HLPE REPORT 2

Land tenure and international investments in agriculture

A report by

The High Level Panel of Experts on Food Security and Nutrition

July 2011

CFS Committee on World Food Security

HLPE High Level Panel of Experts

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Rome, 2011

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FOREWORD

The UN Committee on World Food Security (CFS) underwent a reform in 2009 in order to make the international governance of food security and nutrition more effective through improved coordination, policy coherence, and support and advice to countries and regions. The reformed CFS set up a High Level Panel of Experts on Food Security and Nutrition (HLPE), for getting credible scientific and knowledge-based advice to underpin policy formulation, thereby creating an interface between knowledge and public policy. The HLPE is directed by a Steering Committee, appointed in July 2010, which I have the privilege to Chair. The work of the HLPE supports the policy agenda of CFS: this makes its reports demand driven. It serves also to raise awareness on emerging issues.

The current trend in foreign land acquisition has raised considerable public concern. It gives rise to heated political debate and controversies, in the shadow of an ideological divide, whereby "land grabbing" is seen as "bad", and whereby international investments in agriculture are necessary and good. It is in this background that the CFS requested the HLPE in October 2010, to report on land tenure and international investment in agriculture, and in particular on: "the respective roles of large-scale plantations and of small-scale farming, including economic, social, gender and environmental impacts; review of the existing tools allowing the mapping of available land; comparative analysis of tools to align large scale investments with country food security strategies."

This report contains the analysis and recommendations of the High Level Panel of Experts, as approved by its Steering Committee, and addressed to the CFS.

The HLPE operates with very specific rules, agreed by the CFS, which ensure the scientific legitimacy and credibility of the process, as well as its transparency and openness to all forms of knowledge. The Steering Committee of the HLPE attached great importance to sound methodology and followed a rigorous procedure. This report has been produced by a Project Team appointed by the Steering Committee, and under its oversight. The process is also open and transparent, and gives opportunities for a diversity of views, suggestions and criticism: the terms of reference as well as the first draft (V0) prepared by the Project Team have been submitted to open electronic consultations[1]. Final versions of the report have been reviewed by three independent eminent experts, on the basis of which it has been finalized by the Project Team and submitted to the Steering Committee for approval before being forwarded to the CFS. The Steering Committee approved the Report at its meeting held in Amsterdam on 12-13 July 2011.

I wish to pay my whole hearted tribute to the members of the Steering Committee, especially those having spared their time freely to work with Rudy Rabbinge for the oversight of this report, to the Project Team Leader Camilla Toulmin, to members of the Project Team, to the external anonymous reviewers, as well as to the hardworking and dedicated Secretariat of the HLPE headed by Vincent Gitz for their untiring efforts. They can be proud to have managed to be so responsive and to bring out such a high quality report within a short span

[1] See the HLPE website www.fao.org/cfs/cfs-hlpe for the links to the full proceedings of the e-consultations, channeled through the Global Forum on Food Security and Nutrition (FSN Forum).

of time. This has involved heavy strain and hard work on the part of all concerned. I also admire the enormous trouble taken by numerous experts in participating constructively in our electronic consultations. I wish to thank them all. This Report thus owes its quality and relevance to the inputs received from a broad coalition of those concerned with the eradication of hunger on our Planet.

We hope that this Report on Land Tenure and International Investments in Agriculture will contribute to the conservation of farm land and soil resources for sustainable food security, increased investment in agricultural and rural infrastructures and revitalize small-scale farming based on a pro-nature, pro-poor and pro-women orientation to land use and management. This is why I have proposed the Global Soil Partnership which will be launched by FAO soon. This is why I think we need a scientifically designed Land Care Movement to ensure food security for the 9 billion people expected to inhabit Planet Earth by 2050.

It is our hope that this report will help to nourish policy debate at the next meeting of the CFS in October 2011 and lead to the elaboration of principles for responsible investments in agriculture with due consideration to the framework of the Voluntary guidelines on the tenure of land, fisheries and forests. I wish to record my sincere appreciation to the Chairman and Members of CFS and to the CFS Bureau and CFS Advisory Group for their encouragement during this first year of operations of the HLPE.

MS Swaminathan, Chair, Steering Committee of the HLPE - July 2011

SUMMARY AND RECOMMENDATIONS FOR POLICYMAKERS

Context

The Committee on World Food Security (CFS) at its meeting of October 2010 requested the High Level Panel of Experts on Food Security and Nutrition (HLPE) to conduct a study on land tenure and international investments in agriculture and to present the findings at its next session in October 2011. The study of the HLPE is to undertake analysis and formulate policy recommendations in the following three areas:

(i) the respective roles of large-scale plantations and of small-scale farming, including economic, social, gender and environmental impacts;

(ii) review of the existing tools allowing the mapping of available land; and

(iii) comparative analysis of tools to align large scale investments with country food security strategies.

Given the breadth of this topic, the study team chose to focus on large scale investment in land. We recognize that pressures on land stem from both domestic and international investment, and the two are often linked. However, the international dimension is particularly important because of the very unequal access to resources which exists at global level. Land is becoming a global asset to be traded just like any other commodity. Yet land is different, since it provides a livelihood to more than 2 billion smallholders, many of whom are poor and food insecure. Land is also different due to the valuable environmental services it provides, and its strong social, and cultural attributes.

The last five years have witnessed growing investor interest in land and agriculture. While definitive statistics are hard to obtain, widely quoted figures assert that between 50 and 80 million hectares of land have been subject to negotiations by international investors, much of it in low income countries. It is generally agreed that more investment is needed in agriculture to address the needs of current and future generations. The report recognizes the diversity of experience between regions and countries, in terms of land availability, property rights, and public policy. But if such widely quoted figures are correct, there is good reason for concern about the impact of such land acquisitions on the food security of people in many of the countries hosting such investments. Can this large scale investment bring positive outcomes, or is it bound to damage the livelihoods of local people, and generate social and environment costs? Given the central role of government in managing and negotiating such inward investment, their role is key to setting the terms and conditions for ensuring a proper balance of interests between local land users and investors, and enforcing such contractual agreements. This report sets out recommendations for governments, international institutions and investors to address the serious concerns raised by this heightened interest in land acquisition.

Principal observations

1. Widely quoted figures assert that over recent years an estimated 50-80 million hectares of land in middle and low income countries have been subject to negotiation by international investors, seeking to buy or lease this land. At the same time, close on one billion people are short of food and another billion suffer from various forms of malnutrition in middle and low income countries, despite sufficient global food production. Since late 2010, food prices have risen to levels comparable to the food price spike of 2007-08, pushing more people into hunger.

2. It is widely recognised that increased agricultural investment is needed to raise yields as a means to improve food security in many parts of the world. Can such international investment in land be a means to improve agricultural productivity and rural livelihoods? Evidence from this land rush to date shows very few such cases. Rather, large scale investment is damaging the food security, incomes, livelihoods and environment for local people.

3. Research institutions, CSO and media sources are fast gathering information on large scale land acquisitions. Despite this, accurate data on important aspects, like scale, terms of the contracts and impacts from investment are limited. Roughly two-thirds of the estimated 50-80 million hectares acquired as investments are in sub-Saharan Africa. Data are poor in part because of secrecy from both investors and host governments over the scale of allocations and the terms on which land is acquired.

4. The range of interests behind large scale land investments include multinational companies engaged in a variety of investments including biofuels and extractive industries, foreign governments seeking an assured food supply, commercial farmers expanding into neighbouring countries, and financial institutions wanting to broaden their asset portfolio. Domestic investors are also important in many countries, sometimes in partnership with foreign capital.

5. More than three quarters of the land deals announced have yet to demonstrate tangible investment in terms of agricultural output. Part of this may be due to speculative behaviour. Delays in finalising land transfers, the time taken to raise capital funding, and conclusion of negotiation with governments will also account for some of this gap.

6. In many countries hosting large scale acquisitions, the government claims ownership of land, water and other natural resources. Hence, government is central in encouraging inbound investment, making land available, and negotiating with investors as well as enforcing contractual agreements. Given the scale of international interest in land investment, a number of governments in Latin America are now imposing new controls on foreign land investment to protect citizen interests.

7. Growing demand for food, feed, and biofuels as well as minerals and timber is driving large scale international land investments. Governments of countries that rely on food imports want to secure their nation's food security by buying productive foreign land. Policies to substitute biofuels for petroleum for transport in the EU and elsewhere are generating strong and unsustainable demand for oil palm, sugar cane and jatropha.

8. Ecological stress, such as water shortages and drought, combined with environmental policy, such as nature conservation, and carbon sequestration projects like REDD+, are also prompting increased international investment in land. All of these drivers are likely to increase over the next several decades, and intensify with the shifting impacts of climate change on agricultural production, putting ever greater pressure on land and water resources.

9. The finance sector is a relative newcomer to farmland acquisition. Its interest has been generated by rising prices for food and other agricultural commodities, the perception that the value of land and water is increasing, and the emergence of farmland as a global asset in a portfolio of other investments, offering a return less affected by the latest international financial crisis.

10. Global surveys of bio-physical potential show that considerable reserves of land exist, especially in Latin America, sub-Saharan Africa and the Former Soviet Union. Yet, such reserves are not necessarily "available". Much land already has other uses, such as cultivation and livestock grazing, as well as providing vital environmental services (as do tropical forests, grasslands and wetlands). The satellite and aerial imagery used in bio-physical surveys is blind to the rights and institutions that govern how land is actually used on the ground.

11. Much land in middle and low income countries is productively occupied and used, but does not have formal paper title, rendering such customary rights vulnerable to dispossession. Rights of women, social groups relying on the commons (grazing, woodland, wetlands), ethnic minorities and indigenous peoples are particularly insecure.

12. The legal status of land proposed for transfer or actually allocated to investors varies across countries and regions. State ownership is common, though government can also invoke eminent domain, on the grounds that it is acting in the public good, and reclassify private or village land to public land. The terms of acquisition also vary greatly, from short to long term leases, and freeholds. In case of leases, annual rental payments are frequently very low, though investors may be expected to commit capital to investment in infrastructure. Many contracts

refer to employment provision, but are often imprecise about the detail or consequences of non-compliance. Equally, there is frequently little in the way of binding agreements on local procurement, processing of produce, and payment of taxes. Given that these contracts are usually kept confidential, it is very difficult for performance to be scrutinised or investors held to account by government agencies, parliament, local people, CSOs, or media.

13. Community consultation is usually required of the investor, but is frequently carried out at speed and without proper information, with benefits oversold and adverse impacts downplayed. The different actors – investor, government, local people – enter the negotiations with highly asymmetric information and power. Consequently, local people usually loose out, and governments loose both revenue and opportunities to achieve long term benefits for their populations.

14. This report was specifically tasked with reviewing the relative roles of small- and large-scale agricultural production systems, and there has been long-standing debate on their relative merits. The evidence shows that most crops can be grown just as productively by smallholders as in large commercial estates, although there may be significant economies of scale in the subsequent processing and marketing. The question therefore arises of whether and how large and small-scale production systems can co-exist and bring benefits to all parties. Disagreement revolves around the feasibility of such “win-win-win” solutions, and ways to ensure the rights and interests of local communities are central to agreements currently drawn up by governments and investors, often in secret. The huge number of smallholders in many middle and low income countries and the role they play in generating food, employment and livelihoods for more than 2 billion people should put them at the heart of agricultural development strategies. Yet they are often ignored. Rather than displacing them, governments should invest financial, human and scientific resources for improving small scale production, assist them achieve the necessary scale to access local and regional markets and improve their living conditions.

15. Many of the problems surrounding international investments in land could be dealt with by ensuring smallholder farmers gain a proper say in choices made about the future of their agricultural system, the terms on which they choose to engage with international investors, and more effective enforcement of existing policy and legislation at local, national and international levels. This report summarises the many measures and tools that can be used to improve the processes and outcomes from international investment in land and agriculture. Some have the force of hard law, while others have softer influence, or aim to harness informed consumer choice. In many cases these last substitute for weak capacity in host country governments.

16. A combination of measures operating on different actors and levels is most likely to be effective. These measures and tools, and the discussion set out here, have guided a list of recommendations. These recommendations must tackle the asymmetry in power wielded by governments and large commercial interests, and often used against small farmers. Weaknesses in governance, institutions and incentives mean that a “win-win-win” solution will not happen unless much stronger action is possible from both local land users and their governments (on their behalf). It also requires appropriate compensation mechanisms. Given the likely increase in pressures on land from international (and domestic) investment, it is vital to get a better balancing of the rights and interests of less powerful groups in negotiations with governments and investors. This approach should align with the broader need to focus public investment on smallholder agriculture and alternative production systems that are socially inclusive and environmentally sustainable.

Recommendations

The actions proposed below must recognise that food security is paramount, and measures must tackle the distinct asymmetry in power wielded by land users/occupiers, governments and large commercial interests. Many of the problems surrounding international investments in land could be dealt with by more effective enforcement of existing policy and legislation at national and local levels. However, current weaknesses in governance, institutions and incentives mean that a "win-win-win" solution will not happen unless much stronger weight is given to the capacities of both local land users and host country governments. Equally, because many of the problems are complex and inter-connected, the recommendations for policy need to be similarly differentiated in terms of sector, level and actors concerned. Given the likely increase in pressures on land in future, from international investment (as well as domestic), it is vital to get a better balancing of the rights and interests of less powerful groups, in negotiation with government and investors.

Host country governments

1 Decisions taken now will have major repercussions for the livelihoods and food security of many people for decades to come. Much discussion about large-scale land acquisitions has been highly polarised rather than seeing where there might be some common ground. The people who are most directly concerned by such investments must have their say. There is a need for inclusive debate in host countries concerning pathways for agricultural development and land use planning. Governments should open up this debate, rural poor people (small farmers, indigenous peoples, pastoralists, landless labourers, forest dwellers, rural women, among others) must be central to it, and continued scrutiny from autonomous civil society can help make the renewed interest in agriculture work for broad-based sustainable development. Governments should set up appropriate institutions to organize this consultation and vision development. Governments must have clear, transparent equitable land policies that are accessible, allowing for transparent transfers, equitable access, manageable systems of registration and deeds as well as open transparent heritage rights.

2 Host governments must recognise that their citizens have the right to free, prior and informed consent in relation to the land and natural resources on which they depend for their livelihoods. Governments must strengthen and secure rights to land for millions of land users who currently have uncertain tenure over their resources. This includes smallholder farmers, pastoralists, shifting cultivators, fisherfolk, indigenous people, and forest dwellers. Particular attention is needed to secure the access and use rights of women, ethnic minorities and indigenous peoples. Given the diversity of contexts, a multiform approach to land tenure is required, which mixes different legal and administrative modalities. Governments should learn from promising low cost decentralised systems for registering and managing rights, at both the household and community level. This must include common pool resources, which are essential for continued mixed farming, pastoral and indigenous livelihood systems in many low income countries. Given the accelerating pace of large scale land investment, and the limited capacity in many government administrations, community rights registration is vital to ensure protection of livelihoods and associated food security. In settings marked by inequality in land control and ownership, redistributive land policies (such as land reform, land restitution) should be carried out. In Africa, governments should follow the African Union's Land Policy Guidelines, which aim to transform agricultural development by strengthening land rights for smallholder farmers, improving access to land for women, and easing the barriers to land transactions. Systems for grievance and redress need construction at national and regional levels, including for human rights and environment. Robust Environmental and Social Impact Assessments (ESIA) processes are also needed. The impact on women in agriculture needs specific attention, since even a small plot of land in the hands of women strengthens household food and nutrition security.

3 Governments should prioritize investment in the small farm sector and in alternative food systems that are socially inclusive and just as well as environmentally sustainable, using agro-ecological principles (see Appendix). In places where large-scale land investments are underway, governments interested in promoting investment should encourage business models that involve collaborating with local farmers and generating employment opportunities, not just

land acquisition. Given the major asymmetries in expertise that often characterise the negotiation of deals for agricultural investments, there is a need for legal, financial and technical advice to be available for governments as well as for local communities. One option would be for this legal advice to be provided by the FAO Land Tenure Service. Support may also be needed to rigorously scrutinise investment proposals. Robust systems must be in place that subject leases to compliance with investment plans, and existing land policies. Investment contracts should always provide a clause allowing government (on behalf of local communities) to cancel lease agreements or contracts when they fail to comply with agreed terms, or when insufficient compensation mechanisms are in place.

