Land Acquisitions: How will they Impact Transboundary Waters?
Land Acquisitions: How will they Impact Transboundary Waters?

By Anders Jägerskog, Ana Cascão, Mats Hârsmar and Kyungmee Kim
Note to the Reader

The topic of the report – Transboundary Water Management (TWM) and land acquisitions – is largely uncharted territory. While TWM represents an area where a fair degree of research has been done during the last decades, the area of land acquisitions suffers from a lack of rigorous research, which is partly a result of the scarcity of trustworthy data. Thus, when trying to combine these areas a number of challenges emerge. Most of the challenges stem from the relatively little systematic analysis of land investment and the lack of reliable data. Furthermore, the interface between water and land acquisitions is a new area of investigation and major baseline studies do not yet exist. This report draws to a large degree on some key reports being produced over the last few years, such as Cotula (2011), the World Bank report from 2011 *Rising Global Interest in Farmland, Can it Yield Sustainable and Equitable Benefits*, as well as the work done by the International Food Policy Research Institute (IFPRI), International Land Coalition (ILC) and International Institute of Environment and Development (IIED). These reports have addressed issues of data collection, divisions of various types of investors, and the different contexts for countries where the investments have taken place. All of which combine to make it challenging to compare the results. The tables and maps provided in this report attempt to explain the variations between the approaches, although it is noted where particular caution is warranted when assessing the data. The cases on land acquisitions and TWM have been prepared by Ana Cascão (Nile River Basin) and Kyungmee Kim (Niger River Basin). The authors are grateful for comments from Anders Berntell, Anton Earle, Jan Lundqvist and Josh Weinberg.

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Introduction

International land investments in Africa, Latin America and parts of Southeast Asia for the production of food and biofuel is a trend that has increased in recent years, not least after the food price crisis 2007-2008. The rising cost of food, coupled with water scarcity in countries in the Middle East and North Africa (MENA) region and in parts of Asia, motivated a number of countries dependent on imported food to lower their vulnerability to future food price hikes by investing in agricultural land in foreign nations where they could produce food and agricultural goods (IFPRI, 2009). This has led to an increased international and domestic interest in farmland, primarily in Africa and Latin America (World Bank, 2010), but has also raised a series of concerns. Some claim domestic food security in host countries may be under threat (Matondi et al., 2011), while others fear that local populations with customary access to land are often evicted or excluded when large scale agricultural development projects are ushered in (Deininger, 2011). As land rights are being put into question, water rights are also coming to the fore.

Most of the focus in the research to date has been on the terms and conditions of the contracts for investment and leasing of land. This information is usually not made public or is left ambiguous when available (Cotula, 2011). The effect that these investments will have on the domestic water situation in countries as well as on shared waters has not yet been analysed. The investors (whether governments or private sector) will want reliable access to water to grow crops on the bought or leased land. Such irrigation also requires energy, some of which needs to come from hydropower. Potential conflicts around land and the increased water utilisation in the countries where investments are being made can influence transboundary relations.

The aim of this exploratory report is to explore how the current surge in land acquisitions and investments by foreign countries, sovereign wealth funds and private corporations, as well as domestic investors, will affect transboundary water management.

It will outline some key questions in the nexus between land acquisitions and transboundary water management, such as:

Will the countries where the investments are being made become less powerful than some of their riparian neighbors, or will this instead lead to an increase of their bargaining power (Jägerskog and Zeitoun,
2009)? Will they be squeezed between a strong riparian protecting its own interest and a strong foreign government (e. g. India and China) seeking to safeguard its food security?

To shed some light on this intricate nexus, this report will provide overview and analysis of transboundary water management; trends in land management and land acquisitions; global food and land dynamics; and the local, national and regional level implications of land acquisitions. It also includes case illustrations from the Nile and Niger River basins. Though the issues discussed occur in multiple regions, this report focuses on sub-Saharan Africa (SSA), which is the region attracting the largest quantity of land investments. The report does not claim to provide a comprehensive answer to the issues raised here but instead seeks to identify key areas in need of improved and more extensive research.

**KEY MESSAGES**

- Land investment is a water investment. Water is often presumed to be included without explicitly being mentioned in land lease agreements.
- Regional Economic Communities (RECs), River Basin Organisations (RBOs) and regional organisations have little or no role in the land acquisitions on record to date. Large land deals will, however, very likely impact their mandate and ability to function.
- The type of water (green water or blue water and the intensity of its use) used for the land investments determines its effect on transboundary water management.
- Water that is being used for irrigation in land leased by foreign parties does not feature in the transboundary discussions in many, if not all, shared basins.
- Water needs should be put into the land acquisition contracts in order to clarify the water requirements of the investors’ projects and to regulate their water use.
- Sustainable water use should be acknowledged explicitly in the international standards for responsible agro-business investments.
The discourse on Transboundary Water Management (TWM) has developed and changed significantly over the past two decades. In the 1990s, most analysts argued that the world would face an era of increased conflicts and water wars (see e.g. Starr, 1991 and Homer-Dixon, 1994). The reasoning was based upon two defining features of the era. First, political rhetoric, primarily in the MENA region, escalated with many leaders claiming they would be willing to go to war to protect their water resources. The late King Hussein of Jordan stated that water was the only thing that could bring Jordan into war with Israel again and the then diplomat of Egypt, Boutros Boutros-Ghali, said that the next war in the Middle East will be about water – not politics. Secondly, the declining water availability in the MENA region, and elsewhere, reached alarmingly low levels on a per capita basis, and made the political statements more frightening. An analysis of the availability of water in some countries showed that it was no longer possible for them to grow enough food to feed their populations. This led many to the conclusion that water wars would be the inevitable result. However, it was apparent that statements like the ones above were not analysed in their right political context. The message politicians wanted to communicate to their public was that water was a very important political question (Jägerskog, 2003). The fact that nations which were unable to domestically produce the food they need would be able to solve their food demand through trade in the global market was either ignored or not well understood by earlier analysts. Egypt effectively ran out of water in the 70s – in terms of being food self-sufficient – but has managed to feed its populations by importing the wheat, cereal and other water intensive food commodities it needs instead (Allan, 2001). Thus the narrow water-focused and deterministic perspective that characterised early research largely failed to put water into its relevant place in the broader political economy.
Based on the insight that water should not necessarily be seen as a source of war, a new school of thought emerged that focused on transboundary waters as source of cooperation and peace (Giordano and Wolf, 2002; UNESCO PCCP etc). A team at the Oregon State University under the leadership of Aaron Wolf analysed events related to transboundary water management and concluded that cooperative action was dominating the interplay between countries sharing a transboundary water source. By the late 1990s and early 2000s, the pendulum had swung toward a focus on transboundary waters as a source of cooperation and peace both in academia as well as within the field of international organisations. Programmes promoting increased cooperation were initiated, based on the anticipation that this would lead to more peaceful development broadly, and could also serve as a confidence building and conflict resolution mechanism (such as the UNESCO programme From Potential Conflict to Cooperation Potential – PCCP). While these perspectives brought a more sound analysis of the actual situation on the ground, it also became clear that the cooperation between parties sharing transboundary waters was not always harmonious and equitable. Power asymmetries’ between the parties contributed to situations in which the stronger party (or state) – the hegemon – often withdraws a disproportionately large share of the waters (Zeitoun and Warner, 2006). Many noted that cooperation and conflict often occurs simultaneously in basins and are not mutually exclusive (Zeitoun and Mirumachi, 2008; Jägerskog and Zeitoun, 2009).

