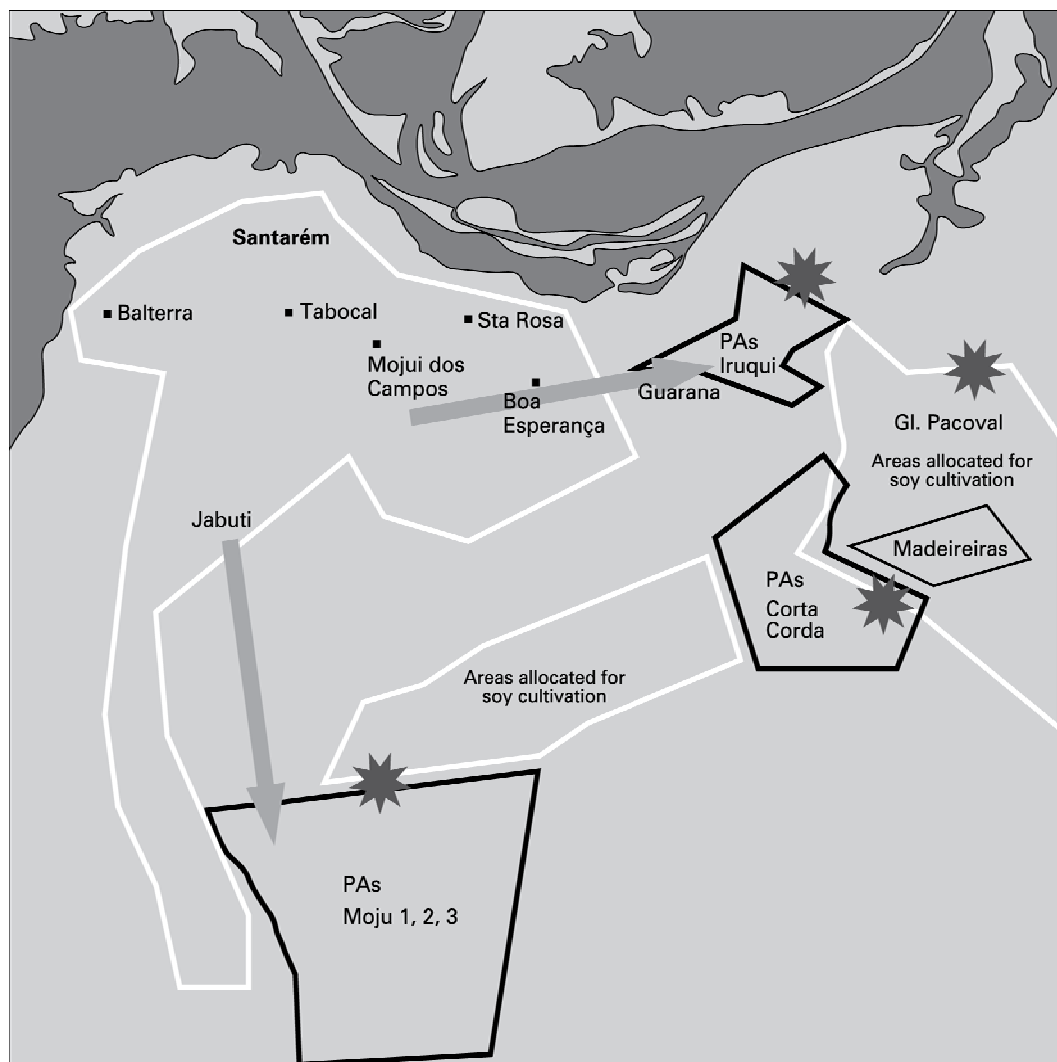


expulsion of small farmers and land concentration as part of these processes (Noronha et al, 2006). Sugarcane has been Brazil's primary bioethanol feedstock since the 1975 PROALCOOL Programme, and around 50 % of the country's annual crop goes towards the production of bioethanol.

Map 2: Expansion of soy cultivation, displacement of small-scale farmers and land conflicts in the region of Santarém, Brazil



Source: van Gelder and Dros (2006:18).

Arrows represent expansion of soy cultivation and displacement of small-scale farmers; stars represent land rights conflicts and deforestation.

The growth of soybean cultivation in Brazil has been dramatic, expanding from 3 million ha in 1970 to 18.5 million ha in 2003, with demand expected to increase further due to its use as a biofuel feedstock (Bickel and Dros, 2003: 4). The wave of large-scale soy farms has had an enormous impact on land access. Large-scale farms displace inhabitants and land users who tend to rely on extensive cattle rearing and small-scale agriculture for their livelihoods. In general they do not have official proof of ownership of the land. Customary rights to land holdings, known as *posse*, are partially recognised by law, but often only entitle the owner to a meagre level of compensation in the event that the land is taken over for soy cultivation. There have

been reports of intimidation and the use of violence to force the original inhabitants to vacate land (van Gelder and Dros, 2006).