Support for farmer voice and civil society

4 Increased support is needed for farmer representation through their own organizations, with priority to social movements of the rural poor: small farmers, landless labourers, women, indigenous peoples and ethnic minorities, pastoralists and forest dwellers. Other civil society organizations who support the direct representatives of the rural poor should also be provided the needed institutional space. The rural poor's social movement organizations and relevant CSOs need to acquire stronger political weight in national and international decision-making structures. These organisations need backing at country level and internationally to ensure effective scrutiny and accountability of both national and international processes.

Improved practice by corporations

5 Investors and business enterprises have a legal responsibility to respect human rights, and must act with due diligence to avoid infringing human rights within their sphere of influence. Investing enterprises have the responsibility to provide adequate non-judicial access to remedy, including effective grievance mechanisms for victims of human rights abuses. States have the obligation to protect the enjoyment of human rights from being impaired by actors in their jurisdictions and to regulate business enterprises accordingly; and should provide effective judicial access to remedies from human rights abuse by investors. Home countries of business enterprises and investing nations or nations supporting investments in other nations must ensure that their actions respect and protect human rights in the host country according to applicable international and regional human rights norms and standards.

6 States should hold good faith consultations with local communities, before initiating any plan, project, and measure that may affect the land and natural resources on which they depend for livelihood, social and cultural activities. The procedures of these consultations should be in accordance with the Free prior and informed consent (FPIC) principles and related criteria, as well as the customary rules and decision-making structures of local communities. These procedures should facilitate access to the consultations by all affected peoples, ensuring in particular the participation of women and young people. The consultations must be conducted in a climate of trust that favors productive dialogue, according to well-established standards and oversight by independent observers.

Donor governments

7 Donors should align more effectively their bilateral and multilateral initiatives in the field of agricultural investment promotion, to achieve positive outcomes for local farmers. For example, some donors argue that improving productivity and market access for smallholder farming isare key to achieving the MDGs while multilateral lenders have been promoting and financing inward investment, including large-scale land acquisitions. Donors should also ensure fulfillment of the G8 and G20 commitments on increased funding support to agriculture made over the last 2 years. This should include support for public infrastructure and policy development to create an enabling environment for smallholder agriculture – based on evidence showing that smallholders can be highly dynamic and competitive on global markets, and that small farm development is feasible and desirable for its impacts on poverty reduction.

8 International support is needed for a large increase in public funds for agricultural research and development, emphasizing agro-ecological approaches. There are major challenges ahead if we are to meet the food needs of 9 billion by 2050 in ways which can keep within planetary boundaries, address the impacts of climate change and make land use a net carbon sink. Given the need to reduce further expansion of cultivation into forest and pasture land, a particular focus is required on closing the 'yield gap', especially in middle and low income nations without forgetting the increasing need for ecological sustainability. This requires further strengthening of capacity in a range of key skills.

Governments that are home to international investors

9 Taking into account that it is the State's obligation to protect the enjoyment of human rights abroad against harm emanating from its own territory, as articulated by Treaty Bodies in the UN Human Rights System, home governments have a responsibility to make sure that their companies operate according to the highest standards in relation to human rights, and environmental management. They should enact legislation which requires compliance with international human rights and environmental standards by their nationals operating overseas, and a mechanism whereby people in the country hosting the investment can hold the company to account for its actions.

The Committee on World Food Security

10 The CFS shall ask governments to report each year on actions being taken to align international (and domestic) investment in land with food security concerns, including measures to prevent speculative pressures on land, such as leases conditional on proven investment plans.

11 Given the major role played by biofuels expansion in accelerating investments on land, the CFS should demand of governments the abolition of targets on food based fuels, and the removal of subsidies and tariffs on biofuel production and processing.

12 Since many deals and investments are so recent and, according to World Bank's prediction "the 'land rush' is unlikely to slow" (Deiniger *et al.*, 2011), following the approval of its Voluntary Guidelines for the Responsible Governance of Land, Fisheries and Forests, the CFS shall seek to establish at the FAO an observatory for land tenure and the 'right to food' to monitor the processes of access to land and the implementation of the Voluntary Guidelines, ensuring that the investments will result in decreased hunger and poverty in host communities and countries.

13 The CFS should encourage further support to regional processes, such as the African Union's Land Policy Initiative, to link these to national policy reform (e.g. through the Pan African Parliament and the African Court of Human Rights).

14 During the 12 month process for consultation on the principles for responsible agricultural investment being led by the CFS, attention should also be given to the best means by which investment can contribute most effectively to promoting food security, especially in low and middle income countries, and that all players are involved.

INTRODUCTION

This report discusses the implications of large-scale international investment in land for food security in host countries. Currently, one billion people in middle and low income countries are short of food and another billion suffer from various forms of malnutrition, despite sufficient global food production. Prices of all foodstuffs have continued to rise since late 2010, pushing even more people into poverty and hunger. Yet in recent years an estimated 50-80 millions of hectares of land has been acquired in middle and low income countries by international investors through lease or purchase. How will this affect the food security of host, investing, and third countries? Are "win-win-win" solutions possible, that bring a reasonable return to investors, and to host governments, while meeting local people's needs? The evidence from recent large scale international land acquisitions shows very few such cases. Rather, it demonstrates many damaging impacts on local people, in terms of their livelihoods, employment, and environment.

While agricultural investments can be structured in many ways, this report focuses on investments that involve acquiring long-term land rights, through lease or purchase, for the purposes of establishing large scale production, such as plantations. And while research points to a central role of nationals in land acquisition, the report focuses on international investment. This study is concerned principally with the food security needs of countries hosting large-scale international investment in land, especially the impacts on the livelihoods of rural people in the area chosen for investment. However, it is recognised that there may also be other food security issues at stake, for example urban populations in the host country, or people from the investing country.

This report makes explicit the risks for food security, and for the right to food, generated by international investments in land that are actively sought by governments in middle and low income countries. By contrast, a growing number of governments are now restricting foreign investment in land. Bolivia has already done so. Other countries are announcing similar moves, including Brazil, Argentina, and Ecuador.

The report draws on available evidence, with two important limitations. First, much new material has become available over the past few months, particularly in the form of grey literature[2]. Due to the timing of this report, this material could only be briefly referred to. Second, despite this fast-growing body of evidence, many questions remain unanswered – accurate data on important aspects like scale, geography, features and impacts of investments in land are still limited.

[2] Beyond the numerous individual studies, particularly valuable in improving understanding on these issues have been a body of research supported by FAO, IFAD, the World Bank and the Swiss Agency for Development and Cooperation; the research processes steered by the International Institute for Environment and Development (IIED), GRAIN, Foodfirst Information and Action Network (FIAN), International Land Coalition (ILC) among others. Moreover, there is the significant engagement with analysis and policy by various branches of the French government, including through the AFD/MAE Technical Committee on Land Tenure and Development and the active engagement by the UN Special Rapporteur on the Right to Food. Oxfam's report, *Growing a Better* Future (June 2011) also contains valuable insights. The academic community is only recently able to be catching up, and the first batch of some 120 scientific papers were presented in the largest ever social science academic gathering on this theme held at the Institute of Development Studies (IDS), Sussex which was co-organized by the Land Deal Politics Initiatives (LDPI, http://www.iss.nl/ldpi) and the *Journal of Peasant Studies.*.

1 THE SCALE OF INTERNATIONAL INVESTMENT IN LAND

1.1 How much land is changing hands?

Table 1 summarises recent reports of international investments in land. Some caution is needed in interpreting these figures as they are approximate, inconsistently calculated, and some exclude allocations under 1000 ha. Also, they are not exhaustive. Some estimates include deals still under negotiation, and there is no clear differentiation between leased and bought land. They are based on a combination of in-country research and media reports. The former tend to under-estimate the areas covered, because of difficulties in accessing company or government information, while the latter tend to over-estimate the areas concerned, since a number of large land deals, though flagged in the press, do not turn into reality, and some might have even been recalled. They also may include domestic land acquisitions. Finally as deals are completed in much secrecy with little incentive for transparency (Visser and Spoor 2011) what we are looking at may only be the tip of the iceberg. Overall, Wily (2010) estimates that 2/3 of recent land deals are taking place in sub-Saharan Africa.

While there is clearly much uncertainty about how much land is changing hands, all sources agree that the trend is markedly upward and is likely to continue.

Table 1 Estimated inventories of areas involved in large-scale land investments.

Amount of land (ha)	Coverage	Time period	Source	Method
2.5 million	Ethiopia, Ghana, Madagascar, Mali and Sudan	2004-2009	Cotula *et al.* 2009	Systematic inventories based on in-country research
51-63 million	27 countries in Africa	Until April 2010	Friis & Reenberg 2010	Systematic inventory of media reports
Approximately 1.5 million	Mali, Laos, Cambodia	Until 2009	Görgen *et al.* 2009	Systematic inventories based on in-country research
>3.5 million	Kazakhstan, Ukraine. Russia	2006-2011	Visser & Spoor 2011	Media and web based
46.6 million	81 countries	2004-2009?	Deiniger *et al.*, 2011	Systematic inventory of media reports
4.3 million	Brazil	until 2008	Wilkinson at al 2010	-
545,000	Mali	By end 2010	Baxtor, 2011	Field visits, govt documents
3.6 million	Ethiopia	2008-11	Horne, 2011	Field visits, govt documents
15-20 million	“poor countries”	2006-09	IFPRI 2009	-
> 80 million	Global	Since 2000	International Land Coalition	Systematic inventory of verified media reports
Approximately 15-20 million ha	Global	Since 2000	v. Braun and Meinzen-Dick (2009)	Estimate based on media reports
Not identified	Global	2007-2008	GRAIN 2008	Media and web based

The context within which these land investments are taking place differs greatly, in terms of the farming system in place, the strength of property rights over land, and government policy. Some investors take over the management of existing large commercial farms, often consolidating several holdings, improving management systems and investing in new equipment. In these cases, there may be limited displacement of local people. But in many cases, international investors are seeking land which is already being used by a range of smallholders, herders and indigenous peoples. Such acquisitions impinge substantially on their rights, food security and livelihoods.

1.2 Who is making international investments in land?

Large-scale land acquisitions date back to colonial times, being driven by a long-established quest for land and other strategic resources. Over the last fifty years, multi-national companies have grown and expanded their global reach on supplies of food, animal feed, biofuels, timber and minerals (Weis 2010, White and Dasgupta 2010).

Recently, new international players, including the governments and some companies of the Gulf States, China, Libya, India and South Korea, have also begun to acquire land, partly in response to the 2007-08 price spike in commodities. Food production is not the only reason behind land deals. Land is also being bought by a wide range of interests to produce biofuels, forestry products and minerals, expanding the range of old and new actors in the global scramble for resources.

1.2.1 Deals at multiple levels

Land deals occur at multiple levels, within and between regions. For example, as of 2010, the South African commercial farmers' association (AgriSA) is reported to have acquired 200,000 ha in the Republic of Congo, and to be involved in further negotiations with 22 African governments (Hall 2011), Brazilian farmers have increased their holdings of land in Bolivia from 19,000 ha in 1993-94 (equivalent to 8% of total land under cultivation) to more than 175,000 ha in 2008-09 (equivalent to 25% of land area farmed) (Mackey 2011; Urioste 2010), UK interests are purchasing land in Eastern Europe, and Vietnamese interests are moving into Laos (Kenney-Lazar 2011). Over the last ten years, for example, in Uruguay, agricultural investors from neighbouring countries have acquired large areas of land for forestry, such that land held by non-nationals has grown from 9% in 2000 to 21% in 2009 (Uruguay Census 2010). Land deals also occur domestically, separate from or in partnership with foreign governments and companies, as in Indonesia (McCarthy *et al.* 2011), Brazil, India (Levien 2011) and Russia (Visser and Spoor 2011). Quantitative inventories carried out by the World Bank (Deininger *et al.* 2011) and IIED with FAO and IFAD (Cotula *et al.* 2009) suggest that acquisitions by nationals account for a large share – and in some cases for the majority – of acquired land areas.

1.2.2 Many different interests

Large-scale land investments involve a complex interlocking global system of interests. Investments may be direct or indirect, international and domestic, productive and speculative, as well as corporate, public and farmer investments. Direct players include companies seeking land to grow food, feed and biofuels (Gillon 2010, Franco *et al.* 2010; McMichael and Scoones 2010). Indirect players, such as pension fund managers, real estate groups, and finance capital, may seek land as an additional asset in a broader portfolio. Since the financial crisis of 2007-08, caused in large part by speculation in a range of financial instruments, there has been concern that international investment in land has become just another strand in the portfolios of financial institutions. 'Speculation' in any asset involves acquiring it in the expectation of its value going up, rather than planning for longer term productive investments.

Evidence suggests that many land deals have not been followed by productive investment, with only 20% of investments that have been announced actually being followed through with agricultural production happening on the ground (Deininger *et al.* 2011). Speculation might be one of the reasons for that. It is however difficult to say how much international investment in land can be classed as 'speculative'. Reasons other than speculation include: consultation of affected people may increase project costs or delay implementation (Cotula 2011); "absence of bilateral investment treaties to secure investors' assets and the right to repatriate profits … has scuppered (or at least delayed) several in-principle agreements for allocation of farmland in other countries in the region" (Hall 2011);

"long delays on the part of the state in transferring the land and releasing grant funding (Davis and Lahiff 2011); "most investors have been unable to finalize procedures to obtain a lease. Some investors began these procedures more than two years ago. The length of this process is explained by the difficulties encountered on the ground in obtaining plots of undeveloped land of between 10,000 and 30,000 hectares and – above all – by the current political context" (Andrianirina Ratsialonana *et al.* 2011). As a result, and combined with the impacts of the financial crisis and accompanying credit restrictions, the impetus to conclude deals is showing early signs of fading. Some deals that were announced have either been delayed or abandoned (Smaller and Mann 2009).

Governments often require that investors demonstrate a business plan, and evidence of intent to develop the land being acquired, in order for the land to be granted. Failure to carry out investment as detailed in the land contract can render the deal void, with the government able to take the land back. However, there is often little capacity to monitor compliance by the investor with the agreed business plan. Equally, governments often have limited power and political will to carry this through.

1.2.3 National governments are centrally involved

National governments are centrally involved. In many host countries, land is legally claimed, owned or otherwise controlled by the state. As a result, government agencies play a central role in international investments in land. A range of different agencies are involved, such as investment promotion agencies, ministries for agriculture, planning, and land, the president's office, and regional government. Given the number of agencies with an interest in the land, this can generate conflict and confusion (Cotula 2011). In many cases, governments extinguish local land rights through their power of eminent domain (Deininger et al, 2011). Several governments (such as Tanzania, Ethiopia, Mozambique, Cambodia) have made proactive efforts to identify "available" land that can be allocated to investors. Most governments have set up investment promotion agencies to provide the doorway for those seeking to acquire land, acting as a 'one stop shop' for foreign capital. In the case of Cambodia, for example, the government has established Economic Land Concessions for investors, in all totaling close to 2 million hectares between 1998-2010. Many of these concessions are for plantations of eucalyptus, sugar cane, palm oil and rubber, the majority held by domestic investors often linked to foreign capital.

As well as making land available to foreign investors, government may also seek to limit their rights. For example, Ecuador approved a law on land and food sovereignty in 2009 which protects areas from extraction of non-renewable resources and discourages mono-cultures (Valle, 2010). Bolivia has given indigenous people collective title to some land, and has limited land purchase by foreign interests in its Constitution, passed in 2006 (Urioste, 2010). Brazil has also restricted all new farmland investment from abroad given concerns for domestic food security (Sauer & Leite, 2011).

