultation procedures enable identification, and space for articulation, of different viewpoints within 'communities'?
- to what extent do local constituencies have the skills and knowledge to mobilise effectively and hold authorities to account?


These questions need to be addressed to cases of investments in both water and land, as well as instances where changes in both land and water use are implicated in a single project. This would enable an assessment of, for example, whether 'effective empowerment' of people to hold authorities to account is more likely in relation to water use than land use; and whether an understanding of the impacts of a land deal on water resources increases the willingness of people to mobilise politically.

Case studies of consultation processes in specific African contexts would supply an initial answer to the questions identified above. Ghana, Ethiopia, Mali, Mozambique, and Tanzania would be possible (and contrasting) contexts in which such case studies would be of interest. Short-term studies would be able to identify what is specified by legislation and the extent to which this provides specific guarantees in relation to local people's rights to have a say in the use of natural resources. Such initial studies could also identify any evidence of the adequacy or otherwise of such legislation in practice.

Follow-up studies in specific countries would be needed to examine these questions in more depth. These would enable not only a closer examination of specific consultation procedures in practice, but also more systemic aspects. These latter would need to explore the extent that weaknesses in the governance of land and water are not restricted to – although may be highlighted by – foreign land acquisitions. The focus of international debate on foreign land acquisition in low-income economies has tended to obscure evidence that the majority of land acquisitions are being made by local or 'national' investors, including entrepreneurs with interests outside agriculture. Moreover, such processes have been underway for much longer than the recent spate of foreign land deals. Our understanding of processes of governance of land and water might therefore be advanced by case studies that investigate the characteristics of 'endogenous' land acquisition by nationals of the country concerned: to what extent are legal procedures followed; to what extent are local groups capable of challenging such land acquisitions by 'outsiders'; and to what extent are the impacts of such investments on water resources identified and any harmful effects mitigated?

### **3. Understanding the implications of International Investment Agreements and Bilateral Investment Treaties on a host government's ability to introduce progressive water resource policy and legislation.**

The inclusion of stabilisation clauses with broad scope in investment treaties and contracts concluded between governments of low-income countries and foreign investors have raised concerns that foreign investment may constrain government efforts to improve social and environmental conditions in areas where foreign-funded projects operate. Stabilisation clauses are included in many international agreements to address the vulnerability of investors to financial loss where investments made at the start of a project need to be recouped by revenue streams in the latter stages of the project. The purpose of a stabilisation clause is thus to protect the value of revenue to the investor and ensure the financial viability of the investment. Such clauses may also be required by financial backers of the project, who advance loans against the security of future revenues.



Concerns about negative effects of such clauses (and also similar provisions that ‘freeze’ applicable legislation as that in force at the time the contract was agreed) may be summarised under the following points:

- International treaties and contracts commonly contain provisions that allow the settlement of disputes between host government and foreign investors through international arbitration, rather than through national courts, which may put host governments at a disadvantage and place the terms of contracts above national law.
- Where stabilisation clauses are framed in broad terms there is concern that investors may view any change in government regulation that they dislike as a breach of contract for which they may demand compensation through international arbitration.
- Such effects may inhibit governments from introducing new laws and regulations aimed at improving social and environmental conditions.

Experience has enabled the emergence of guidelines that allow stabilisation clauses to be framed in terms that minimise these risks, for example by excluding regulatory changes that are not discriminatory against the investors in question, or that invoke ‘public interest’ to improve the conditions of health, labour or the environment consistent with international norms.<sup>43</sup>

In the short-term, further analysis is needed to identify the extent to which such avenues are recognised and applied in drafting contracts for investors in land, and how they interface with the VGGT and ‘responsible agricultural investment’ (“rai”) guidelines. The linkage between investment in land for commercial agriculture and the exploitation of water resources for irrigation raises particular questions about the possible use of ‘public interest’ provisions in the drafting of contracts. In particular, would the identification of water use implications in contracts for land deals make a stronger case for contract provisions for monitoring and regulating (e.g. via renegotiation provisions) project water use in order to address emerging water scarcity problems through the negotiation of measures to mitigate any negative effects on other water users?

Such analysis would initially focus on documentary sources, but, where possible, should include a series of interviews with individuals and agencies involved in negotiating contracts for land acquisition. These would not only shed light on the above, but would also offer opportunities to examine the extent to which provisions in contracts could be used to leverage ‘positive externalities’ from foreign investment in agriculture. For example, is there scope to link the proposed agricultural investments with beneficial effects in neighbouring communities, such as improved security of access to drinking water supply for households, or expanded options for small-scale irrigation by farmers,? Key questions would be:

- Are there cases in which such provisions have been included in contracts?
- If so, what has been the outcome?
- What obstacles can be identified to such provisions?