The balance of power in a basin largely affects, and in many cases determines, the outcomes in terms of who gets the water, and shapes the context for where, when and how the relation between land and water is to be understood. It is in particular interesting to seek to understand how new investors in land currently affect the hydro-political arena today, and how they could potentially impact it in future.

**A land investment is a water investment, though water is rarely in the contract**

Some investors, in particular those facing water shortages and increasing food demands at home, are investing in land to gain access to water resources which is scarce at home. Many investors, such as India, China, South Korea, Jordan, Saudi Arabia, UAE, Kuwait and Qatar are partly experiencing water shortages or are under severe water stress. Increased agricultural, industrial and domestic water use and environmental degradation in China and India, for example, have led to water shortages in their drier regions. Mounting demands from their growing, more affluent populations will eventually require both nations to fill its freshwater shortage through virtual import. Gulf state investors suffer from even higher external water dependency, with Kuwait (90 percent), Jordan (86 percent),
Israel (82 percent) and United Arab Emirates (76 percent) among the largest ‘virtual water’ importers in the world (Mekonnen and Hoekstra, 2011).

Although the number of contracts on agricultural investment and land acquisition is increasing, few of them are available to the public. Lack of transparency and non-disclosure of agreements between parties have been obstacles to investigate the impact of land deals on water. Cotula (2011) reviewed 12 contracts in Cameroon, Ethiopia, Liberia, Madagascar, Mali, Senegal and Sudan. In the majority of these cases, there is no explicit or implicit stipulation of what water can or cannot be used on the acquired land. In some cases water is taken into account, such as the contract between the Government of Mali and the Libyan government, where the investors are granted water without restriction during the wet season (June-December), but they are obliged to grow crops which require less water during the dry season (January-April). Another contract signed between the Sudan and Syria allows the investors to access water resources from the White Nile Basin, as well as underground water resources. Access to water is not, however, directly mentioned in other contracts and must be taken for granted, as it is unlikely that they plan to grow crops without water.

What water will be used?
So what water will be used in leased lands? Approximately 40 percent of the global population lives in areas dependent on transboundary river basins (Sadoff and Grey, 2005). The current world map features 263 international water basins, which provide water for roughly half of global land area and 40 percent of available freshwater resources (Giordano and Wolf, 2002). With many of the land acquisition hotspot countries located in the transboundary water basins, such as the Mekong, Nile, Niger and Zambezi River Basins, the impacts will be felt in the shared basins. The Government of Sudan, South Sudan and Ethiopia, for example, have attempted to attract foreign investors to their respective countries. The unilateral action of respective governments allowing investors to use the transboundary water has not been a source of conflict yet but could become contentious in future if their water withdrawals increase significantly as a result. As political discussions over water are challenging already today, this adds another complicating factor. Even if water used in leased lands does not come directly from a shared basin, its impact could trickle down if other local users are compelled to use more transboundary water because water they used previously is now flowing to a new user (i.e. a project by an investor). In the Mekong River Basin, for example, China, the upstream riparian state, has been involved in the Economic Land Concession of Cambodia, a downstream riparian state that is heavily dependent on the basin. The Mekong Agreement of 1995 prohibits the riparian states to divert or to construct any hydraulic structure which would affect water flow of the Mekong. Unlike the case of the Xayaburi dam in Laos, which was constructed by a Thai developer then put on hold (Hookway, 2011), the water used by foreign land concessions in Cambodia and Laos has not been a topic in intergovernmental dialogues in MRC (Baird, 2011; Saracini, 2011).

Table 1, which shows large-scale land investments in selected countries in Africa, demonstrates that the investments made during 2004-2009 are relatively small in terms of the agricultural area they use, according to the available data. Liberia is a notable exception, as the investments will use over 60 percent of the agricultural land. More detailed analysis is needed before being able to provide authoritative figures for how much water the investments will require from transboundary basins. In the following map, a first attempt to categorise some of Africa’s basins is made.
Green water or blue water?