1.2.4 Domestic investors may be even more significant than foreign

Although this is a study on international investments in land, it would be incomplete without acknowledging the proportion of land deals which are domestic. There is an increasing concern regarding domestic land acquisitions and the difficulty encountered in combating these deals. For instance O'Brien (2011) documents the problems of land acquisitions by Kenyan elites and the lack of political will to solve them. Deininger *et al.* (2011) highlight that the proportion of domestic land deals recorded for Nigeria and Cambodia amounted to 97% and 70% of the total reported large-scale land acquisitions for each country respectively. However it should be noted that the importance of domestic actors can differ dramatically between countries with only 7% of land acquisitions in Liberia being domestic acquisitions. But in general, these domestic elites have direct and indirect linkages to foreign capital, as in the case of Kampong Speu and Pursat large land deals in Cambodia (with Thai and Chinese capital, respectively), and the San Miguel Corporation land deal in the Philippines (with Malaysian capital tie up). Equally, where there are legal constraints on land acquisition by foreigners, domestic players may be sought as partners in order to evade these restrictions.

Such domestic land acquisitions, together with foreign investments on land, are deepening an historical problem related to land distribution. The Gini Coefficient of countries like Brazil, 0.86 (Sauer & Leite, 2011), and Ecuador, 0.80 (Valle 2010), among so many others, clearly shows such historical process of land concentration. Additional dispossession and displacement caused by large-scale land

investments will worsen already problematic land distribution conditions in many countries, and are likely to provoke further conflict and violence.

1.2.5 Local players

In international debates, reference is often made to the implications of land acquisitions for ‘local communities’ and ‘local people’. However, there is usually significant differentiation of local interests and of wealth, power, status and gender (Bernstein 2010). Traditional chiefs, local entrepreneurs, and district government officials, among others, may help to broker land deals, often pursuing personal ahead of community interests. e.g. as documented for a case in Mozambique by Borras *et al.* (2011).

2 WHAT IS DRIVING THE INVESTMENTS IN LAND?

Growing investment in land stems from a combination of drivers, including policies requiring mandatory blending of biofuels in the transport sector, the search for raw materials to enable rapid industrial and commercial growth in many national economies, governments seeking to assure their nation's food security in the face of volatile prices, policies requiring appropriation of vast areas in the name of the environment, and private sector interest in generating a commercial return from commodity production.

2.1 Public policy drivers

2.1.1 Governments seek food security for their own people

Maintaining national food security is very high on the agenda of most governments, since food shortages are devastating for their people, and also threaten political stability. Volatile food prices over the past five years have generated demand for greater food security, including through lease and purchase of land beyond national borders. Price volatility will probably persist and even increase, given growing demand, climate change, extreme events, and the growing interest of international finance in commodity markets (see HLPE 2011).

Some countries struggle to meet their needs by investing in their domestic agricultural sector. For example, while until recently extensive subsidies and water-intensive production made Saudi Arabia self-sufficient in wheat, imports resumed in 2007, and wheat production will be phased out completely by 2016. Progressive depletion of non-renewable fossil water in the country was a key factor in this shift. As a result, the King Abdullah Agricultural Initiative is co-investing in foreign land to grow the food needed by Saudi Arabia (Woertz et al, 2008; Woertz, 2009). Similarly, Libya has been leasing land in Ukraine and Mali to produce food for its own population.

China has also been pursuing a national food security strategy, including major public investment in domestic production and agricultural R&D (Foresight 2010). However, the government acknowledges that it is getting harder to fulfill its commitment to meeting 95% of food needs from domestic sources. This is due partly to growing incomes and rising demand for meat, fish, and fruit. At the same time, there is added pressure on land and water, due to climate change, conversion of agricultural land to urban use, and land set-aside for watershed management and erosion control. As a consequence, the Chinese government has been supporting investment by Chinese companies in large areas of land beyond their borders, to ensure supplies of soy, and palm oil, as well as rubber and timber, such as in Brazil, Argentina, Angola, Democratic Republic of Congo, Cambodia, Lao, Russia, and Kazakhstan, Mozambique, Tanzania, Zambia, The Phillipines, Cameroon and Sierra Leone (Visser and Spoor 2011; UNEP 2011).

2.1.2 OECD policy drivers

Certain regional blocs exert a major influence on international investment in agricultural land. For example, the EU's biofuel directive requires that 10 per cent of transport fuels must be biofuels by 2020. This is driving strong pressures to generate sufficient feedstock (oil palm, sugar cane, jatropha) from land across the globe, with knock-on implications for food security. The US biofuel policy which involves large subsidies to domestic maize production for conversion to ethanol has indirectly led to pressures on land elsewhere, as well as raising maize prices worldwide.

2.1.3 Role of the African Union

The African Union's Comprehensive African Agricultural Development Programme (CAADP) of 2003 committed member state governments to invest 10% of government expenditure in the agricultural sector. Most countries have not yet reached this target, and many are seeking private international funds to make up some of the gap through land deals. The CAADP has a particular focus on increasing irrigated area (only 4 per cent now across Africa). Some international investors are offering this infrastructure in exchange for land leased or purchased. For example, in the case of the Libyan acquisition of 100,000 ha of land in Mali, the Libyan government has built a canal to bring water to the area to be cultivated.

2.1.4 Policy incentives in host and home countries

Many governments of capital-scarce nations want to attract private investment. Some set up 'investment promotion agencies', and revise their investment codes. They have also sought to reduce barriers to investment, such as complexity of customs clearance, or number of days required to establish a business. The World Bank and International Finance Corporation (IFC) have supported reform in the 'business climate', as have a number of bilateral donors. In their search to compete for investors, governments are offering highly preferential terms, such as long tax-free periods, large land areas provided at little or no cost, and clauses that protect the investor from changes in host country legislation. Foreign investors can count on the relative strength of international investment law, and the system for arbitration in the event of disputes. Many governments of capital-rich nations have also been encouraging their own investors to expand their activities, by supporting trade and investment missions, providing guarantees and insurance, as well as access to state bank credit and political backing.

2.2 International private sector investment

While government policy can play a key role in establishing incentives for investment overseas, the private sector has taken the lead in land investments. In a study of four African countries, the private sector (both domestic and foreign) accounted for 90 per cent of the land acquired between 2004 and 2009, with direct acquisitions by foreign government agencies accounting for the remaining 10 per cent (Cotula and Vermeulen, 2009).

2.2.1 Food and feed production

Projections for future demand for food suggest an increase of 70% will be needed by 2050, due to an increase in human numbers, rising incomes, urbanisation and changes in diet. Smallholder agriculture currently produces food for around 70 per cent of the world's population (ETC 2009) and provides an important element in the livelihoods of 60-80% of the population in many low income countries. In the absence of major investment for industrial or service sector activity, supporting a viable and prosperous small-holder sector will be key for generating food, jobs and incomes for the foreseeable future.

Growing consumer demand for meat and dairy produce is driving increasing use of land to grow feed. Around one third of arable land is used to provide animal feed (Woods *et al.* 2010; FAO 2006), and the amount of cereal and land used to produce meat is likely to increase as world incomes rise. There has been an enormous increase in soy production over the past 20 years, driven by high levels of investment in R&D and increasing vertical integration in the production and processing business. More than two-thirds of the increase in area was in Brazil and Argentina, where production has been dominated by the four largest agri-businesses (Sauer & Leite, 2011). Equally, oil palm has expanded greatly in south-east Asia, with a more than doubling of planted area in Indonesia over the last ten years. The rapid growth in global market demand is driving a process of rapid land acquisition in the form of consolidated blocks of land. The economies of scale and crop characteristics favour large schemes of 4,000-5,000 hectares surrounding a large mill (Colchester 2011).

2.2.2 Biofuel production

Biofuels are themselves fuelling rising demand for land and water. In 2006 an estimated 14 million hectares were growing biofuels, ie about 1 percent of the world's arable land. This is expected to rise to 35-54 million hectares by 2030 (2.5 to 3.8 percent of available arable land) (Cotula *et al.* 2008). The boom stems from a widespread perception of "peak-oil" and from the assumption that biofuels save emissions of greenhouse gases. Today, rising oil prices are making biofuel production in some places increasingly viable, even without subsidies (McMichael and Scoones 2010).

Domestic and foreign investment varies between regions. In Africa most biofuel crops are exported for processing, meaning little value added is captured locally (van Gelder & German 2011). But domestic production dominates in Brazilian sugarcane ethanol (though a large part of it is processed and exported – Wilkinson and Herrera 2010) and Colombia (oil palm).

However, ‘first generation’ biofuels cannot replace fossil fuels because of their low, or even negative, energy return on investment (EROI), and the vast land areas needed to produce sufficient quantities (Martinez-Alier 2011).

This low output, together with existing pressures on arable land, makes the biofuel boom an important international driver in international land investments. Through this it influences markets for basic food staples, as happened when the US cornbelt shifted maize harvests from food to ethanol (Gillon 2010). Biofuels will contribute to food security challenges in the coming 20 years.

The EU estimates 20-30 million hectares is needed to meet its target of 10% biofuel use by 2020. It expects 60% of its supplies will be grown outside its borders (Franco *et al.* 2010). The International Energy Agency (IEA) estimates that for biofuels to meet 20-30% of predicted transport fuel demands in 2050, between 100-650 million hectares of land would be needed (Murphy *et al.* 2011). The total area under arable production today is around 1,600 million hectares.

The bio-energy market tends to promote large industrial plantations with efficient crop handling and processing. Such large industrial plantations are usually labour-saving enterprises (Li 2011, McCarthy 2011). Industrial scale plantations have caused deforestation in many areas and massive carbon losses from cultivation of peatlands. In several places, when biofuel plantations are established, local smallholders lose land and access to forest resources (Ariza-Montobbio *et al.* 2010; German *et al.* 2010).

2.2.3 Finance sector

The finance sector provides credit for agriculture, but is also increasingly an investor in land itself. Much of the funds needed for investment in oil palm plantations in Indonesia and Malaysia has come from European banks, but increasingly these funds are being raised from the Middle East, India and China (Colchester 2011). Investment in land is seen as a good way to diversify an asset portfolio and hedge against inflation (Campanale, 2011). Returns are expected to be reasonably steady, and likely to improve over time, as the relative prices of land and agricultural commodities are expected to rise in the medium to long term. Farmland funds and agricultural investment funds are being set up to channel private capital into the increasingly lucrative agricultural sector. For investors seeking wealth preservation (diversification, hedge against inflation), Western Europe, North America, Australia and New Zealand are preferred options; but investors seeking higher returns are increasingly engaged in Africa, where land prices are much lower, though risks are perceived as greater. A recent survey of investment funds, private equity funds, and listed large scale agricultural companies generated 138 entities with investments across all parts of the globe (Campanale 2011). Alongside these investment funds there is also a range of socially responsible investment funds engaged in African agricultural schemes, such as those linked by the Global Impact Investors’ Network (GIIN). However, it is not clear how much of the interest expressed by international financial institutions in land over the last few years is likely to eventuate in tangible projects.

Foreign direct investment in agriculture and land, including by the finance sector, may be embedded in projects jointly carried out with multilateral development institutions. For example, in the Americas, several infrastructure corridors have been constructed to attract international investment and open up new land (Safransky & Wolford, 2011). A series of public-private partnership projects are also being developed in various regions of Africa, such as the southern corridors project in Tanzania, aimed at public funds generating the roads, markets, storage, and communications to achieve the “critical mass” required to draw in greater levels of private investment to agriculture.

There is a wide range of expected returns on land as a financial investment. Cochet & Merlet (2011) cite anecdotal evidence that it would be “virtually impossible to obtain more than 6% or 7% return on investment for an optimized production of cereals or soybean without the exceptionally favourable socio-economic terms that currently characterize land grabbing” (citing Combastet, 2010); and that investors “usually aim for an annual return of 15% to 20%” (citing Bourdoncle 2009, Combastet 2010, Dromard 2010). Alternatively other anecdotal evidence from a number of investors in this sector speak of overall returns of 20-30% a year, including a significant element of capital appreciation of the land asset (EmVest, 2011). In a few activities, returns are quoted of 50-60%, in settings where the investor faces little competition (World Bank 2011b).

2.3 Ecological drivers of international investments in land

A range of environmental drivers are increasing interest in large-scale land investment. These include: gaining access to water; drought and degradation; biofuel policy (as outlined earlier); conservation of biodiversity; REDD+ and other carbon sequestration schemes.

2.3.1 Water scarcity

Water scarcity is a major driver of international flows of investments in land; furthermore it has been argued by some that water is the hidden agenda behind many land acquisition deals (see Smaller and Mann 2009, Woodhouse and Ganho 2011). Thus investors may be seeking to gain control of water resources in states perceived to have a surplus of water today instead of land (Smaller and Mann 2009). This securing of water rights has become a critical part of the process of acquiring land (Smaller and Mann 2011).

The importance of water to production means acquiring access to water resources is one of the major goals of land acquirers (Bues 2011 citing BMZ 2009). It is a particular issue for countries such as China and the Gulf states where water resources are particularly limited. As with land deals in general, little evidence exists which document the rights gained by investors over water. But the evidence which exists indicates that small-scale farmers may suffer greatly. For instance Bues (2011) demonstrated how in Ethiopia, the distribution of water rights within an irrigation scheme changed in favour of the land acquirer and against local farmers, due to the greater bargaining power and resources of the former.

Contentious water issues will not disappear and are likely to intensify due to changes in climate. This will further propel and increase the need for investment. As a result, awareness of water issues is paramount and because acquiring water rights is such a key issue in investment projects, they will invariably impact on water management for many inhabitants both up and downstream. This is certainly illustrated in one major land and water deal in Mozambique (Borras *et al.* 2011). Therefore negotiation of water rights is a question of vital importance in contract negotiations.

2.3.2 Drought

Drought has also been a major driver of foreign farmland investment. For example, the drought in the 1970s and 80s across the West African Sahel pushed millions of smallholder farmers south into coastal countries, like Ghana and Cote d'Ivoire. By 2000, around one third of the people living in Cote d'Ivoire were non-Ivoirians by birth. This enormous flow of incoming farmers was responsible for the remarkable expansion of cocoa and coffee production in much of central and southern Cote d'Ivoire, allowing the country to become the largest producer of this commodity in the world, as well as generating considerable conflict. Other regions are also suffering falling rainfall, and declining groundwater availability, such as the Punjab and Syria, which may prompt the need to look elsewhere for a more stable food supply. Drought in China has led to desertification and land abandonment in the north west, pushing farmers to look over the border to neighbouring Russia and Kazakhstan. The changing patterns of temperature and rainfall resulting from climate change will likely push many more large and small scale farmers into neighbouring countries.

2.3.3 Conservation policy

Conservation policy has generated strong pressures for setting aside areas under varying degrees of protection. Some critiques describe this as 'land and water grabs in the name of the environment', a 'new way of appropriation of nature' (Fairhead, Leach and Scoones, forthcoming). While the proportion of global land under some form of conservation protection is 12%, in countries like Tanzania, it is reckoned that 23% of land is currently under some form of conservation that often results in the disruption of local peoples livelihoods, if not their dispossession and displacement (Peluso and Lund, 2011; Kelley 2011, Corson 2011). Concern has been expressed more generally about the power of big international environmental NGOs to buy up for protection land which smallholders currently rely on.