A more wide-ranging follow-up to this contract-based analysis could focus on interviewing those who have been involved in negotiating international and bilateral investment agreements. These would seek to understand the processes through which international and bilateral investment treaties may facilitate or block the exploration of such options. What attitudes are evident among the negotiators of such treaties? Are there policy or practical considerations that militate against a more proactive use of either voluntary (VGGT or “rai”) guidelines or public interest provisions to improve the potential for commercial agricultural

<sup>43</sup> Cotula, L. (2010) *Investment contracts for sustainable development. How to make contracts for fairer and more sustainable natural resource investments*. Natural Resource Issues No. 20. IIED, London.



investment to promote positive impacts on water security for people in rural areas? The overall goal of such analysis would be to identify whether existing initiatives go far enough, or in the right direction, to establish underlying 'rules of engagement' to ensure that international investment agreements promote socially-beneficial development in low-income countries, particularly among poorer people in rural areas.



## Key references

1. BMZ Investment in land and the phenomenon of land grabbing: challenges for development policy
2. Bues, A. and Theesfeld, I., 2012, 'Water grabbing and the role of power: Shifting water governance in the light of agricultural foreign direct investment' *Water Alternatives* 5, 2, pp.266-283
3. FAO (2012) Voluntary guidelines on the responsible governance of tenure of land, fisheries and forests in the context of national food security
4. GRAIN (2009) Rice Land Grabs Undermine Food Sovereignty in Africa. <http://www.mailarchive.com/sustainableorgbiofuel@sustainablelists.org/msg73860>
5. IFAD Responding to 'land grabbing' and promoting responsible investment in agriculture <http://wocan.org/resources/ifad-responding-%E2%80%99land-grabbing%E2%80%99-and-promoting-responsible-investment-agriculture>
6. IFPRI "Land Grabbing" by Foreign Investors in Developing Countries: Risks and Opportunities
7. IIED Alternatives to land acquisitions: Agricultural investment and collaborative business models
8. IIED Land deals in Africa: What is in the contracts? <http://pubs.iied.org/12568IIED.html>
9. IIED Land grab or development opportunity <http://www.fao.org/docrep/011/ak241e/ak241e00.htm>
10. Introduction to the Special Issue: Water Grabbing? Focus on the (Re)appropriation of Finite Water Resources <http://www.ids.ac.uk/publication/introduction-to-the-special-issue-water-grabbing-focus-on-the-re-appropriation-of-finite-water-resources>
11. Keulertz, M., 2012, 'Land and water grabs and the green economy', in Allan, T., Keulertz, M., Sojamo, S. and Warner, J., (eds.). *Handbook of Land and Water Grabs in Africa: Foreign direct investment and food and water security*, London, Routledge, 446pp
12. LDPI Drivers and actors in large-scale farmland acquisitions in Sudan
13. LDPI Processes of Large-Scale Land Acquisition by Investors: Case Studies from Sub-Saharan Africa
14. Mann, Howard, *Smaller: A thirst for distant lands: Foreign investment in agriculture in land and water*
15. Oakland Institute *Understanding land investment deals in Africa*
16. ODI (2013) *Property Rights and Development - Water Rights and Rural Household Welfare*
17. PNAS Global land and water grabbing 18. <http://www.pnas.org/content/early/2013/01/02/1213163110.abstract>
18. Richards, M. (2013) *Social and Environmental Impacts of Agricultural Large-Scale Land Acquisitions in Africa—With a Focus on West and Central Africa*. [http://www.rightsandresources.org/documents/files/doc\\_5797.pdf](http://www.rightsandresources.org/documents/files/doc_5797.pdf)
19. Jägerskog, A., Cascão, A., Hårsmar, M. and Kim, K. (2012). *Land Acquisitions: How will they Impact Transboundary Waters?* Report Nr 30. SIWI, Stockholm <http://www.siwi.org/publication/land-acquisitions-how-will-they-impact-transboundary-waters/>
20. *Sovereign Wealth Funds as investors in Africa: opportunities and barriers*
21. UNCTAD, FAO, IFAD and the World Bank *The Principles for Responsible Agricultural Investment (PRAI)* <http://unctad.org/en/Pages/DIAE/G-20/PRAI.aspx>
22. Woodhouse and Ganho (2011) *Is Water the Hidden Agenda of Agricultural Land Acquisition in sub-Saharan Africa?* <http://www.oicrf.org/document.asp?ID=10206>
23. Woodhouse *Foreign Agricultural Land Acquisition and the Visibility of Water Resource Impacts in Sub-Saharan Africa* <http://www.plaas.org.za/bibliography/watergrabs-subsahara-waa>