In sub-Saharan Africa, 96 percent of the cultivated land is not irrigated but rainfed (FAO AQUASTAT, 2012). Rainfed agriculture utilises ‘green water’ (i.e. the water that is in the soil moisture.) Blue water refers to the water available in rivers and in aquifers. Globally, rainfed agriculture is the most common practice, especially in developing countries. In many developing regions, lack of irrigation facilities and hydraulic engineering structures limits the use of blue water. If the investors are allowed to construct necessary irrigation facilities in the leased farm land, utilisation of blue water would increase. This would increase agricultural production in the region, and almost certainly increase the use of transboundary water resources.
### Table 1 Large-scale land investment in selected countries, 2004-2009

<table>
<thead>
<tr>
<th>Selected Countries</th>
<th>Transboundary water in selected countries</th>
<th>World Bank (2011) (ha)</th>
<th>Cotula et al. (2009) (ha)</th>
<th>% of total agricultural land</th>
<th>Total agricultural land (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethiopia</td>
<td>Gosh, Juba-Shibeli, Nile</td>
<td>1,190,000</td>
<td>602,760</td>
<td>1.7-3.4</td>
<td>34,985,000</td>
</tr>
<tr>
<td>Nigeria</td>
<td>Lake Chad, Niger</td>
<td>793,000</td>
<td>–</td>
<td>1.1</td>
<td>74,500,000</td>
</tr>
<tr>
<td>Mali</td>
<td>Niger, Senegal, Volta</td>
<td>–</td>
<td>162,850</td>
<td>0.4</td>
<td>41,101,000</td>
</tr>
<tr>
<td>Sudan</td>
<td>Gosh, Lake Chad, Nile</td>
<td>3,965,000</td>
<td>–</td>
<td>2.9</td>
<td>136,731,000</td>
</tr>
<tr>
<td>Liberia</td>
<td>–</td>
<td>1,602,000</td>
<td>–</td>
<td>61.4</td>
<td>2,610,000</td>
</tr>
<tr>
<td>Ghana</td>
<td>Volta</td>
<td>–</td>
<td>452,000</td>
<td>2.9</td>
<td>15,500,000</td>
</tr>
<tr>
<td>Madagascar</td>
<td>–</td>
<td>–</td>
<td>803,414</td>
<td>2.0</td>
<td>40,845,000</td>
</tr>
<tr>
<td>Mozambique</td>
<td>Zambezi, Incomati, Limpopo, Maputo, Ruvuma, Umbeluzi</td>
<td>2,670,000</td>
<td>–</td>
<td>5.4</td>
<td>49,300,000</td>
</tr>
</tbody>
</table>

Source: Transboundary water data is based on Wolf, A.T. (2002); Total agricultural land is based on FAOSTAT; percent is calculated by authors.

Note: World Bank (2011) data on Nigeria covers 1990-2006 and the figure on Liberia includes earlier concessions. World Bank (2011) only included data for project above 500 ha for Ethiopia, Liberia, Nigeria and Sudan and 1,000 ha for Mozambique. Cotula et al. (2009) only include data for project above 1000 ha.
Land investments started to rise at the turn of the century. Acquired land is most commonly used to grow food crops or to produce bio-energy. Investments range from small to large scale, may be run through small-holders sharecropping or tenancy, and can sell crops to either domestic and foreign markets. The investors comprise of international corporations, sovereign wealth funds, foreign governments, private equity firms and domestic actors. In the first wave of the investment boom, from 2007-2009, corporate and government investors dominated. They were driven by expectations for future food and agro-fuel demand to rise and increase the value of agricultural produce. Gradually, institutional investors, such as hedge funds, pension funds and portfolio investors have increased their presence. This latter group of investors is primarily motivated by land investments as historically proven hedges against inflation. They also seek land investments as a means to obtain real assets in times of financial turbulence, and see agricultural markets as insulated from other more volatile markets (High-Quest Partners, 2010).

The sharp increases in international food and energy prices that began in 2007 have led to a dramatic increase in the quantity and scale of investments (see box 1). While a rapid increase in investments is a clear trend (World Bank, 2011, Oxfam, 2011), the actual number and size of investments is not clear and current estimates range considerably. The World Bank estimated that more than 56 million hectares were leased in 2009 alone, 70 percent of which were made in Africa (World Bank, 2011). The “Land Matrix Partnership”, a research consortium composed of NGOs, academics and donor organisations, claims that as much as 227 million ha (roughly the size of Western Europe) may have been sold or leased in the global South over the past decade (Oxfam, 2011); though most other figures, based on extrapolations from groups of individual countries where data comes from investment authorities, are more conservative. There are additional uncertainties about the extent of investment implementation, which is difficult to assess. It is likely that many leases are still pending or not yet executed as investment processes are cumbersome and include mandatory negotiations with local authorities and populations in some countries.

Global Food and Land Dynamics

Photo: Erk Forhammar
**Why sub-Saharan Africa attracts investors**

As noted above, a majority of all land deals worldwide take place in Africa, and primarily in sub-Saharan Africa (SSA). There are several reasons why much of the investment interest has been directed towards tropical areas in general and SSA in particular. The region features a relative abundance of water and land resources, available and inexpensive labour and very low land sale and leasehold prices. For example, land prices in Brazil or Argentina hover around 5,000 USD per hectare per year (The Oakland Institute, 2011). In Ethiopia and Liberia, some lands have been leased for as little as 2-5 USD per hectare and year (Cotula, 2011). While there may be additional costs involved for the investor to build access to electricity and infrastructure, it is still significantly cheaper. In addition, some of the best conditions for growing energy crops are also found in tropical areas, where crops that produce little CO$_2$ emissions, such as sugarcane, sweet sorghum and jatropha, can be grown.

There are opportunities for small-scale agriculture in Africa to make large productivity gains. Cultivated land in SSA amounts to about 210 million hectares. Some estimates state that an additional 600-800 million hectares of potentially cultivable lands are available (FAO-IIASA, 2000; FAO, 2009). Others, which exclude lands that currently provide ecosystem or other services (forest, savannah, tourism), carry other forms of user rights or are situated far from markets and infrastructure, estimate that about 65-70 million hectares of land are available for additional cultivation until the year 2050 (FAO, 2009; Bruinsma, 2009).

For decades, African agriculture has advanced at much slower rate than all other parts of the world. With the signing of the Maputo Declaration on Agriculture and Food Security in July 2003, African governments committed themselves to set aside at least 10 percent of their national budgets for agriculture and rural development within five years. Though many made significant progress towards that objective, only eight actually achieved it. Still a clear political signal of commitment to increasing agricultural production and productivity has been made by the 26 African governments who have signed the Comprehensive African Agricultural Development Program (CAADP) Compact since its initiation in 2007.