2.3.4 Forestry

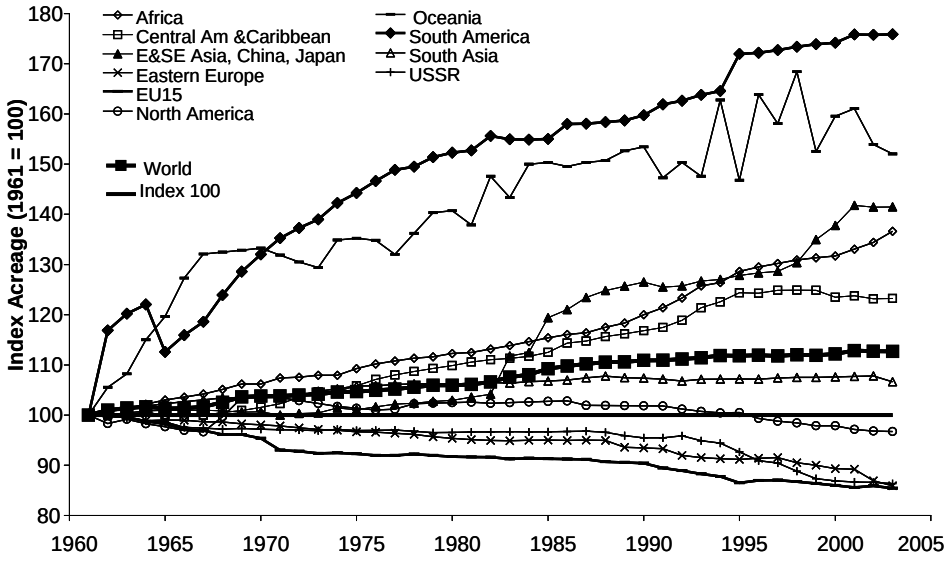
Over the past 20 years, plantation forestry has been a major driver of land expansion, with particularly large increases in China, the US and the former Soviet Union. Expansion is expected to continue at a similar rate as the past, generating large monocrop areas. REDD+ schemes also pose potential risks to local land rights and livelihoods (Larson *et al.* 2011; Osborne 2011; Westholm et al, 2011; Corbera *et al.* 2007). While much of the debate has concerned the global mitigation potential of tropical forests, whether REDD+ will ultimately benefit or marginalize forest communities depends on local to national arrangements and the extent to which these recognize rights and tenure for forest-dependent communities (Larson et al, 2011; Cotula and Mayers, 2009; Sunderlin *et al.* 2009).

3 EXISTING USE AND TRENDS IN LAND, NATURAL RESOURCES AND THEIR TENURE

3.1 Current Patterns of Land Use

Between 1960 and 2005, global food production increased by 225%. This was mainly due to rapidly rising yields as a result of new seeds, combined with improved water management, nutrients and plant protection. Over the same period, land use rose only 13%, or by approximately 200m ha globally, with large regional differences as can be seen from Figure 1. Arable land use fell in the EU and North America, whereas more land was taken into production in South America, Africa and Asia. There has also been a significant fall in arable land use in the former Soviet Union and eastern Europe, following the fall in the Berlin Wall in 1989 and abandonment of state farms (Spoor 2009). The decline in Europe results in part from land set aside for environmental purposes, which has in effect displaced crop production to other parts of the world. China has also set aside large areas of upland agriculture in order to re-forest and protect watersheds, shifting pressure to neighbouring regions.

Figure 1 Changes in arable and permanent crop land use over the past four decades.



Source: Bindraban *et al.* 2009 with data from FAOSTAT (FAO 2007, 2011)

This overall increase in agricultural land has come mainly from expansion into forest land (Gibbs, 2010). This is especially marked for Brazil and sub-Saharan Africa. Further expansion of cultivated area will also have to come from forest land, combined with areas currently used for grazing.

3.2 Future land use projections

There is considerable debate about the availability and costs of bringing more new land into production, set against raising yields on existing farmland. With food needs set to rise and continued pressure on scarce resources, a range of surveys has assessed the potential for future land expansion, and where this is most likely to occur. These surveys are usually based on an assessment of bio-physical production potential. In theory, plants can grow anywhere where the temperature regime allows it and soils can provide enough water and nutrients for plant growth. Taking the world as a whole, a maximum area of up to 7 billion hectares can be used for some form of plant growth (WRR, 1995), but if this was all under cropping, it would be at the expense of all forest and savannah lands. The IIASA assessment (2011) estimates global land area with potential for rain-fed cultivation at 3651m ha, of which less than half is currently under crops (1528m ha, for the period 2003-2008,

source FAO, 2011). Deininger *et al.* (2011) estimates there is a minimum of 445 million ha and a maximum of 1.7 billion ha of available land worldwide. The latter's figures are lower than those of IIASA because the latter take into account the proximity of transport infrastructure in assessing land's suitability for cultivation.

Overall, they suggest the amount of land potentially available depends on how much forest and grazing land is converted to arable production, and what it will cost to develop the infrastructure (irrigation, transport, storage) required to make more distant, lower quality regions productive.

There are marked regional differences, however. According to IIASA, rain-fed cultivation potential is nearly fully exhausted or has already been exceeded in some regions, such as west and central Asia, and central America. South and East Asia lack sufficient land and water resources to be self-sufficient today, let alone feed their increased numbers in 20 years' time. By contrast, the agro-ecological production potential of North America, the Former Soviet Union, Australia, Europe and Latin America exceed their own food requirements. The African continent is also reckoned to be able to expand cultivated land substantially. But it must be recognised that expansion of the agricultural land area will be at the expense of grazed or forest land, with both social and environmental impacts.

The impact of climate change must also be considered in assessing future production potential, since rising temperatures and changing rainfall patterns will hit different farming areas in different ways[3]. For example, warmer temperatures may bring better growing conditions for countries such as Canada and Russia, while increasing aridity is expected to bring down yields in North Africa and Southern Africa farming systems (IPCC 2007). Such shifts in growing conditions will have important implications for patterns of trade.

Pressure for taking additional land into farming can be alleviated by raising yield per hectare instead. The "yield gap" is usually defined to mean the difference between realized productivity and the best that can be achieved using current resources and management practices (Foresight 2011a). Yield gaps can be quite significant - current yields in Africa for maize, oil palm, soybean and sugar cane are estimated at 20%, 32%, 32% and 54% respectively of what they could be (Foresight 2011b). Progress in bridging this 'yield gap' will be important in meeting future world food needs and reducing the need to turn yet more land over to agriculture. According to Smith *et al.* (2010), if the yield increases of the last 40-50 years had not been achieved, nearly three times more land would have been required to sustain the present population. Bridging yield gaps will become increasingly important as the land being brought into production becomes more marginal (Smith *et al.* 2010).

Although yield gaps exist across all countries they occur particularly in low and middle-income countries due to various reasons, such as poor access to inputs, and weak infrastructure. Four classes of intervention can help bridge the yield gap: raising productivity through revitalising extension services; making markets function better and providing market access; strengthening rights to land and natural resources for individual local producers and communities; and investing in physical infrastructure in order to facilitate access to markets and investment in rural economies. Addressing yield gaps should be pursued alongside approaches that are socially inclusive and just as well as environmentally sustainable (Altieri and Toledo 2011, Rosset *et al.* 2011).

Any attempt to bridge the yield gap to meet increasing demand should be combined with other important measures to diminish food waste. This covers food wastage throughout the food production chain through to consumption. Although we cannot say with absolute precision and certainty how much food is wasted at the global level, the scale is certainly substantial. Estimates range from a cumulated 30 to 50% of food produced being lost at the different stages, before or after it reaches the consumer (Foresight 2011a). Moreover, raising productivity cannot be seen as the only solution, as it must be combined with other measures like research and public efforts to change our overall diet, to produce healthy food, to deal with the excess of obesity (health problems), among other problems directly related to food demands and consumption.

[3] A report on climate change and food security will be prepared by the HLPE at the request of the CFS for October 2012.

3.3 Limits to the bio-physical survey approach

At the global scale, it is valuable to understand where agricultural production might be raised, whether through land expansion or increases in yield. These surveys of potential land use requirements come up with a range of results depending on assumptions, such as about dietary habits (for example how much red meat is eaten), whether the EU's 2020 biofuel targets are met, whether research can generate much higher yields per hectare, or waste can be cut.

But while these surveys show biophysical potential, they suffer a major drawback. Satellite and aerial photos cannot show the invisible elements that are essential for understanding how land is actually used, the rights of different users of the land, and existing land-based social relations. And in many countries, cadastral systems showing registered land claims are extremely problematical, so that official state records and actual reality do not match. In addition, a large number of smallholder farmers may have no registered rights to the farmland and commons on which their incomes and livelihoods depend.

It is often asserted that there is much "available" land in Africa and Latin America. This suggests abundant unused land. However, there is rarely any valuable land that is neither already being used in some way, nor providing an important environmental service. Hence, any taking of land deemed to be "available" will impose some cost, either on the existing land user, or in environmental services forgone.

Thus, when Mozambique allocated 30,000 ha in Gaza province for the ProCana sugar cane ethanol plantation (Borras *et al.* 2011), when the Cambodian government allocated 20,000 ha for sugar cane plantation in Kampong Speu, and when the Philippine government allocated one million ha of land to San Miguel-Kuok company partnership, the assumption was that the lands were vacant, marginal, idle and available. Subsequent studies showed that this was not the case: these spaces were inhabited, and productively used, by communities.

3.4 Land tenure issues and trends

Large-scale land investments and cases of dispossession and displacement occur across various types of land property regimes. It is relevant therefore to have a quick overview of various land property arrangements and their character. Land tenure describes the nature of and manner in which rights and interests over various categories of land are created or determined, allocated and enjoyed (African Union Land Policy Guidelines). There are many different forms of tenure system, depending on the history, politics and economic development of the region in question. Thus, for example, in many countries subjected to colonial rule, land tenure systems combine a series of statutory written laws or codes, alongside a range of customary practices that govern day to day management of rural land. This combination of tenure systems presents difficulties because of the plurality of rules and authorities with powers over land allocation and dispute resolution. For example, Ministries of Land and Agriculture vie with those in local government and with village chiefs to control access to and allocation of this increasingly valuable resource. Local people rarely have knowledge of the formal legal system, nor how to seek redress in the event of contested rights. This gap between de jure and de facto rights creates a vacuum within which more powerful actors can seek to assert rights and establish claims to other people's land (Wily 2010, Lavigne *et al.* 1998, MAEE 2010). But even in places where there is a relatively high degree of legal literacy about land rights and clearly progressive land policies, people's access to and control over land resources are not automatically guaranteed. This is especially the case in settings marked by high degrees of inequality in land ownership and control, such as Brazil, Colombia, the Philippines, and South Africa. Land laws and policies emerge and are passed, but they often remain merely on paper without effective implementation (Houtzager and Franco 2003, Franco 2008).

In most smallholder farming systems, individual freehold title of land is rare. Rather, there is a bundle of rights associated with land. Take a farm plot in the West African Sahel, for example. It is cultivated by a household for several years and then left to lie fallow. Cattle herders may gain access to graze the stubble after harvest, women to collect fruit and firewood from trees in the field, and old men to cut particular grasses on the field boundary to make granaries. After a few years of fallow, the household may allow its women members to farm a portion for their own needs, and subsequently, transfer the field to an incoming migrant family seeking land. However, the latter will not be allowed to plant trees

or make permanent improvements on the land, in case this then provides grounds for a land claim. Alongside farmland, most rural communities depend on a range of common pool resources, such as grazing, woodlands, and wetland areas. These collectively managed resources are vital for livestock, foodstuffs, fishing and other activities, of particular benefit to poorer members of the community, such as those with little land, women, incoming migrants and herding groups. Collective pastures are critical to mixed farming systems, in which cattle, sheep and goats provide a combination of traction, dung, milk, meat and a secure asset.

In contrast to many developed countries, much land in middle and low income countries does not have formal paper title by which the land user can have his/her rights recognised and supported by government. Title is often restricted to big cities and farmlands that have been part of a development project, such as an irrigation scheme. Since government is the underlying owner of land, forest, water and mineral rights, local people using these resources can be easily displaced with little or no compensation (although having formal state recognized rights is also not a full guarantee against dispossession). Usually the state law provides for people to claim the value of standing crops and useful trees, as well as permanent structures such as a house. But the value of the land itself is rarely taken into account, when people are moved to make way for major infrastructure, such as a dam or urban development.

Over recent years, many governments have reviewed their land policy, including systems of land tenure administration (Wily 2010). These have included constitutional amendments regarding women and property rights, plus programmes to register land rights. In a number of cases, land laws have been revised to provide greater recognition of customary rights and local land authorities (village or clan chiefs) as well as offering greater rights to collectively held resources, indigenous peoples, and to women. Where reforms have brought improvements, these are now in doubt given the accelerating demand for land from both foreign and domestic investors (Wily 2010; Daniel and Mitta 2009; Andriani et al, 2010; German et al, 2011; Lavers, 2011; Maughan, 2011; Nonfodji, 2011; Wiley, 2011). Similarly, lands that were previously redistributed through land reforms are now also being taken over by the waves of large-scale land acquisitions in various countries.

3.4.1 Registering rights

A number of land registration and titling programmes has been underway in countries such as Cambodia, Ghana, Ethiopia and Mozambique. Some assume that formal titles are likely to lead to greater investments in the rural areas because clear titles provide the means to gain access to credit using the land certificate (De Soto 2000), although empirical research has shown that in many cases this has not happened as expected (e.g. Nyamu-Musembi 2007). There have been a number of problems with formal land titling schemes, which include the long and costly process involved, and risks of fraudulent claims (Djiré 2007). As a consequence, a number of governments and donors have supported a lighter process of registering family and collective rights, through simple mapping and issue of certificates. Wily argues that registering claims is vital in order to make local rights more secure, especially given rising competition for land (2010). Having some form of paper documentation should put the land holder in a position of greater strength when negotiating with government and investors. However, formalizing rights can also facilitate land loss to some, exclude poorer groups and simplify the multiple claims and interests over land, to the disadvantage of women, herders, and migrants, who may depend on secondary rights of access. Concerns have also been expressed that providing a formal title can accelerate landlessness since poorer farmers may be forced to sell after a bad harvest, leading to a concentration of land in wealthier sections of the community. Similar concerns have been reported in Indonesia where land mapping has made land more likely to be transferred to investors (see, e.g. Hall, Hirsch and Li 2011), while in Benin comprehensive land mapping and registration have facilitated land loss as incentives for registering land also oblige land owners to have their land allotted to investors (Nonfodji, 2011).

Land registration can be done in ways which increase the rights of poor people and communities, if care is taken to design the procedures, costs, and accessibility of the process. Where land registration has been instigated to create suitable conditions for large scale investment, it usually fails to serve the interests of the rural poor, since the particular constraints they face are not taken into account when designing land administration and governance systems.

Box 1: Current efforts at registering community land rights

Community delimitation in Mozambique and Rural Land Plans in Benin and Cote d'Ivoire are examples of ongoing initiatives to recognize and formalize local or customary land rights. These methods are intended to reduce conflicts over land use and land tenure as a pathway towards securing local claims, and to improve clarity when investors and development practitioners initiate new projects. Both methods establish a map, while the RPF also generates a registry of rights holders. The latter identifies and records rights assigned to third parties and individuals. Both methods involve consultations with land users, establishing who has rights, and encourages discussion and debate on leadership and land governance structures. Rural Land Plans have a five-step process that involves information campaigns, assessments of socio-economic and land tenure conditions, preparation of village profiles, documentation of local norms and tenure, participatory production of land tenure maps, public review of maps, and the issuance of certificates and formal records of secondary rights. Both methods are designed to be quick and at relatively low cost. Quantitative evaluations of their effectiveness and efficiency are underway.

Community delimitation allows large units to be surveyed and recorded and a single document issued to protect the area but leaves the customary system to deal with the specifics of land use by residents. RPF on the other hand leaves local actors to determine the level of rights to be registered and allows for the registration of both collective and individual rights on a case-by-case basis. Extended families may choose to register large land parcels while individuals may register their own plots. Registration is thus able to fit with diverse contexts and rights structures. Land certificates from community delimitation have legal force while and RPF certificates, if not converted to land titles, can be challenged in court.

Both processes face risks. Weak government oversight over intra-community land administration has resulted in inadequate enforcement and protection of women's land rights under Community Delimitation programs. Rural Land Plans have been vulnerable to biases: agriculture bias, neglect of secondary or overlapping rights (e.g. women, pastoralists, youth) and underestimation of the political stakes and manipulative strategies in registration. A revision of its survey methodology has included training on the risks of formalization, the provision of guides that better reflect on-ground complexities and terminologies, and the linkage of surveys to the origin (not just content) of rights. Both Community Delimitation and Rural Land Plans are based on demand; in the latter some communities with strong customary systems have opted to only record monetary transfers.