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**BOX 1: Why did food prices rise?**

The rapid rise in the cost of food over the past half-decade has been explained by a combination of factors, including: low initial stocks of food crops due to an extended period of low food prices and general underinvestment in agriculture; failed harvests in parts of the world due to droughts, floods and other volatile weather features; increased food demand due to growing economies and changing food habits particularly in India, China and Indonesia; increasing energy prices due to the “peak oil” phenomenon; and increasing speculation in agricultural commodity – and derivatives trade (IFPRI, 2009). Higher demand for agro-fuels, which has been largely stimulated by political decisions in the European Union, the United States and other nations who seek to reduce CO$_2$ emissions and decrease dependence on imported oil, have also catalysed demand for agricultural land (ibid).
Foreign Direct Investments (FDI) is another vehicle to increase agricultural productivity and introduce new farming techniques. Not all land investments qualify as FDI, which requires that a foreign actor invests in assets for productive purposes. Investments in land to grow crops for production and sale are FDI that can stimulate local growth. Leasing land for the purposes of speculation, however, is not FDI and provides little local benefit. More efficient cultivating techniques can be introduced and propagated if foreign investments are properly integrated into the local economy. However, there are many preconditions for such a process to come about. While it is also possible that newly introduced technology and new agricultural practices may potentially also spread to surrounding farmers and raise the agricultural productivity throughout the region, the evidence to date in SSA shows that this is occurring very slowly, if at all, in the areas that have received large scale investments (Daniel and Mittal, 2009). These issues will be further discussed in the next section.

Box 2: Roaring Debates: Food or Fuel? Food Security or Sovereignty?

A parallel discussion to the rapidly increasing large scale investments in agricultural land in developing countries has been an international debate on the choice between food or fuel. Biofuel production is one of the main purposes of large-scale land investment, and it is estimated to use 1 percent of global irrigation water. Sugar cane is the most common feedstock for bioethanol production, even though it demands the most amount of water of any suitable crop. Assuming that agricultural practices remain the same, the amount of water to be withdrawn for biofuel production would increase by 74 percent in 2017 compared to 2008 level (Hoogeveen et al., 2009). If the biofuel crops are irrigated, the water resources can be affected quantitatively. In the case of rainfed agriculture, water quality can be affected by the use of fertilisers and pesticides that will run off to surface and ground water (ibid).

Issues of food security more generally are also increasingly debated. In such debates, the concept of “food security” has been placed against the concept of “food sovereignty”. Broad coalitions of small scale farmers, indigenous people and social activists claim that local people need to be in control of the food producing process in order to have proper rights to food. To access it via exchange in the market is not enough, according to organisations like the “Via Campesina” (Rosset, 2003). What the actual consequences of large scale agricultural investments are on food security and food sovereignty need, however, to be studied primarily at the national and local levels. As discussed in the following section, the interaction and processes at those levels are also complex.
Almost everywhere agricultural investments take place within a complex system of land rights. In many developing countries, land is often formally owned by the state, which implies that the government, or some state authority, negotiates land investment deals. However, due to the prevalence of customary or communal land tenure systems, there are several additional actors to involve and negotiate with before a deal can be completed. Under customary tenure systems, access to land usually comes in the form of “bundles of rights” held by individuals or groups. Several individuals, as members of kinship, village groups or of other kinds of organisations, can hold different kinds of rights to the same plot of land (World Bank, 2011; Cotula, 2011). Many planned land investments have not been implemented because negotiating the final deal at the village or district level has proven too difficult (Matondi et al., 2011).

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. 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 open for the public.

In many countries where regulation regarding local involvement is much less strict, the scope for conflicts over control of the land is larger. This risk may be illustrated by the size of the contracts. While investments in Liberia are regulated by typically 40-56 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 (Cotula, 2011).

When control over land is centralised – as it is in several countries – there is a large risk that people at the local level are marginalised in the process. Legality is not always a guarantee for legitimacy. Even if the central government has the formal right to negotiate agreements, local people may be dispossessed and investors may run the risk of ending up with contested claims to the land they have invested in (ibid).

To further complicate the picture, customary or communal land rights may also contain rights for pastoralists to graze their cattle. Since pastoralists are moving together with their cattle, it will sometimes not be enough for an investor to reach agreements with the local sedentary village population. Even nomads might have to be included in the settlement to avoid that the investment should be contested.
International guidelines for responsible agricultural investments

There are policy instruments at various levels aimed at making large scale agricultural investments environmentally, socially and economically sustainable. The FAO, IFAD, the United Nations Conference on Trade and Development (UNCTAD) and the World Bank have agreed over seven principles for “responsible agro-investments” (RAI, 2010), which state that investments should be undertaken in line with the following principles:

**Principle 1:** Existing rights to land and associated natural resources are recognised and respected.

**Principle 2:** Investments do not jeopardise food security but rather strengthen it.

**Principle 3:** Processes for accessing land and other resources and then making associated investments are transparent, monitored, and ensure accountability by all stakeholders, within a proper business, legal, and regulatory environment.

**Principle 4:** All those materially affected are consulted, and agreements from consultations are recorded and enforced.

**Principle 5:** Investors ensure that projects respect the rule of law, reflect industry best practice, are viable economically, and result in durable shared value.

**Principle 6:** Investments generate desirable social and distributional impacts and do not increase vulnerability.

**Principle 7:** Environmental impacts due to a project are quantified and measures taken to encourage sustainable resource use while minimising the risk/magnitude of negative impacts and mitigating them. (RAI, 2010).

While water is not explicitly mentioned in the principles it is inherent in almost all them. It would be useful if water was also recognised in the international principles for responsible agro-investments. Otherwise, there is great risk that water rights, and impacts on water quality, may be forgotten or ignored.

Impact assessments face challenges

There are also several policies to promote investments at the multilateral and regional level, including regulations from the World Trade Organisation (WTO), UNCTAD, and Regional Economic Organisations, such as the East Africa Community (EAC) and the Southern Africa Development Community (SADC). National policies and bilateral trade and investment agreements are also very influential in the shaping of investments. Examples of national policy instruments include the Environmental and Social Impact Assessments (ESIA) and the Population, Environment, Development and Agriculture model (PEDA). Assessments of these kinds constitute a mandatory early step in the negotiation process in many developing countries. However, the functioning and effectiveness may differ substantially from one country to another. In a recent evaluation of environmental assessments in Africa, it is noted that they are done irregularly, and that the quality of the assessments is low:

“...The low level of public awareness of environmental concerns, and limited expertise, experience and lack of coherent legal frameworks and guidelines have compromised EIA quality in Africa. The quality of EIA reports produced by consultants is of particular concern. Quite often, the significance of impacts is not adequately qualified, making it difficult for assessments to focus on issues, and intervention, on significant impact...” (UNECA, 2005: xv).

More recent detailed case studies have indicated that the effectiveness of ESIA is still limited (Matondi et al, 2011). The most important factor that determines the effectiveness of such policy instruments is the capacity and competence of state regulatory bodies. The capacity of the public sector in regulating and monitoring large scale agricultural investments is critical to ensure that they have a positive impact on local communities and local economies.
The nexus between global, regional, national and local dynamics in land acquisitions has been subject to little previous analysis and is not yet properly understood. This section looks at each the four levels and examines the reasons why land acquisitions have grown substantially in the recent years, who are the particular actors involved and affected by the deals, and their impacts.

The figure below attempts to identify the key aspects and links in the chain of issues that are involved in and impacted by land investments and transboundary water management. It takes the global food crisis as a starting point, and identifies the subsequent impacts that influence TWM and require further research.
As shown in figure 1, the complexity and range of issues involved in land acquisitions and their impact on TWM is wide and poses a number of questions. While the “triggers” of the surge in land investments (the global food crisis) is well documented, the cascading impacts are yet to be analysed.

In the table below, we attempt to summarise the main issues at stake in each of the four levels (global, regional, national, and local). This is followed by a brief discussion on the nexus and linkages between them in the following pages. The table addresses four main topics:

- What are the key drivers for actors at each level to become involved in leasing or purchasing agricultural land?
- Who are the main actors involved in the deals?
- What are the benefits that the actors at each of the different levels attain?
- What are the impacts associated with emergent process of leasing of agricultural land at the different levels?
- What is the status of our current knowledge on the global, regional, national and local consequences of land lease deals?
### Dynamics of land acquisitions deals at four levels – Global, Regional, National and Local

<table>
<thead>
<tr>
<th>LEVELS</th>
<th>WHY?</th>
<th>ACTORS</th>
<th>BENEFITS</th>
<th>IMPACTS (+ and -)</th>
<th>STATUS</th>
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<tbody>
<tr>
<td><strong>GLOBAL</strong></td>
<td>• Prospects for fertile land available for agriculture reclamation, in strategic locations</td>
<td>• Private and state-owned companies and corporations that operate at global level (including large multinational companies)</td>
<td>• Access to abundant (and contiguous) land and water resources and availability of cheap labour</td>
<td>• New scales of ‘virtual water trade’ – from water-endowed regions to poor-water regions</td>
<td>• Global and vocal criticism towards the new land leases: plethora of studies that highlight the move towards increasing market-oriented and large-scale agricultural development with negative effects on global food security</td>
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<td></td>
<td>• Search for water-endowed agricultural land for development of large-scale projects</td>
<td>• National pension funds and private equity firms</td>
<td>• Advantageous terms of contracts and good business environment, including low rental rates, exemptions from taxes and customs duties, and easy access to credit</td>
<td>• New global political dynamics: more players in the agriculture sector, increasing competition and neo-liberalism trends, accusations of neo-colonialism</td>
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<td></td>
<td>• Development of commercial agriculture and agriculture for food security</td>
<td>• Origin of main companies: India, China, Korea, Saudi Arabia, Qatar, other Gulf and Middle East countries, United States and EU countries</td>
<td>• Production of high-value crops with potential enormous profits in the international market</td>
<td>• (Global) hydro-logical, environmental, socio-economic, food security and political impacts that can impact negatively the poor countries/ people worldwide, and increase the gap between rich and poor</td>
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<td></td>
<td>• A potential future global food crisis and risks associated with it (although increased market distortion is also a risk)</td>
<td>• Fields of business: commercial agriculture for exportation (e.g. cotton, flowers), biofuels (e.g. sugarcane), but also food crops (e.g. rice and cereals)</td>
<td>• Speculation on land assets due to long-term contracts (e.g. 99 years)</td>
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<td></td>
<td>• Deals made possible because of support from governments to foreign direct investment and promotion of intensification and commercial agriculture (see table below about national level)</td>
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### REGIONAL/BASIN

**Specific regions of origin of investors:**
- Gulf and Middle East countries that lack national water resources to expand agriculture production (already benefiting from global virtual water trade since the 1970/80s)
- India and China, both countries with expanding demands on food due to population growth
- Europe and United States, countries with a tradition of developing agriculture overseas to supply to its markets

**Specific regions where farmland acquisitions are taking place:**
- Guinea Savannah region: African belt endowed with plenty of land and water resources (see map)
- Southeast Asia, in particular developing economies such as Laos, Cambodia and Vietnam
- Latin America, in particular in the Amazon rainforest region

**No specific regional actors – such as Regional Economic Communities (RECs) or River Basin Organisations (RBOs) – have been involved in the land acquisitions deals**

**Deals have been signed directly with national entities (see table below about national level) and not with regional or basin organisations**

**No regional or basin regulatory framework for land acquisitions as yet been debated and/or established**

**Potential for increased regional trade in agricultural commodities**

**Less water available in the transboundary basin with risk for increased conflicts**

**Migration of labour between neighbouring countries due to changes in water availability or labour demand in the region**

**The regional/basin dimension is lacking in most of the studies being conducted about investments in farmland acquisitions, namely in terms of impacts on the availability, utilisation and allocation of water resources**

**The impact of farmland acquisitions in transboundary water conflicts, cooperation and (ongoing and future) negotiations are yet to be analysed**