A 10-step procedure for identification and registration of rights designed for highly contested common lands in central Afghanistan and Sudan is currently under implementation. This process begins by inducing the popular support for the process, allows communities themselves to unpack conflicting land interests and finally clarifies customary rights and access rights, while providing relevant local institutions for their administration, including conflict resolution.

Source: Knight 2010; Lavigne-Delville, 2010; Wily, 2008

Registration of land and natural resource rights is critical to providing security to rural people, and enable them to negotiate from a better position with both investors and government. However, levels of rights registration are very low in many parts of the world, especially in Africa. At current rates of operation, such systems will take decades to cover the territory of many countries. A more immediate means to provide secure rights for smallholders would be through community land registration, whereby land is mapped and registered at the level of a village as a whole, rather than plot by plot. This allows for a far more speedy process of coverage, and under certain conditions would offer some protection from land seizure. However, this may also be vulnerable to capture by local elite given the fact that most local communities are highly differentiated along wealth, gender and ethnic lines. Thus the security of land rights is dependant on a range of factors (beside their formulation) that bear on the governance of rights such as low-cost, easily accessible and prompt mechanisms of conflict resolution, fair and reliable enforcement, as well as the equitable distribution of benefits.

3.4.2 Commons

Over the last 20 years, more than 60 countries in Africa, Asia and Latin America devolved management and administration of forestry to lower levels (Persha *et al.* 2011). Several governments have recognised collective management of woodlands, grazing lands and other common pool resources. Governments have been reluctant to acknowledge the importance of common property and local systems of management. Hardin's theory of the 'Tragedy of the Commons' has often been used to justify government taking over grazing and woodlands, on the grounds that local people do not have

the expertise to manage them. The absence of clear markers in many collective lands often results in these areas being classified as unproductive or unused (Ethiopia), idle (Tanzania), degraded (Indonesia), or wasteland (India). However, in a number of countries, governments have adopted a shared management approach, such as Nepal and India (joint forest management), local conventions for woodland and grazing management (Niger, Mali, Burkina Faso, Chad, Senegal); and conservancies (Namibia). But again, while maintaining commons is one way to prevent dispossession due to large scale land acquisition, it can never be an absolute guarantee. Indeed, a rich body of literature points to the role of external factors (such as market prices of commodities and government policy) and internal factors (such as benefit distribution, population increase) that have occasioned the decline of collective use and management of the commons.

3.4.3 Women's rights

Rights and access to land and natural resources is typically differentiated within rural society, and depends on gender, age, wealth or other forms of status. Gender-related access to and use of land and related resources is one of the sharpest and most visible forms of differentiation. Conventional land policies have in the past tended to exclude women (Agarwal 1994, Deere and Leon 2001, Razavi 2003). The way land investments affect women's rights and access share strong similarities with previous examples of resource privatization (Behrman *et al.* 2011, Meinzen-Dick and Mwangi 2008). For example, converting woodland to monoculture plantations terminates women's access to crucial resources, such as water and firewood. Women are also cut off from other products they use, for subsistence or sale, losing income and bearing the increased burden and drudgery of finding alternatives. In Indonesia such constraints have driven women to 'illegal' activities, such as scavenging for oil palm fruits to supplement their incomes (see White and White, 2011). In the context of large scale land acquisitions, Berhman, Meinzen-Dick and Quisumbing (2011) have outlined the key mechanisms and processes within which women are likely to lose out and get dispossessed: from decision making processes in land deals to compensation in case of land acquisition resulting in their dispossession. However, systematic and empirical studies on the gendered impacts of large-scale land acquisition are sorely needed.

Women's rights to land and natural resources need special protection, such as in the registration process to ensure gender equity. Examples from Ethiopia, Rwanda, Kenya, Zambia show increasing voice and visibility of rural women in land committees. Particular provisions and interests of women need to be recognised and included in contract negotiation (eg. water supply, health centres). Employment provision should include hiring of local women as well as men, including the training of women to enable them attain higher wages in supervisory roles.

3.4.4 Redistributive land policies

Large-scale land deals are not only happening on lands under state control. They also occur on private lands regardless of property size. Some domestic land-owning elites have been quick to move towards forging joint ventures, lease agreements and other arrangements with domestic or foreign investors. The surge in demand for land has rendered the need for redistributive land reform even more urgent, especially in places marked by high degrees of inequality in access, control and ownership of land, such as in Brazil, Colombia, Philippines, and Indonesia. But the demand for land has led to even greater resistance from land-owning elites to redistributive land reform. National governments therefore should take more seriously carrying out redistributive land reforms especially where democratization of access to and control over land resources is urgent and necessary. Recent attempts to achieve redistribution via market-based agrarian reforms have generally failed (Borras *et al.* 2007), reaffirming the centrality of the role of the state in redistributive land policies.

3.5 Status of land acquired by investors

Investors get land either from government, through some state agency, or from private companies or individuals. The legal status of land transferred to investors varies across Africa, Asia and Latin America. In Africa, although state ownership dominates the formal legal status of land allocated to investors, in practice this land is often the object of a patchwork of claims, representing customary interests and uses. In the case of Ghana, land is transferred directly by customary chiefs, with little if any role for central or local government. In Kenya's Tana Delta, group ranches (i.e. land that is

collectively titled and owned) and customary lands administered by local government have been transferred (Nunow, 2011). In some countries, before land can be transferred to an investor, it needs to be reclassified from village to general or public land (German et al, 2011; Sulle and Nelson, 2009).

In the case of Mali, most of the land being transferred to investors falls within the area under the authority of the Office du Niger. This parastatal agency both manages the current 120,000 ha of irrigated land in central Mali, and has rights over a further 1-2 million ha of land potentially irrigable from the River Niger. The actual process for allocation is unclear, and involves the Investment Promotion Agency, the office of the President and Ministry of Agriculture. An estimated 50 allocations have been made to both domestic and foreign investors in the last 5 years, covering more than 500,000 ha. A national call from the farmers' union (Kolongotomo declaration November 2010) has asked that the full listing of those who have received land be made public, and the contracts outlining terms and conditions. This has not been answered so far.

In the case of Ethiopia, all land is owned by the government, with land users able to get use rights registered. A land bank has been established by several of the states making up the Federation, which totals 2.1 million ha, in four states. Following a period of decentralised land administration, the central government has re-asserted its control over land allocations exceeding 2,500 ha in size.

In Asia, the land transferred is mostly legally owned by the state, but is often occupied and used by customary claims, as in Indonesia, Malaysia (Andriani *et al.* 2010), and Cambodia (Hirsh 2011). In Cambodia, as in Tanzania, land has been re-categorized from national public land, to state private land to facilitate acquisition by investors.

In Latin America land transferred is of variable legal status, including collectively held and titled land (Colombia); individually held and titled (Guatemala, Mexico, Bolivia, Brazil), and public (Brazil) (Andriani 2010; Alonso-Fradejas 2011; Mackey, 2011). With the exception of Cuba and Bolivia's recent imposition of a ceiling on land size, there are few governmental or legal restrictions on land deals. But some countries like Ecuador and Brazil are now also trying to establish restrictions on foreign investment in land (Sauer and Leite, 2011).

In some cases, land acquisitions in India have involved the state confiscation of private, individually-held and registered land previously redistributed through land reform, as in West Bengal (see also Levien 2011) and in the re-categorization of village or communal lands to public land with subsequent lease to investors (German et al, 2011). The concept of eminent domain is often used to appropriate land for commercial investment in the public good, on the grounds that the state represents and acts as custodian of the public interest. In the Philippines, several land deals also involved areas previously redistributed under the land reform programme, community-based forest management program or the Indigenous People's Right Act program.

3.5.1 Terms of acquisition

In many cases it is difficult to assess the terms of land acquisition because the detailed contracts are not available for scrutiny. From those that can be assessed, transfers range from short-term (less than 10 years) to long term (up to 99 years) leases to full freehold rights (Nunow 2011; German *et al.* 2011; Shete 2011; White and White 2011). Many countries do not permit foreigners to own land, so leases are prevalent, though joint ventures between foreign and national investors can sometimes bypass such rules.

In a comparison of investment contracts covering 8 countries in Africa, the terms varied from 20 to 50 years, with renewal often possible, up to 99 years (Cotula 2011). Most leases involved payment of an annual rental of from less than $2/ha in Ethiopia to $5/ha in Liberia through to $13.8/ha in Cameroun. Some contracts allow for a five year rental free period, and in some cases for adjustment of the rental over time. Where fees are low, investors may be expected to commit capital to develop infrastructure, such as irrigation canals, roads and processing plant. Most contracts make reference to provision of employment, but often in such imprecise terms that it would be difficult to hold the investor to account for non-compliance. Contracts vary on the extent to which terms are set for processing of the agricultural produce, and local procurement of goods and services, with some quite specific about expectations held of the investor and others silent on these issues. Equally, the most detailed contracts give in-depth information about payment of income tax, turnover tax, customs duties, export

tax, taxation of dividends and so on. Most do not, nor do they outline the process for independent audit of the investor's accounts (Cotula 2011).

Long term leases are similar to acquiring ownership, as investors hold a near complete set of rights including use, management, exclusion, and in an increasing number of cases, the right to transfer the lease, though this may require state permission – but the land will ultimately revert to the state. Transfers of large areas at below market price can encourage speculative acquisition, given the very long time periods associated with these leases. Contracts provide few if any incentives for investors to explore business models that engage with local farmers. In instances where benefit sharing agreements are reached between community representatives and investors the agreements are often oral; if formal contracts are drawn, benefit sharing arrangements are unclear or inequitable, investor responsibilities under specified, and procedures for redress in the event of breach unidentified (German et all. 2011).

3.5.2 Process for community engagement

While a number of countries in Africa and Asia require consultations between investors and land users, such processes are often carried out at speed and without proper information given to the local population. In Ghana, Tanzania and Zambia consultations were minimal, the information exchanged was incomplete, the beneficial aspects of the investments were oversold and negative aspects downplayed (German *et al.*, 2011; See also example in Box 1 below). In the case of Indonesia, local people are expected to surrender their lands to the state for 60 years to be developed as a joint venture with private companies, in which the state acts as trustee for the local community. Community shareholders, despite holding 30% of the shares, rarely have an opportunity to get their voices heard (Colchester 2011).

Box 2: Consultations under Mozambique's 1997 Land Law

Under the 1997 Land Law, consultation is a legal requirement imposed on anyone seeking land in Mozambique. Both investors and the State must take local rights into account when managing new land applications. A survey of 260 consultation processes in 7 provinces showed that:

- in the vast majority of cases there is only one meeting;
- where there is more than one meeting, the first is usually a preparatory meeting to set the date and time for the main consultation, with little real information presented at this point;
- those who participate are normally community "leaders" (traditional chiefs), and the opinion of the Chief nearly always predominates;
- many meetings had no-one from the District administration present, and their legality can therefore be questioned;
- women are rarely if ever actively involved; very few sign the official minutes;
- most written records had insufficient detail, and huge variations in the type and quality of information recorded;
- many processes describe farm plots and other evidence of human settlement, but then declare that the land is 'unoccupied' for the purposes of proceeding with the land claim;
- the "Acta" (agreement) signed by community representatives frequently did not reflect local views recorded elsewhere in the form as "interventions", even when these included requests for specific conditions or commitments;
- the information presented in the Minutes tends to be vague – "the investor will bring jobs", or "both sides hope that relations will be good" – and does not facilitate subsequent monitoring of the agreement;
- there are few measurable indicators in relation to the time period for implementation;
- none of the documentation relating to the agreement was formally or officially recognized in a way that could give it legal validity in a court of law, should either side wish to pursue a claim for breaking the agreement.

Land acquisition is also associated with concentration of land holdings. Out of a total of 41 cases in Gaza Province, 2 cases accounted for 30% of the land requested, and 15 other cases for 65%.

Source: Tanner and Baleira, 2006.

Actors enter negotiation processes with vastly different political power, so even with full information, negotiations do not necessarily yield pro-poor outcomes. Similarly, rigorous environmental and social impact assessments are meaningless if they are not enforced. Governments and investors should be held to account for their compliance with free, prior and informed consent of the local population. There are well-established procedures for making this happen, and effective means to ensure that investors work with community representatives deemed by local people to be credible and legitimate.

4 ROLE AND EFFECTS OF LARGE AND SMALL SCALE FARMING

According to IFAD (2010), approximately 450 million small-scale farmers worldwide provide livelihoods for around 2 billion people. Smallholders are politically weak and their voices are rarely heard. Most of the discussion about “modernising” agriculture and encouraging international investment take place in UN, G20 and World Bank circles, but not in the countries most concerned, nor with the people most affected.

Donor and government circles hold a widespread belief that large-scale plantations are needed to “modernise” agriculture, yet there is little evidence to back this up. While a few crops, such as sugar cane and cereals, offer significant economies of scale from mechanised production, many other crops can be grown equally well on small-scale holdings. And some are best grown on small-scale farms. For instance smallholders grow approximately 70 percent of the world’s cocoa. (Clay 2004).

There is a long-standing and polarised debate about farm size and productivity (Lipton 2010). Supporters of small-scale farming describe dynamic smallholder production systems, in which adaptation to new markets and changing environments is very evident, and point to inefficient, extensive large farms with few workers, low wages and poor productivity. Others argue that smallholder farming is outdated, and small farms should be consolidated into fewer large holdings, gaining economies of scale and mechanisation. They contrast peasant farmers on marginal land, who make insufficient profit to invest in their farm and adopt new technology, with profitable large farms, accessing world markets, and providing employment and good wages to the rural people. These different views are related to political positioning, interests and world view. But in real life, both small and large farms may be either resource-poor or rich, use largely manual methods or machinery, and use the land extensively or intensively. Because of this great variation in farm types, false dichotomies between small and large-scale should be avoided (Vermeulen and Goad 2006). Perennial crops such as rubber, fruit and vegetables may do better under intensive production with significant manual input. Small farms may be more efficient in growing these crops than large ones because of the favourable incentive structure in self-employed farming and the significant transaction and monitoring costs of hired labour (de Janvry *et al.* 2001).

Upstream and downstream economies of scale

But while there may be few economies of scale in production, there are increasing upstream and downstream economies of scale when it comes to accessing finance, inputs and markets. Commodity purchasers prefer dealing with a few larger suppliers because it cuts the transaction costs of handling produce. And much of the value added when processing commodities is captured by large multi-national agribusinesses (see Vorley 2003). Agribusinesses’ strong presence in industry supply chains gives them great power in negotiation with producers. Small holders, excluded from economies of scale in processing and investment, can find themselves relegated to less profitable local markets. These may also be under threat where local produce has to compete with often-subsidised food grains from countries with surplus stocks (Vorley 2001).

Data from Brazil further confirm the importance of smallholder production, even in a country which has become one of the most important global agricultural exporters. The Agricultural and Livestock Census of 2006 (IBGE, 2009) shows there are 4.4 million small-scale family farms (84% of total registered farms). These occupy only 24% of total land, yet employ 74% of the total people employed in agriculture. They feed the country, supplying 87% of cassava, 70% of beans, 46% of corn, 34% of rice, 58% of milk, 59% of swine and 50% of poultry consumed in Brazil (Maluf, 2010). Family farms raise 30% of the cattle and harvest 21% of the wheat. By contrast, soybean production is mainly a large-scale crop, but 16% of national output is also from small-scale farmland (IBGE, 2009).

4.1 Linking small and large scale production systems

In the real world, small-scale and large-scale operators are often linked by business relations. There are countless models – among the most common are contract farming, management contracts, supply chain relations and joint ventures (Vermeulen and Cotula 2010). These too have their problems.