**The regional political (not only hydro-political) impacts of large-scale acquisitions also need to be understood**
<table>
<thead>
<tr>
<th>LEVELS</th>
<th>WHY?</th>
<th>ACTORS</th>
<th>BENEFITS</th>
<th>IMPACTS (+ and -)</th>
<th>STATUS</th>
</tr>
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<tbody>
<tr>
<td>NATIONAL</td>
<td>• Countries leasing land to foreign and national investors understand the farmland deals as an investment opportunity where they transform unused land into immediate assets.</td>
<td>• Land leasing contracts are usually signed by the central governments of the hosting countries, in particular when large number of hectares (ha) of land are being leased</td>
<td>• Inward investment for the hosting countries, although distribution of benefits to the different sectors of society is still unclear. (Potential) benefits claimed by the governments: Foreign currency entering in the national economies</td>
<td>• Unclear how much and which land is actually available and being leased – potential for conflicts between different levels/sectors of the society (central-local or local-local conflicts)</td>
<td>• The level of implementation of many contracts signed is yet unknown, so impacts on land use, water utilisation, environmental and socio-economic conditions is still difficult to assess.</td>
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<td></td>
<td>• The supposed availability of ‘unused’ land as well as water resources is being used to attract investments from foreign countries and investors.</td>
<td>• Deals are also being signed with sub-national entities (e.g. regional or local governments, in the case of federal states), usually when the size of the land being leased is relatively small</td>
<td>• Creation of employment</td>
<td>• Increased complexity in the already unclear land tenure systems</td>
<td>• Little clarity on contracts being signed: Will they actually be implemented in the medium/long-term or are they mere speculation?</td>
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<td></td>
<td>• Investment in land is seen as a leverage for foreign investment (in several economic sectors) in the national economies, as well as an incremental development in the national agriculture sectors (see column on Benefits)</td>
<td>• Not all investors are necessarily foreign: national private investors and from the diaspora are also acquiring land in their own countries</td>
<td>• Infrastructure development and improvements (hydraulic and others such as factories, roads, etc)</td>
<td>• No limits to water utilisation, pollution, climate variability, etc</td>
<td>• Studies show that if all signed contracts would be implemented, the impacts would be significant.</td>
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<td>• Land acquisitions are now being included in the national development plans: foreign direct investment + trade balance + diversification of economy + intensification of commercial agriculture + food security</td>
<td>• Technology evolution and promotion of agricultural development-led industrialisation</td>
<td>• Increased productivity of land and water resources</td>
<td>• Lack of strict environmental and social impact assessments will increase likelihood of negative impacts</td>
<td>• Calculating the figures for additional consumptive water utilisation associated with these projects is a difficult task, and it depends on several factors: size and location of land, type of crops and rotation, rainfall or irrigation, etc.</td>
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<td>LOCAL</td>
<td>• The involvement of the local populations in the land acquisitions is usually limited, as it is reported that most of the times these deals do not include any participatory approach</td>
<td>• Local governments, responsible for some of the smallest landholders will benefit, namely:</td>
<td>• According to the central governments, local populations will benefit, namely:</td>
<td>• The level of implementation of many contracts signed is yet unknown, so impacts on land use, water utilisation, environmental and socio-economic conditions is still difficult to assess.</td>
<td>• Studies show that the projects already implemented are already having impacts at the local level.</td>
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<td>• Although central governments state that the land being acquired or leased is unused, it is often not the case because local populations make a customary use of the land, despite not having property of it (in several countries there is only public ownership of land)</td>
<td>• In the short and medium-term, local populations will benefit from creation of employment, technology and infrastructure development, food security, better soil fertility management, etc.</td>
<td>• In the short and medium-term, local populations will benefit from creation of employment, technology and infrastructure development, food security, better soil fertility management, etc.</td>
<td>• Impacts on traditional use of land and water, namely erosion of customary rights to land and water utilisation of local populations, both farmers and pastoralists groups</td>
<td>• In the short-term some benefits can be identified such as increased employment, more access to goods, technology and road. But some negative impacts can also be observed: displacement, lack of compensations, pastoralist groups being neglected, conflicts between sectors of the population, etc.</td>
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<td>• In the long-term, local populations will also become beneficiaries of the macro-economic growth (see table above about benefits at national level)</td>
<td>• Impacts on traditional use of land and water, namely erosion of customary rights to land and water utilisation of local populations, both farmers and pastoralists groups</td>
<td>• Lack of clear compensation mechanisms for local populations affected by the large-scale projects</td>
<td>• In the long-term, with growing land reclamation, land and water rights at local level can be seriously disrupted, if national and local governments fail to put monitoring and conflict-resolution mechanisms in place.</td>
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<td>• Critical voices consider that the negative impacts outnumber the current and potential benefits for local populations</td>
<td>• Dispossession and displacement, as well as loss of livelihoods, of local populations</td>
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<td></td>
<td></td>
<td></td>
<td>• Lack of clear compensation mechanisms for local populations affected by the large-scale projects</td>
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<td>• Increased likelihood for increase of local conflicts (or resume of existing conflicts)</td>
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This section focuses on two examples from Africa, the Nile and Niger Basin regions, and investigates how land acquisitions have affected global, regional, national and local actors and their impacts on transboundary water relations.

Each case analyses the emerging debates associated with the land acquisitions and their water implications. Several studies are calling attention to the fact that the contracts implicitly also include water leasing, although water rights are mostly absent from the contracts (Cotula, 2011; Borras et al., 2011; Smaller and Mann, 2009; Woodhouse and Ganho, 2011). Land reclamation and agricultural expansion, in particular in the large-scale projects and monocultures (e.g. sugarcane), imply changes in land use and subsequently changes in water utilisation. The additional consumptive water use is difficult to calculate, and depends on the location and size of the projects, the type of crops and rotation, whether the agriculture being developed is rainfed or irrigated, and whether storage facilities are being constructed, among other factors. In any case, substantial impacts in water consumption and availability are expected. Several studies are looking at water implications of the land deals at the local and national level (Borras et al., 2011; Smaller and Mann, 2009; Woodhouse and Ganho, 2011), rather than at impacts from projects located in transboundary river basins. This leaves many essential questions unanswered. For example, what will be the impacts in the water flowing downstream? What will be the effects on existing and/or future hydro-political cooperation and water agreements?