For example, without sufficient competition, contract farming can make farmers highly dependent on a given contractor (Guo *et al.* 2007). Land access may worsen for poorer groups if richer farmers can seize the opportunities. Gender imbalances may also be reinforced or exacerbated.

Governments can do much to promote business models that do not involve large-scale land acquisitions. Securing local land rights is crucial if smallholders are to negotiate with government and agri-business. Supporting collective action and effective farmers' organisations is also important. Smallholders need better access to banks, insurers, law firms, courts etc. They also need information: about market trends, how product prices, royalties and dividends are calculated, the level of risk involved, how much debt they are taking on, and what legal protection they have.

4.2 What are the trends for land investment in large-scale plantations and in small-scale farming?

Most documented large-scale land investments in Africa follow a simple model of concentrated production using a plantation system. This is because governments are offering investors large tracts of land rather than promoting more inclusive business models, such as contract farming (Cotula *et al.* 2009). However, a few cases are emerging where governments demand that investors involve local farmers. For instance, the Tanzanian government is developing standards for biofuel investments that include involving local small-scale producers.

Investment in both small-scale and large-scale farming is increasingly linked to vertical integration in food production chains. Companies want to secure products in an increasingly risky market (Smaller and Mann 2009) and to control the quality of production, due to increasing food standards in export markets. This can drive investment, as for example,supermarkets investing in small-holder vegetable farming in Madagascar (Minten *et al.* 2006), but can also undermine farmers' ability to use markets to get a fair price. Increased price volatility is encouraging yet further integration.

4.3 What are the economic, gender, and environmental impacts of large scale land investments?

Many rural households depend on combining shifting cultivation, livestock, and forest resources to survive in their variable environments. Many recent land acquisitions by large scale investors have displaced them, damaging local livelihoods, food security and access to key resources.

4.3.1 Economic

Employment opportunities are often used to justify taking land, water and other resources from local people. Yet, the promise is often empty, and even when these jobs do eventuate they are often taken by people from outside the area. For example, Deininger *et al.* (2011) reporting on the Democratic Republic of Congo, found an out-grower based sugar cane plantation was expected to generate 0.351 jobs/ha and a 10,000 ha maize plantation less than 0.01 jobs/ha. In Ethiopia, the average was 0.005 jobs/ha. The same land would support many more smallholders working as independent farmers. Andrianirina-Ratsialonana and Teyssier (2010) report that a large project in Madagascar was going to create just 0.006 jobs/ha, in contrast to the pre-project pattern of land use on which each hectare supports approximately 1.25 farm households.

However, it is not all bad news. In Väth and Kirk's (2011) study of palm oil in Ghana, investment was occurring in both small and large scale systems. Companies created a plantation to secure a minimum level of supply, then contracted smallholders (sometimes previously landless people) to secure additional inputs. There were also employment opportunities on both the large-scale plantation and associated processing facilities. Although the study did not quantify overall employment impacts, it did demonstrate complex employment linkages between large and small farms. The two production models do not necessarily operate in isolation. Similarly, in Senegal more and more households are participating in, and sharing the gains from, large-scale farming, both as contract farmers and as wage workers (Maertens & Swinnen 2007).

However, the key questions concern the relative significance of such good practice examples, in the face of much evidence of adverse impacts from large scale investment, and how to generate a far

larger number of “good practice” investments. There remain serious differences of view regarding the potential for private sector investment to generate positive impacts on local production systems and livelihoods. Clearly national governments have a central role to play here to balance the interests of investor and local populations in the face of massive differences in power and information. But as will be seen in the recommendations, there are also critical legal responsibilities held by corporations and lending institutions, as well as governments from which such investment stems.

4.3.2 Gender

Farmland acquisitions also have significant gender implications. In many farming regions, most agricultural workers are women (Ashby *et al.* 2008, Jiggins 2010). Their work covers planting to postharvest processing on their immediate and extended family’s land (Behrman *et al.* 2011 citing Doss 2009; Meinzen-Dick *et al.* 2010; Peterman *et al.* 2010), making women central to household food security. Yet farming contracts are often with male household heads, with payments made to men even where it is women who do most of the work (Vermeulen & Cotula 2010). And cash crops controlled by men may encroach upon lands previously used by women for food crops.

Women are vulnerable to exploitation through land investments in four ways. First, women face systemic discrimination when it comes to their access, ownership and control of land as well as protection of their land rights. Second, women face discrimination in socio-cultural and political relations, especially when it comes to influencing and making decisions. Third, they are particularly vulnerable to change that reduces their incomes, because these are generally already lower than men’s. Fourth, they are physically vulnerable to male force (Daley *et al.* 2011).

Neither large nor small–scale farming is shown to be ‘better’ for women, perhaps because there has been little comparative analysis (Maertens 2011, Oya 2011). Furthermore, small-scale farms should not be romanticised. Women’s work on family farms is often unpaid, and because of gender power imbalances they often have little say in how the returns of their work are used (Maertens 2011). For example, women may find that the land they cultivate is taken away and given to another when the household head sees fit (Diarra and Monimart 2006).

But improved access to wage employment, provided by plantations, will increase women’s ability to earn and control their own incomes. Paid agricultural work can also be a way for women to work outside their domestic setting and interact with other women. However, women sometimes suffer greater exploitation than men in wage labour, and sexual exploitation in return for employment opportunities is not unknown (Longley 2011).

4.3.3 Environment

Evidence from investment case studies reported by Deininger *et al.* (2011) speak of local cultivators displaced into a national park, illegal investor encroachment into fertile wetlands, and even displacement of up to 30% of the population. Environmental impacts included eutrophication from agricultural chemical runoff, sedimentation and pollution.

Horne (2011) examined Ethiopia’s flower industry, now the second largest producer of roses after Kenya, and found environmental concerns over pesticide and fertiliser use, degraded water quality and waste disposal. Water is a key resource in many of the areas targeted for investment. The Office du Niger, in central Mali, has allocated more than 500,000 ha of irrigable land to investors. Yet there are serious concerns over the dam and canal infrastructure’s ability to cope with this enormous increase in irrigated area. Greater use of irrigation water close to the river could have damaging consequences further down the canal, especially for dry season harvests. In addition, the high value floodplain below the dam, which produces rice, fish and grazing for millions of people, as well as habitat for a large number of birds and other species, may suffer. Horne (2011) raised similar concerns for downstream wetland areas in Ethiopia.

In Mozambique, a sugar-cane biofuels project on 30,000 ha was to gain priority access to water from the Massingir dam, which would have meant many smallholders lost water especially in the dry months of the year. Although this project has been shelved, it is expected that a new investor will be found for this large-scale irrigation site (Woodhouse and Ganho, 2011).

In Indonesia, some 70% of oil palm plantations are on former forest land, and more than half of the growth over 1990-2005 has been at the expense of forests (Koh and Wilcove 2008). Palm oil plantations have also been set up on peatlands, causing major losses of carbon to the atmosphere (Deininger 2011).

Large scale plantations also tend to focus on a single crop, bringing a monoculture to previously diverse habitats. For example, Deininger *et al.* (2011) report palm oil plantations "harbour less biodiversity than natural forests, fail to provide the same environmental services (carbon storage, forest products, soil fertility), and may force smallholders to give up subsistence production and rely on food from the market".

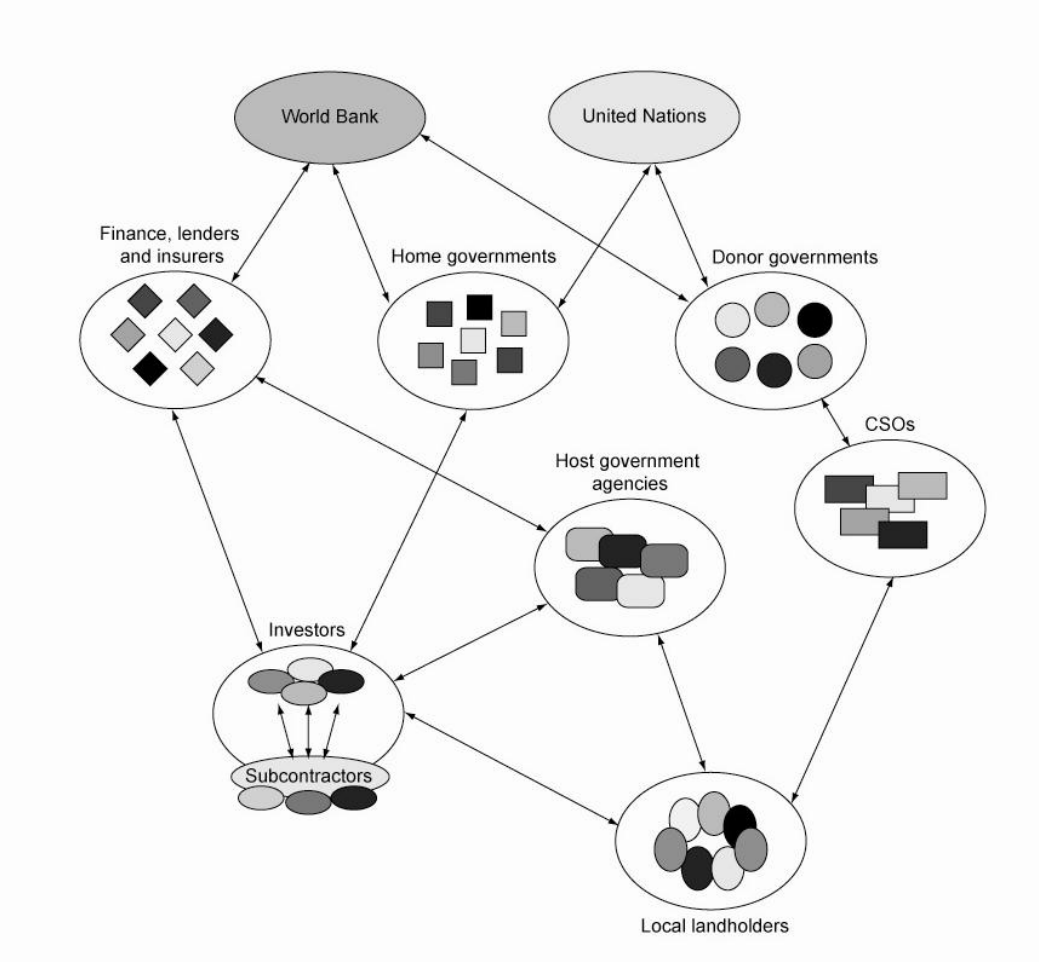
Soil erosion, a concern for both small and large farms, is linked both to mechanised agriculture and poor farmers working marginal lands. But heavy machinery used on fragile soils, as UNEP (2011) note on large farms in Sudan and Tanzania, can be particularly damaging. In some cases, overuse of inputs from intensive farming is a major environmental problem (UNEP 2011). However, this is not necessarily uniquely a problem of large-scale agriculture. For example East Asia uses the most nitrogen inputs and is also characterised by smallholder farming (UNEP 2011, Nagayets 2005).

Combining land security, regulation, information and market advantage is important for achieving sustainable patterns of land and water management. For example, farmers who hold firmer rights over land have a stronger interest in maintaining its productivity than short term tenants..

5 MAPPING OF INSTRUMENTS RELEVANT TO INTERNATIONAL INVESTMENT IN LAND

This section considers the wide range of existing legal and policy instruments that could be used to influence international investment in land, so as to minimise risks and maximise long-term benefits for the host country. They relate to each of the key players shown in Figure 2 and operate at a range of levels. Some have the force of hard law, others embody soft law, and others harness consumer choice. Many, including the Responsible Agricultural Investment (RAI) principles, have not as yet come into play, so their full potential is not known. All will need effective monitoring and enforcement if they are to succeed.

Figure 2: The main actors in international land deals.



Source: Cotula (2011)

5.1 Human rights based instruments

Human rights instruments can frame national policies on international investment in agriculture and land. They include the International Labour Organization Convention concerning Indigenous and Tribal Peoples in Independent Countries No 169 of 1989[4] and the United Nations Declaration on the Rights of Indigenous Peoples[56], and the United Nations Principles on Housing and Property Restitution for

4 http://www.ilo.org/ilolex/cgi-lex/convde.pl?C169

5 http://www.un.org/esa/socdev/unpfii/en/declaration.html

Refugees and Displaced Persons[78], especially the concepts of security of tenure and forced evictions. In addition, there are well-established codes of conduct for the re-settlement of people removed from their land as a result of major infrastructure projects, such as roads and dams. These lay out the duties of government and investors as regards process, compensation and legal redress. However, it is accepted that laws and procedures for expropriation of land "often lack clarity and effectiveness". From implementation of past resettlement programmes, "Bank group experience has shown that problems related to land based resources and economic activities have not been properly addressed" (AfDB, 2003). Major improvements are needed in the implementation of such re-settlement policies, and proper attention paid to free, prior and informed consent. In addition, experience shows that compensation schemes can be greatly improved if they move from one-off payments to sharing benefits from the project with the affected population. For example, in the case of a hydro-electric dam being constructed, a levy on the power generated can be set aside in perpetuity for those people forcibly evicted from the dam site.

The Voluntary Guidelines to Support the Progressive Realization of the Right to Adequate Food in the Context of National Food Security[9], adopted by the Council of the FAO in November 2004 could also guide land tenure choices. These Guidelines emphasise securing access to productive resources as a key part of the realisation of the right to food.

In 2009, the UN Special Rapporteur on the Right to Food laid out minimum human rights principles applicable to land acquisitions or leases[1011]. These principles are intended to help international and regional organisations develop guidelines for land policies. Their main focus is to ensure that negotiations for land rights include informed local participation and benefit sharing, and that negotiations do not 'trump' human rights obligations.

At present, these instruments are barely applied. Their power has only moral force and, hence mobilizing such instruments depends on political will and international backing. They have potential power if championed by national and regional court processes, and global civil society. One example is La Via Campesina's global campaign for a UN Peasants' Charter, framed mainly from human rights principles (Edelman and Carwill 2011).

In June 2011, the UN Human Rights Council adopted the UN Guiding Principles on Business and Human rights[12], a set of principles that are the culmination of the work of the Special Representative to the Secretary General on Business and Human Rights. The principles are centred around three basic pillars: the state's duty to protect against human rights abuses by third parties, including business enterprises; corporate responsibility to respect human rights, including through undertaking human rights 'due diligence'; and effective access to judicial and non-judicial remedy,. Some parts of the Guiding Principles reflect and codify binding international law, other parts are soft law – but there appears to be strong and widespread business and government backing for this body of principles.

5.2 International guidance and principles relevant to land rights and agricultural investments

5.2.1 Draft voluntary guidelines on Responsible Governance of Tenure of Land, Fisheries and Forests

The FAO has drafted Voluntary Guidelines for responsible governance of tenure. They aim to support food security, poverty alleviation, sustainable resource use and environmental protection. They set out principles and internationally accepted practices to guide development of national policies and laws on

6 http://www.un.org/esa/socdev/unpfii/en/declaration.html
7 http://www.unhcr.org/refworld/category,LEGAL,UNSUBCOM,,,41640c874,0.html
8 http://www.unhcr.org/refworld/category,LEGAL,UNSUBCOM,,,41640c874,0.html
9 http://www.fao.org/docrep/meeting/009/y9825e/y9825e00.htm
10 http://www2.ohchr.org/english/issues/food/docs/BriefingNotelandgrab.pdf
11 http://www2.ohchr.org/english/issues/food/docs/BriefingNotelandgrab.pdf
12 http://www.ohchr.org/documents/issues/business/A.HRC.17.31.pdf

tenure. The FAO believes governance of tenure is crucial to determining rights, and associated duties, to use and control land, fisheries and forests. The voluntary guidelines are currently discussed in a CFS-led negotiation, in the objective to have them adopted at the October 2011 meeting of the CFS. If so, they would establish an agreed set of standards by which country governments are willing to be judged.

5.2.2 The Responsible Agricultural Investment (RAI) principles

The World Bank, FAO, UNCTAD, and IFAD have formulated seven Responsible Agricultural Investment (RAI) Principles for investors acquiring large-scale farmland. They include ensuring "Existing rights to land and associated natural resources are recognized and respected" and "Investments do not jeopardize food security but rather strengthen it".