In the following cases, we look into these questions in the Nile and Niger River Basins.
The Nile River Basin is a good case-study to analyse the potential transboundary water impacts of land acquisitions. Kenya, Tanzania and Uganda, in the White Nile basin have long been popular for foreign investors, especially those involved in biofuels and flowers industry (Graham *et al.* 2010). In addition, the new country in the White Nile Basin – South Sudan – is already being eyed by the foreign investors due to its enormous potential for large-scale agriculture. In fact, several deals have already been signed (Deng, 2010). Since the White Nile contributes only 15 percent to the total flow of the Nile, no major concerns about transboundary impacts have been raised by the downstream riparians. This could potentially change, however, as Ethiopia and Sudan, the upstream and midstream riparians in the Eastern Nile River Basin, have now leased millions of hectares of land to big investors in the last couple of years. For Sudan this is not a new reality, foreign companies have been involved in land reclamation for production of thirsty cash-crops (such as cotton, sugar, groundnuts, etc.) since the 1980s (Kilner, 1975; Kaikati, 1980; O’Brien, 1981). So far, these projects have been utilising water from Sudan’s quota established in the bilateral Nile Waters Agreement of 1959, thus pre-empting Egypt, the most downstream country and the main user of the Nile waters, from raising reservations to these projects. For Ethiopia, the country where 85 percent of the total flow of the Nile waters originates, land acquisitions are recent phenomenon. The current and future projects are expected to increase Ethiopia’s utilisation of the Nile waters, which until now has been extremely limited. Two major issues must be highlighted here. First, it is yet unclear how much water will be utilised in these projects located in the upstream catchments, but significant impacts on water availability downstream are predicted (Bossio *et al.*, forthcoming). Second, Ethiopia is not part of any agreement with the downstream neighbours, and as such has no specific water allocation and, in principle, there are no legal impediments to increase substantially its water consumption. On Egypt’s side there is a growing concern that the projects will be translated in less water available in the over-year storage at Lake Nasser.
In the Nile River Basin there is strong emphasis on the national sovereignty of countries that allows governments to decide upon their national development plans and to develop the natural resources available for their own national socio-economic development. At the same time, there is a global and regional call for cooperative development and management of the transboundary Nile water resources based on the principle of equitable utilisation and the principle of no-harm. The all-inclusive Nile Basin Initiative (NBI) incorporates both principles. The Nile Cooperative Framework Agreement (CFA), a would-be multilateral water agreement, also integrates the principles in more legal and institutional terms. However none of these cooperative processes in the Nile River Basin is looking at the current and future water impacts of the new land acquisitions. In fact, agriculture as a sector has largely been left out of the cooperative projects and negotiations. The deals on land acquisitions in upstream riparians bring new aspects to the hydro-political relations, such as:

a) Economic growth and changes in the political context in basin countries have enabled agricultural development upstream which was not possible as recently as a decade ago;
b) Upstream countries can use the land deals as a political tool in the multilateral water negotiations, and this situation is contributing to change the balance of power, in particular bargaining power, between upstream and downstream countries;
c) Multilateral approaches are being overridden by unilateral approaches to water and agricultural development, and might make multilateral cooperative institutions and projects less powerful;
d) There is a new group of actors involved in land and water development, namely from the private sector, that are not at all (or at least not until now) included in the transboundary decision-making process or negotiations.
The Niger River Basin is another interesting explanatory case to assess the impact of land acquisitions on water on local, national and regional level. The Niger River is the largest transboundary river basin in West Africa, which covers 11 riparian states and covers 2.1 million km² of area. The transboundary agreement was first signed in 1964 and addressed navigation and economic development of the basin. In 1980 the Niger Basin Authority (NBA) was created. The NBA established a basic legal framework to promote cooperation between the riparian states (World Bank, 2005).

The Niger Inner Delta in Mali has been targeted by foreign investors because of its favourable conditions for agricultural production. The estimations of land dealt with large-scale investors in Mali is estimated at 162,000 ha (Cotula et al., 2009). Land investments are also undertaken in Nigeria, a downstream riparian, mainly by domestic investors. World Bank data suggested that 793,000 ha of land were targeted in large-scale land acquisitions, and 97 percent of large-scale land investors are domestic investors. Other smaller riparian states such as Benin and Burkina Faso have been calling upon domestic and international investors to set up modernised and professionalised farming (Hilhorst et al., 2011).

Domestic and international investors are interested in farm land with irrigation facilities developed by the national government, often with support of international donors. Hydro-irrigation and hydropower development have been leading the economic development discourse in the Niger River Basin. In the Upper Niger River basin, four existing dams including the Selingue dam and the Markala dam are providing irrigation to nearby areas (see map for dams in the Upper Niger River Basin). Over 300,000 people are directly benefiting from the Selingue dam and the Markala dam, which divert water to the Office du Niger irrigation scheme. In the late 1990s, the feasibility study of the Fomi dam in Guinea was conducted, and it suggested that the 42 meter high dam is expected to produce 374 GW per month and to provide irrigation to additional 30,000 ha of land (Agence Canadienne pour le Développement International, 1999). Recently, concerns have been raised that the Fomi dam could reduce the Inner Niger River Delta’s floodplain area and that the dam would only serve the interests of large-scale land investors.
in the area controlled by the Office du Niger (Skinner and Cotula, 2011; Zwarts et al., 2006). Construction of the Fomi dam could benefit Upper Niger River Basin’s irrigation especially during the dry season, yet could negatively impact the 1 million people that rely on the Inner Niger Delta’s fisheries, biodiversity and livestock. (Zwarts et al., 2006).

Concern was raised by Nigeria on the construction of Kandadji dam in Niger, Tossaye dam in Mali and Fomi dam in Guinea (Nigerian Federal Ministry of Information, 2010). Nigeria has invested heavily in irrigation schemes and hydropower in the river. For instance, the Kainji dam was completed in 1968 and the Jebba dam is in operation since 1985. New dam projects in Niger, Mali and Guinea would reduce the water flow into Nigeria. Combined with the impact of climate change, Nigeria could experience negative impacts on its agriculture and hydropower production (Niasse, 2005). As a regional power, Nigeria could potentially push upstream dam buildings to a stall. A Nigerian Minister argued that ecological concerns as well as decreased downstream water flow are reasons to resist upstream dam constructions. (Nigerian Federal Ministry of Information, 2010). However, Nigeria is simultaneously benefitting from its own irrigation dams (Nnabugwu, 2011). Effort to serve the interest of international and domestic land investors, comprising the construction of additional irrigation- or multi-purpose dams in the Niger River Basin, could raise regional tension among riparian states.