Some civil society groups have criticized the RAI Principles as too weak, as well as being voluntary for investors. If adopted, the RAI principles would be a body of voluntary principles, with mechanisms for monitoring and ensuring compliance which are as yet unclear. The CFS has begun a process of consultation on principles for responsible agricultural investments to gain detailed input from a broad range of stakeholders. The intention is to identify the form of investment in agriculture and land which can best address issues of food security in middle and low income countries.

5.2.3 Industry-based roundtables and certification schemes

There are a growing number of multi-stakeholder initiatives promoting environmental and social standards and certification schemes for commodities and products. Examples include the Roundtable on Sustainable Palm Oil, the Roundtable on Sustainable Biofuels, the Forest Stewardship Council, and the Roundtable on Responsible Soy. It is estimated that certification schemes already cover around 10% of global supply across sectors such as timber, tea, coffee, cocoa and bananas. However, for some of the newer roundtables, the figure is much lower. For example, only 4% of palm oil is estimated to come from such certified sources (Deininger *et al.* 2011).

Roundtable initiatives bring together the major corporations involved in production, processing and sale, alongside consumer groups, NGOs and banks. The aim is to design, implement and monitor principles that guarantee production meets environmental and social needs. There is usually a certification process and independent audit to ensure credibility. The focus is on assuring consumers that buying products benefits local livelihoods and environments. However, given their voluntary nature and limited coverage, they provide as yet a minor tool for ensuring better environmental and social performance from commercial agriculture.

5.3 National policies and administrative instruments

National governments play a central role in managing and negotiating the flow of inward investment into land and agriculture. The framework and effectiveness of policies, laws and regulation are key to setting the terms and conditions for ensuring a proper balance of interest between local land users and investors, and enforcing such contractual agreements. Land is the basis for the livelihoods of the majority of the population in many middle and low income countries. Thus, decisions taken regarding the allocation of land to foreign (and domestic) investors will affect a large number of people and for generations to come. Yet many of the people most affected have little opportunity to make their voices heard. There is urgent need for a much broader debate in countries hosting such investment, to include rural people and their representative organizations. Governments should set up appropriate institutions to organize this consultation and vision development, leading to a Food Security Law as has been achieved in the case of India (Government of India, 2011). Civil society can provide scrutiny to ensure this renewed interest in agriculture and land operates in favour of broad-based sustainable development, and is carried out in a transparent manner.

5.3.1 Land policies and property rights

A fundamental concern surrounding international land investment relates to the weak or inexistent rights held by local farmers over the land being acquired by outsiders. This means they (or their

representatives) have few grounds from which to negotiate. Key elements for strengthening local land rights include measures such as:

- recognition by government of local (customary) rights, irrespective of registration (such as covered by the 1997 Land Law in Mozambique and Tanzania's Land Act of 1999),
- low-cost systems for recording rights, hence speeding up coverage of land registration (eg Ethiopia),
- devolution of land management responsibilities to local government, with accountability mechanisms (such as in Tanzania's Village Land Act of 1999, and in Senegal),
- local consultation requirements (as happen in Mozambique or as specified in Tanzania's Land Acts) or free prior and informed consent,
- joint management or attribution of rights over common resources (such as conventions locales in the Sahel, covering grazing and woodland areas).

Many governments are keen to update their land tenure legislation and policy to clarify and secure rights over land and natural resources, offer incentives for people to invest in land, and specify terms for international investors' access to national resources. Over the past 10-15 years in sub-Saharan Africa, most governments have reformed legislation and initiated titling and registration programmes, starting with urban land and moving to include high value rural land. Such land rights once registered also offer the basis for more comprehensive land-based taxes.

The experience of countries such as Vietnam demonstrates the advantages gained from comprehensive land reform and confirmation of land rights in the hands of small-scale farmers. The reform process known as Doi Moi ensured the assignment of land from collectives to farmers alongside the liberalization of agricultural markets. As a consequence, agricultural growth took off, with farmers intensifying and diversifying into a broad range of crops and activities. Women's rights, which have formerly been ignored, are now included on land use certificates. There remain issues to be resolved, to improve environmental management but this experience shows the power of stronger rights for farmers over their land in stimulating food production (Kirk and Tuan 2009). The International Conference on Agrarian Reform and Rural Development, held in Brazil in 2006 offers important evidence and principles for guiding changes to land tenure and rights management.

The Land Policy Initiative of the African Union, the United Nations Economic Commission for Africa, and African Development Bank has designed guidance for national governments addressing their land related challenges, and to encourage member states to share best practices. But many countries still have a very weak administrative base and limited documentation of land rights. National governments often simply assert underlying ownership of all resources, managed by and held in trust for the benefit of the citizenry. This leaves millions of smallholders vulnerable to dispossession.

5.3.2 Environmental and social impact assessments

Environmental and social impact assessments (ESIAs) aim to ensure that decision makers consider broad social and environmental consequences when approving or disallowing a project. ESIAs require decision-makers to take account of environmental and social values when making decisions, and to justify their decisions in light of detailed studies and public comments on the potential impacts of a proposal.

National environmental legislation may require ESIAs. In addition, some lenders, such as the multilateral development banks, and those signed up to the Equator principles[13], require robust ESIAs for proposed projects. However, ESIAs have several limitations, such as how wide an area, and what

[13] The Equator Principles (EPs) are a credit risk management framework for determining, assessing and managing environmental and social risk in project finance transactions. Project finance is often used to fund the development and construction of major infrastructure and industrial projects.The EPs are adopted voluntarily by financial institutions and are applied where total project capital costs exceed US$10 million. The EPs are primarily intended to provide a minimum standard for due diligence to support responsible risk decision-making.

length of time, to consider, and also whose interests count. For example, should the ESIA for a dam consider all downstream impacts, even those in another state's jurisdiction? Equally, assessments must also be backed up by action that ensures mitigating measures are taken and not shelved as too costly. In practice, many doubt that an adverse ESIA would halt a project that a government wants to go ahead, because there are frequently many powerful interests pushing for the investment, regardless of cost.

5.3.3 Taxes and subsidies

Taxes and subsidies for agriculture are complex and variable, and can be used to encourage or discourage particular forms of agriculture. For example, tax can be levied on land left idle, to discourage speculation and increase cultivation intensity. However, experts note that "such a tax would be subjective, difficult to implement" because the land-owner could carry out minor works and claim the land to be in use (Norton, 2003). An alternative would be to tax all agricultural land, but exempt those holdings of less than some minimum size. Setting the level of tax reasonably high above this minimum size threshold should encourage greater productivity and encourage owners to sell or rent land from which they derive little income (Norton, 2003).

From the 19th century onwards, there has been a strong view that land values should be taxed as a means of generating public revenues from this natural resource (MAEE 2010). In many developing countries, tax on land has mainly focused on urban areas, because urban land is more valuable and often formally registered. Tax on urban land is usually a proportion of the property value, and can be an important revenue stream for city governments. Taxes on agricultural land tend to be much lower, probably because landed interests exert political pressure on many governments, and because they are impossible to collect in a situation where little land is registered. Tax on capital inputs and equipment tends to be low or non-existent, since governments want to encourage investment, but this then favours more capital intensive methods of farming.

Enforcing tax payments in the farming sector can also be difficult, unless it be on the flow of commodities from the farm. In this, there is a long tradition of governments taxing agricultural produce, such as export levies on many tropical commodities like cotton, cocoa, and coffee. But such taxes on produce, rather than land, can discourage further investment of effort in farm production. Smallholders find it difficult to escape such taxes, which often are linked to state marketing boards and credit repayments on loans for upfront inputs. Large companies are better placed to shift their tax liability through transfer pricing within vertical supply chains.

Subsidies in agriculture are commoner than taxes, and are major sources of farm income in the EU and US. Farmers base many of their decisions about crop choice and land use on the pattern of subsidies available in any specific year. Subsidies can drive up land prices, since the likely future flow of subsidy is built into the asset value. Should land receive significant payments for provision of ecosystem services, such as through REDD payments for forested land, it is likely to raise the value, attractiveness and hence price of this asset. In the case of Uruguay, subsidies and tax exemptions for forestry have led to a major increase in forested area from 70,000 hectares in 1990 to 970,000 hectares in 2010 (DIEA 2010).

Experience from Brazil shows how subsidized credit at negative interest rates drove large-scale farmers into greater mechanisation of production methods, and hence minimising the benefit of agricultural growth for small-holder production and employment (Deininger *et al.* 2011). Currently, a number of governments have been offering tax holidays to attract inward investors. Alongside tax exempt capital inputs, these benefits will make it more likely that investors choose more capital intensive systems of production. Hence, if governments seek to generate higher levels of employment and more sustainable patterns of production from investment in land, they need to re-design their tax and subsidy systems in this light.

6 RECOMMENDATIONS

The actions proposed below must recognise that food security is paramount, and measures must tackle the distinct asymmetry in power wielded by land users/occupiers, governments and large commercial interests. Many of the problems surrounding international investments in land could be dealt with by more effective enforcement of existing policy and legislation at national and local levels. However, current weaknesses in governance, institutions and incentives mean that a "win-win-win" solution will not happen unless much stronger weight is given to the capacities of both local land users and host country governments. Equally, because many of the problems are complex and inter-connected, the recommendations for policy need to be similarly differentiated in terms of sector, level and actors concerned. Given the likely increase in pressures on land in future, from international investment (as well as domestic), it is vital to get a better balancing of the rights and interests of less powerful groups, in negotiation with government and investors.

Host country governments

1 Decisions taken now will have major repercussions for the livelihoods and food security of many people for decades to come. Much discussion about large-scale land acquisitions has been highly polarised rather than seeing where there might be some common ground. The people who are most directly concerned by such investments must have their say. There is a need for inclusive debate in host countries concerning pathways for agricultural development and land use planning. Governments should open up this debate, rural poor people (small farmers, indigenous peoples, pastoralists, landless labourers, forest dwellers, rural women, among others) must be central to it, and continued scrutiny from autonomous civil society can help make the renewed interest in agriculture work for broad-based sustainable development. Governments should set up appropriate institutions to organize this consultation and vision development. Governments must have clear, transparent equitable land policies that are accessible, allowing for transparent transfers, equitable access, manageable systems of registration and deeds as well as open transparent heritage rights.

2 Host governments must recognise that their citizens have the right to free, prior and informed consent in relation to the land and natural resources on which they depend for their livelihoods. Governments must strengthen and secure rights to land for millions of land users who currently have uncertain tenure over their resources. This includes smallholder farmers, pastoralists, shifting cultivators, fisherfolk, indigenous people, and forest dwellers. Particular attention is needed to secure the access and use rights of women, ethnic minorities and indigenous peoples. Given the diversity of contexts, a multiform approach to land tenure is required, which mixes different legal and administrative modalities. Governments should learn from promising low cost decentralised systems for registering and managing rights, at both the household and community level. This must include common pool resources, which are essential for continued mixed farming, pastoral and indigenous livelihood systems in many low income countries. Given the accelerating pace of large scale land investment, and the limited capacity in many government administrations, community rights registration is vital to ensure protection of livelihoods and associated food security. In settings marked by inequality in land control and ownership, redistributive land policies (such as land reform, land restitution) should be carried out. In Africa, governments should follow the African Union's Land Policy Guidelines, which aim to transform agricultural development by strengthening land rights for smallholder farmers, improving access to land for women, and easing the barriers to land transactions. Systems for grievance and redress need construction at national and regional levels, including for human rights and environment. Robust Environmental and Social Impact Assessments (ESIA) processes are also needed. The impact on women in agriculture needs specific attention, since even a small plot of land in the hands of women strengthens household food and nutrition security.

3 Governments should prioritize investment in the small farm sector and in alternative food systems that are socially inclusive and just as well as environmentally sustainable, using agro-ecological principles (see Appendix). In places where large-scale land investments are underway, governments interested in promoting investment should encourage business models that involve collaborating with local farmers and generating employment opportunities, not just land acquisition. Given the major asymmetries in expertise that often characterise the negotiation of deals for agricultural investments, there is a need for legal, financial and technical advice to be available for governments as well as for local communities. One option would be for this legal advice to be provided by the FAO Land Tenure Service. Support may also be needed to rigorously scrutinise investment proposals. Robust systems must be in place that subject leases to compliance with investment plans, and existing land policies. Investment contracts should always provide a clause allowing government (on behalf of local communities) to cancel lease agreements or contracts when they fail to comply with agreed terms, or when insufficient compensation mechanisms are in place.

Support for farmer voice and civil society

4 Increased support is needed for farmer representation through their own organizations, with priority to social movements of the rural poor: small farmers, landless labourers, women, indigenous peoples and ethnic minorities, pastoralists and forest dwellers. Other civil society organizations who support the direct representatives of the rural poor should also be provided the needed institutional space. The rural poor's social movement organizations and relevant CSOs need to acquire stronger political weight in national and international decision-making structures. These organisations need backing at country level and internationally to ensure effective scrutiny and accountability of both national and international processes.

Improved practice by corporations

5 Investors and business enterprises have a legal responsibility to respect human rights, and must act with due diligence to avoid infringing human rights within their sphere of influence. Investing enterprises have the responsibility to provide adequate non-judicial access to remedy, including effective grievance mechanisms for victims of human rights abuses. States have the obligation to protect the enjoyment of human rights from being impaired by actors in their jurisdictions and to regulate business enterprises accordingly; and should provide effective judicial access to remedies from human rights abuse by investors. Home countries of business enterprises and investing nations or nations supporting investments in other nations must ensure that their actions respect and protect human rights in the host country according to applicable international and regional human rights norms and standards.

6 States should hold good faith consultations with local communities, before initiating any plan, project, and measure that may affect the land and natural resources on which they depend for livelihood, social and cultural activities. The procedures of these consultations should be in accordance with the Free prior and informed consent (FPIC) principles and related criteria, as well as the customary rules and decision-making structures of local communities. These procedures should facilitate access to the consultations by all affected peoples, ensuring in particular the participation of women and young people. The consultations must be conducted in a climate of trust that favors productive dialogue, according to well-established standards and oversight by independent observers.

Donor governments

7 Donors should align more effectively their bilateral and multilateral initiatives in the field of agricultural investment promotion, to achieve positive outcomes for local farmers. For example, some donors argue that improving productivity and market access for smallholder farming is key to achieving the MDGs while multilateral lenders have been promoting and financing inward investment, including large-scale land acquisitions. Donors should also ensure fulfillment of the G8 and G20 commitments on increased funding support to agriculture made over the last 2 years. This should include support for public infrastructure and policy development to create an enabling environment for smallholder agriculture – based on evidence showing that smallholders can be highly dynamic and competitive on global markets, and that small farm development is feasible and desirable for its impacts on poverty reduction.

8 International support is needed for a large increase in public funds for agricultural research and development, emphasizing agro-ecological approaches. There are major challenges ahead if we are to meet the food needs of 9 billion by 2050 in ways which can keep within planetary boundaries, address the impacts of climate change and make land use a net carbon sink. Given the need to reduce further expansion of cultivation into forest and pasture land, a particular focus is required on closing the 'yield gap', especially in middle and low income nations without forgetting the increasing need for ecological sustainability. This requires further strengthening of capacity in a range of key skills.

Governments that are home to international investors

9 Taking into account that it is the State's obligation to protect the enjoyment of human rights abroad against harm emanating from its own territory, as articulated by Treaty Bodies in the UN Human Rights System, home governments have a responsibility to make sure that their companies operate according to the highest standards in relation to human rights, and environmental management. They should enact legislation which requires compliance with international human rights and environmental standards by their nationals operating overseas, and a mechanism whereby people in the country hosting the investment can hold the company to account for its actions.

The Committee on World Food Security

10 The CFS shall ask governments to report each year on actions being taken to align international (and domestic) investment in land with food security concerns, including measures to prevent speculative pressures on land, such as leases conditional on proven investment plans.

11 Given the major role played by biofuels expansion in accelerating investments on land, the CFS should demand of governments the abolition of targets on food based fuels, and the removal of subsidies and tariffs on biofuel production and processing.

12 Since many deals and investments are so recent and, according to World Bank's prediction "the 'land rush' is unlikely to slow" (Deiniger *et al.*, 2011), following the approval of its Voluntary Guidelines for the Responsible Governance of Land, Fisheries and Forests, the CFS shall seek to establish at the FAO an observatory for land tenure and the 'right to food' to monitor the processes of access to land and the implementation of the Voluntary Guidelines, ensuring that the investments will result in decreased hunger and poverty in host communities and countries.

13 The CFS should encourage further support to regional processes, such as the African Union's Land Policy Initiative, to link these to national policy reform (e.g. through the Pan African Parliament and the African Court of Human Rights).

14 During the 12 month process for consultation on the principles for responsible agricultural investment being led by the CFS, attention should also be given to the best means by which investment can contribute most effectively to promoting food security, especially in low and middle income countries, and that all players are involved.

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APPENDICES

Appendix 1 Basic agro-ecological principles

Many processes affect crop performance, but a few have a major impact. They include processes helping plants use radiation, water and nutrients efficiently and evenly for crop growth (Monteith, 1990; Sinclair, 1990), those contributing to the soil water balance, and those affecting soil fertility. 'Optimum growth conditions' means agro-ecological conditions where crops have all the water and nutrients they need for growth and are protected against pest, diseases and weeds. We focus on primary plant production as it also determines secondary animal production.

Photosynthesis
The photosynthetic process is the primary process converting solar energy into organic (plant) compounds for life on earth. Plants growing under optimal conditions could convert a maximum of 2.5% of the sunlight reaching Earth's surface into biomass (Spedding, 1988). As crop growth is generally limited by water and nutrient availability, and set back by pests, diseases and weeds, overall radiation use efficiency (RUE) will be substantially lower. Maximum capture is feasible in tropical regions with year-round production. Temperate regions with growth seasons of 5-6 months will manage only half of that. Energy used directly in cultivation (e.g. tractors) or indirectly (e.g. the production of fertilizers), further reduces the net energy capture, bringing it down to 1% at most, and possibly almost zero.

Water
Plants use the remaining 97.5% of sunlight's energy to transpire. Even under optimum management conditions they need 250 to 300 liters of water per kilogram of produced biomass (Monteith, 1990). Half of the world's total crop biomass is harvested as grains. A biological minimum of 500-600 liter water is transpired per kg grain produced. In practice, transpiration plus evaporation, i.e. unproductive water loss directly from soils, means crop water use ranges from a minimum of 800 liters per kilo at cereal yield levels exceeding 6 tons per hectare up to over 4000 liters per kilo at yields below 1 ton per hectare. The global average requirement is 1300 liters (Rockström, 2003) per kilo of grain produced.

Nutrients
Nutrients are essential for plants to produce proteins, fats and other compounds, and so grow (Bindraban, 1999). With insufficient nutrients available, growth will be limited. Under natural conditions soil reserves supply nitrogen. However, that becomes depleted by cropping, leading to soil degradation unless sufficiently replaced (Stoorvogel *et al.*, 1993). Legumes fix nitrogen in symbiosis with bacteria. Under optimal growth conditions, i.e. with sufficient water and other nutrients (primarily phosphorus), nitrogen fixation can range from 1-3 kilogram per hectare per day (Giller, 2001). Where soils lack sufficient phosphorus and potassium, this is added as fertilizers made from mined resources. Concerns have been raised about whether there is enough phosphorus available to sustain future food production (Smit *et al.*, 2010; van Kauwenbergh, 2010). Increasingly lack of micro-nutrients are also found to limit crop production, and need to be supplied to soils as well (PE&RC, 2011).

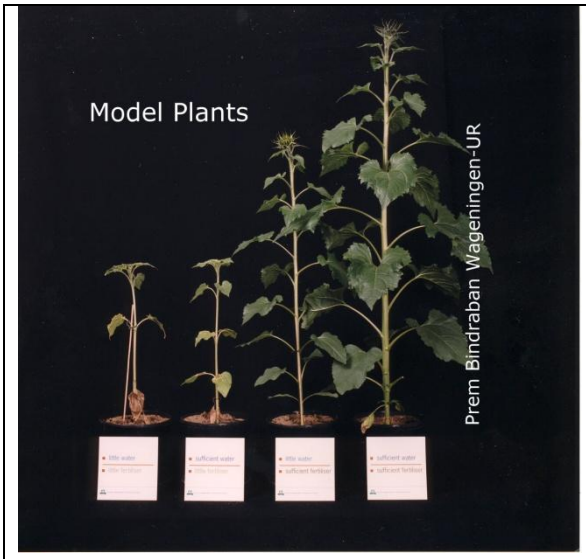
Pests, weeds and diseases
Crop infestations lead to reduced production, deteriorated product quality and even to total crop loss. The way infestations affect crop performance may vary from effects on biochemical processes, mechanical reduction of biomass or simply competition for natural resources like sunlight or water.These growth reducing factors can dramatically reduce the efficiency with which plants use natural resources: land, water, sunlight and nutrients.

Optimizing agro-ecological production systems
These basic agro-ecological processes indicate that 'most production resources are used more efficiently under improving conditions of resource endowment' (De Wit, 1992). In other words, simultaneous use of water and fertilizers and/or a mix of fertilizers have synergistic effects. Nutrients will be used more efficiently by crops when provided with sufficient water, and/or when protected against diseases.

Box 3. Nutrient requirement

Inert nitrogen (N_2) is abundantly available in the air. Yet conversion into "reactive" nitrogen (NO_x, NH_x) require much energy. Under natural conditions, conversion occurs by lighting and bacterial conversion in symbiosis with plants (primarily legumes). Based on maximum nitrogen fixation rates of 200-300 kilogram nitrogen per hectare per year in a rotation of 1 legume and 2 cereal crops, yields can reach a maximum of 2-2.5 tonnes per hectare per year (in cereal equivalents; WRR, 1995). Grains contain about 15-20 kg nitrogen per tonne (taken from soils and needing to be replenished). In practice yields will be much lower as growth conditions will not be optimal for the legume. Organic agriculture that rejects the use of nitrogen fertilizers will therefore require much more land to produce the same amount of food as agriculture with judicious use of fertilizers. Through the Haber-Bosch process nitrogen can be industrially converted into the reactive nitrogen used in fertilizers. Yields can be increased to 5-10 tonnes per hectare per season, with minimum GHG emissions to the environment when applied carefully.

Box 4. Interaction in agro-ecology.



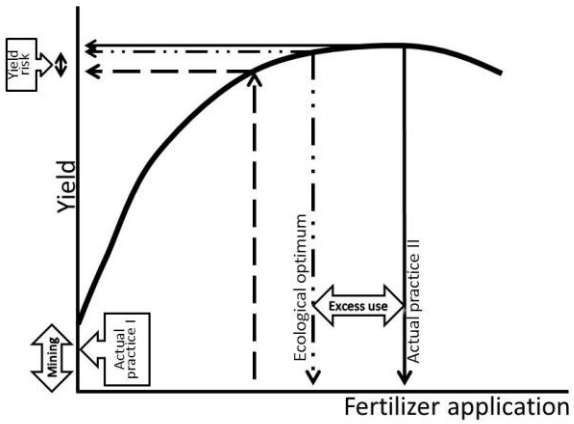
(Illustrative experiments P.S. Bindraban)

An integrated agro-ecological approach is essential because of the strong interactions between production factors. Plant 1 (from the left) is grown in a poor unfertilized soil with little water and remains small. Adding water would be expected to improve growth, which is not the case as the poor soil fertility puts a stronger limit to its growth (plant 2). Adding fertilizers rather than water does enhance growth, indicating that the strongest limiting production factor (i.e. nutrients) was eliminated (plant 3). At the same time this third plant shows that water is used more efficiently under these fertilized conditions as the same amount of water was applied as in plant 1. Adding both nutrients and water boosts growth to a level where neither of these factors is limiting but where other factors, like radiation, set a ceiling to growth (plant 4).

In addition, applying inputs at the right place (e.g. near the roots), at the right time (e.g. when crop growth is fast), in the right amounts and at the right composition will yield most efficient use of resources. Advanced technologies can optimize such inputs through integrated nutrient (INM), pest (IPM) and crop (ICM) management. Integrated approaches make high production systems most effective in resource use efficiency, while limiting impacts on the environment (e.g. Glendining *et al.*, 2009). Excessive use of inputs, e.g. excess fertilizer, used with the intention of reducing risk, might jeopardize the environment. Lack of such inputs, leads to degradation of land, which might push already poor people into a downward spiral of poverty.

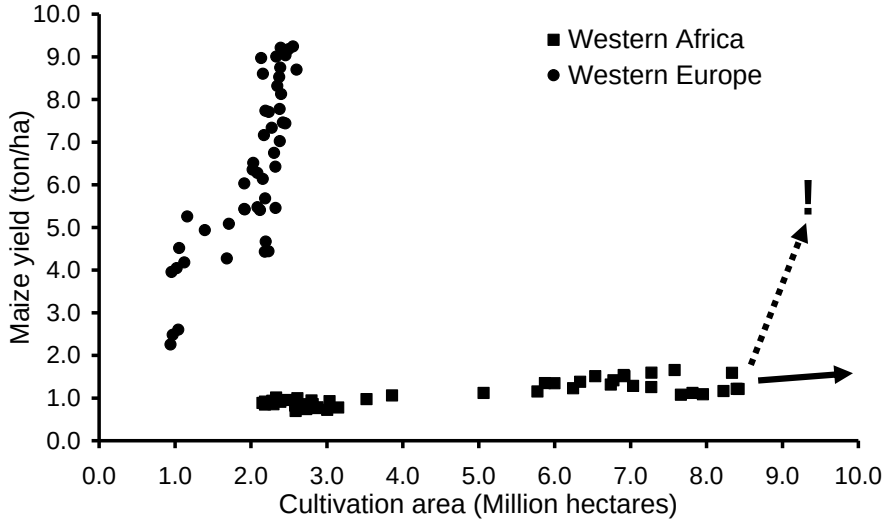
Technological innovations, including advanced and conventional breeding, and information and communication technology, will be essential for optimal use of natural resources. But they must be properly designed for prevailing conditions, or used when favourable conditions are created for the technology to work. Integrated approaches could limit claims on land and other resources and should be further developed. Much can be done to increase yield while containing adverse environmental affects (e.g. Bindraban and Rabbinge, 2011), yet the rate at which yield can be increased will be slow because of the dwindling availability of resources.

Box 5. Optimizing input use



Rather than the input itself, it is the way in which it is used that causes unsustainable practices. With no access to inputs (actual practice I, left of graph) soils will be mined leading to degradation and impoverishment. With (too) cheap fertilizers, overuse (actual practice II, vertical bar at the right of the graph) may be stimulated as a means to mitigate risk (at the expense of excessive losses to the environment). For instance, losses of the fertilizers under heavy showers reduces availability, but not yield. Optimum ecological application give high yields and least environmental impact.

Figure 3: Different routes used to provide food volumes increase.



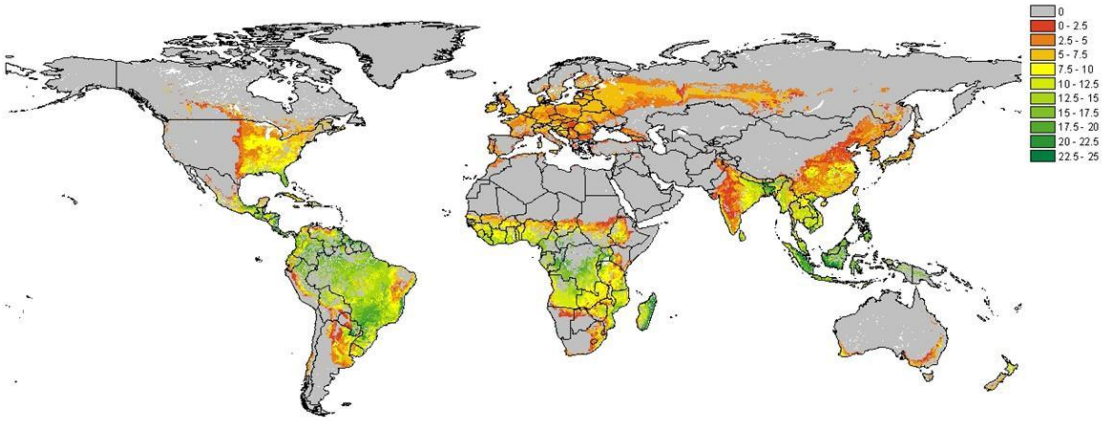
Source: Bindraban *et al.* (2009) with data from FAOSTAT (2007-2011). The dotted arrow indicates desired yield increase strategies to minimize claims on additional land.

Ecological principles, land-use and rain fed production potential

Conijn *et al.* (2011b) have applied production ecological principles to explore the total grain production under rainfed, and otherwise optimal, conditions for the world on current agricultural land (obtained from Erb *et al.*, 2007 and Monfreda *et al.*, 2008). The global overview in Figure 4 reveals large production potential in tropical regions where two to three crops can be grown per year, (year round cultivation) and water is plentiful available. Yet these areas are in or adjacent to forest lands. Single crops and lower potentials are obtained in temperate regions or where rainfall is a limiting factor.

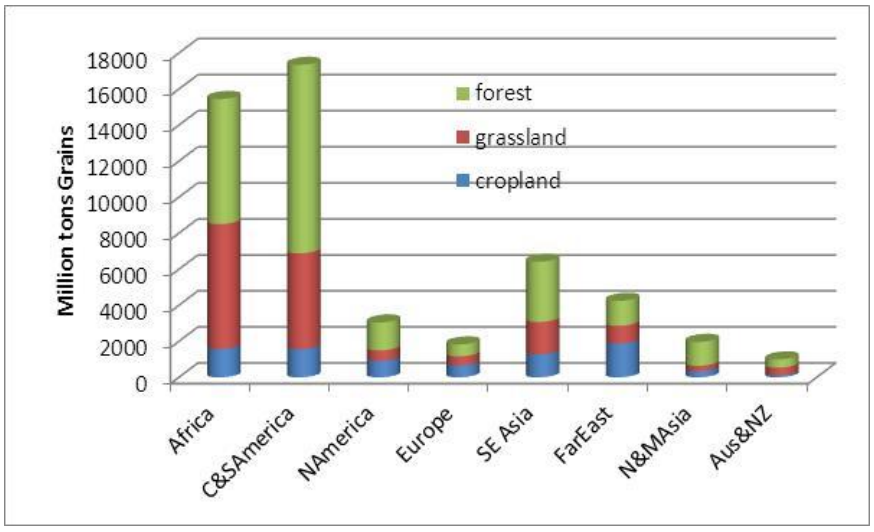
Any further expansion of the agricultural land area will be at the expense of natural lands. Much pressure on additional land could be alleviated by raising yield per hectare. Conijn *et al.* (2011b), following the integrated agro-ecological approach have calculated potentials of rain-fed food production expressed in grain equivalents (see WRR, 1995; Bindraban *et al.*, 2010) in different regions Current land use categories on which this potential would be realized is also shown (see Fig. 5).

Figure 4: Map of calculated rainfed potential yields of maize or wheat.



Source: Conijn *et al.* (2011a, b). Results are shown in tonne grain dry matter ha-1 y-1, accumulated for multiple cropping cycles per year in 5x5 min. grid cells containing crop land. Grey areas are either not suitable for crop growth or are not used as crop land.

Figure 5 Rainfed grain production potential (maize or wheat) calculated in various regions of the world, and current land use categories on which this potential would be realized. .



Source: Conjin *et al.* (2011b) Distribution of land use is from Erb *et al.* (2007).

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Land tenure and international investments in agriculture

A report by

The High Level Panel of Experts on Food Security and Nutrition

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