In the Niger River Basin, discussions on building new irrigation or hydropower facilities have become more complex with the introduction of new actors and large-scale land investors. The NBA is now tasked to coordinate the development of the basin with the cooperation of riparian governments. The NBA does not have a role in coordinating land investments but those are being developed at the national level and seen as something that is to be dealt with by the respective governments. Thus, while the NBA is tasked to manage the shared waters it has to adapt to the effects on in the basin of the investments in land.

The Niger Basin with six existing dams (Sélingué, Sotuba, Markala, Talo, Kainji and Jebba) and four planned dams (Fomi, Djenné, Tossaye and Kandadji).
Discussion and Conclusions

Challenges relating to water impacts on land acquisitions are fast emerging. The data on the scale of land investment is scarce and methods for measuring them are not systematic. Often reports are based on secondary sources (i.e. newspaper articles), many investments provide little public information and accounts, and many private sector and government actors are not transparent in their dealings. From the information that is available, it is clear that water rights are presumed to follow land lease deals as there is no explicit mention of water in the agreements. Furthermore, regional repercussions, including access to transboundary water sources, are rarely, if ever, mentioned or addressed. Based on the limited data and rapidly changing political and social landscape, this report has aimed to identify trends at the transboundary level and illuminate areas where more research is needed. The tables on pages 19-20 highlighted several of the main debates concerning deals on land acquisitions at the local, national, regional and global levels.

One of the first conclusions that can be drawn is the fact that the local, national, regional and global levels are interlinked, with the global rush for land acquisitions in the Southern hemisphere already having economic and political, social and water impacts (both negative and positive) at the national and local level. The involvement and impacts at the regional level, however, remain unclear. This is the direct outcome of the deals being established between foreign investors and national governments, with little or no involvement of regional organisations, such as Regional Economic Communities (RECs) or River Basin Organisations (RBOs). While it may (from a water management perspective) make sense to suggest that the regional organisations should play a more prominent role, it is likely that national governments would see this as an infringement on their sovereignty and would object. As land deals are considered national priorities in many countries, few would be keen to lend authority on its decision-making power to someone else.
Several conclusions can be drawn from the nexus between the four levels above:

- The global rush for land acquisitions has been driven by the ‘food crisis’ of 2008, when international markets experienced price spikes and bans on imports of certain food staples. Production of food and cash crops is now being planned in countries well-endowed with land and water resources. Several contracts leasing millions of hectares of land have been signed with national central governments, which see the deals as an opportunity for investment to develop its agricultural potential. Local populations in these countries have been affected by these deals, although rarely consulted.

- Land deals show clear trends to occur in places with low land lease prices, weak legislation, inexpensive labour and relative abundance of land and water. This is why large parts in Africa are attractive for foreign investors.

- While the implementation of the signed contracts is still limited, there is an expectation that the global virtual water trade will increase substantially, as most of the agricultural production involved in these projects will be for export and not for local consumption. Producing crops where there are resources available and exporting for other regions where food demands are increasing rapidly (e.g. emerging economies) could in theory contribute for global food security. But critical voices highlight, a potential backlash, which could lead to food insecurity at national and local levels in the hosting countries.

- As specific countries (and usually neighbours) are signing individual contracts with the foreign investors, there is an increased uncertainty about the compatibility of the several national development plans of these countries, namely in terms of their transboundary environmental impacts and water
availability. This is both because water aspects are seldom included in contracts and also because their impact are not considered from a basin perspective. The absence of a regional or basin perspective in the land deals might lead in the future to a clash of interests between neighbouring countries. Assessments of regional/transboundary impacts needs to be conducted, and RECs and RBOs should ideally be involved in the process as key stakeholders, as they are the only ones that could provide a regional perspective.

• Currently several river basins are working on establishing institutional frameworks and commissions to deal with transboundary water issues, but there is little evidence that agricultural development (including foreign land acquisitions) is being addressed, despite the rapid developments on agricultural expansion. The risk of ignoring the issue is that it might jeopardise current agreements and negotiations once water allocations become involved. However, the political appetite for this seems to be limited.

• Little research has been done so far to understand the impacts that the new land agreements will have on the consumptive water utilisation at the both the national and basin level. In addition, no studies have been made focusing at the hydro-political implications of the deals. This poses many important questions to be answered: Will they contribute to a change in the transboundary hydro-political relations between the countries, and if so in which direction? Will it jeopardise the current (embryonic, in some cases) transboundary cooperation and increase the inter-state conflict (of interests)? Or will they be used as leverage for riparian countries to discuss and negotiate where and when water should be allocated.

This exploratory report has aimed to improve our understanding of transboundary water impacts stemming from land acquisitions, an area that has hitherto been ignored and where current knowledge is sparse. It has shown that TWM and land acquisitions are closely related and, where possible, it has outlined the areas and factors at play in this respect. While recognising the limitations of the report it is hoped that it has put the connection between the two areas more firmly in the limelight and made the case for it receiving more attention.
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Land Acquisitions:
How will they Impact Transboundary Waters?

This exploratory report investigates how the current surge in land acquisitions and investments by foreign countries, sovereign wealth funds and private corporations, as well as domestic investors, will affect transboundary water management, an area where current knowledge is sparse. The majority of land deals tend to be made in places with low land lease prices, weak legislation, inexpensive labour and relative abundance of land and water and very few include regulations or agreements for water used on the acquired territories. With many of the largest land leasing countries located on the transboundary water basins, shared waters will be affected with unknown implications for regional relations. Two case illustrations in the Nile and Niger basin regions are presented to explore how land acquisitions have affected global, regional, national and local actors in those areas and point out key questions that require more research.