Once land is cleared for soy cultivation, opportunities for employment are very low, with on average only one worker in permanent employment per 167-200 ha of soy (Bickel and Dros, 2003:20). This often leads to depopulation, with displaced farmers moving to peri-urban slums or to forest areas to clear new farmland. This can be expected in turn to impact forest communities' access to land. In Santarém in the state of Pará (Brazil), 600 families sold their land to plantation owners between 2000 and 2003, and 70% of the population in some communities were displaced (van Gelder and Dros, 2006:17-18).

Similar patterns occur throughout Brazil. A recent survey by INTERPI (Land Institute of Piauí) and INCRA (National Institute of Colonisation and Agrarian Reform) revealed that ownership of more than 80% of land in the state of Piauí is irregular, meaning that land titles have often been obtained illegally or fraudulently (van Gelder and Dros, 2006:11). Partly as a result of this, there are 240,000 rural landless people in Piauí (Bickel and Dros, 2003:12). In Mato Grosso, the number of farms smaller than 10 ha decreased from 23,900 in 1980 to 9,800 in 1996. In the same period the land area under cultivation by farms larger than 10,000 rose from 17.8 million to 20.6 million ha. The public prosecutor investigated farms occupying public land on behalf of the MST (Movimento dos Trabalhadores Rurais Sem Terra, Landless Rural Workers' Movement). He found that large farms illegally occupied 3.2 million ha of public land in 2003 (Bickel and Dros, 2003:20). According to the 1988 constitution, the government is obliged to reclaim this land and undertake agrarian reform, but no action has been taken (Bickel and Dros, 2003:20). Similar experiences with soy cultivation have been documented in Paraguay (Semino et al, 2006).

Soybeans are currently the most widely used feedstock for biodiesel in Brazil (Abramovay and Magalhães, 2007), although the government PNPB programme supports a variety of other oil crops including castor and palm oil. The share of the soybean harvest going toward the production of biofuels can be expected to increase with the phasing in of government legislation on mandatory biofuel blending requirements for diesel (starting at 2% in 2008 and rising to 5% in 2013), though the PNPB Social Fuel Seal programme will continue to provide support for smallholder inclusion (Abramovay and Magalhães, 2007).

3.4 Lack of respect for existing land rights and lack of prior informed consent

In Indonesia, several reports have documented widespread negative impacts of palm oil cultivation on land access for local groups (Colchester et al, 2006; WRM, 2006; Zakaria et al, 2007). Palm oil production has been accompanied by a history of repression and coercion, lack of information and loss of land rights.

A well documented land conflict has involved the operations of the firm PT Mitra Austral Sejahtera (PT MAS) in Sanggau district, West Kalimantan (Colchester et al, 2006). Palm oil was first introduced to the district in 1979 and now 120,000 ha are given over to its cultivation. In order to expand production, PT MAS started the process of land acquisition in Sanggau district in 1995 according to the *plasma/nucleus* model that is common in Indonesia. According to the arrangement local community members who wanted to be involved had to give 7.5 ha of land to PT

MAS. The company would keep 5.5 ha, and 2 ha would be allocated back to community members for their share of the *plasma*. However, on average, they only received 1.2 ha per family (Colchester et al, 2006). Similar experiences with misinformation about, and non-emergence of, smallholder allocations have been recorded in multiple sites in Indonesia (Marti, 2008).

In addition, PT MAS did not follow “prior and informed consent” procedures. The company, it is alleged, both made out “land acquisition” documents for local people to sign without prior consent, and carried out a customary ritual of transfer of land rights without consent. Later a neighbouring village demanded compensation when the company’s bulldozers illegally encroached on the village land while clearing the area of the plantation (Colchester et al, 2006).

Zakaria et al (2007) carried out an investigation into the activities of the Wilmar Group, one of the largest palm oil and biodiesel producers in Asia, in Sambas District, West Kalimantan. The authors identified approximately 6,000 ha of land disputed between the company and local groups (Zakaria et al, 2007:45). In one instance, in Senujuh village, company workers cleared approximately 450 ha of community rubber plantations in 2005-06. In protest, villagers confiscated equipment used to clear the community forest. Along with the Forestry Department and the local parliament, local leaders wrote to the company to stop the clearance. The company responded that workers did not know the boundary of Senujuh village and apologised, agreeing to paid a fine of US\$ 550 to the village for the damage caused (Zakaria et al, 2007:45-46).

Villagers were successful in defending their rights in this instance because it was not solely a conflict of customary (*adat*) rights versus the claimed land rights of the company, but that in clearing land in Senujuh village the company had crossed a sub-district border into Sejangkung, which was not included in any of the three land grants to the company in that region. Wilmar later blamed the mistake on a map, prepared for them by the Investment Coordination Board, which was not sufficiently accurate. No effort has so far been made to restore the land (Zakaria et al, 2007:45-47).

These negative impacts are linked, among other things, to the weak protection of local land rights under Indonesian law (Marti, 2008). Under the Basic Agrarian Law of 1960, the state plays a central role in land relations (cf. article 2 of the Basic Agrarian Law, quoted in Colchester et al, 2006). All land not encumbered by a registered land title (thus including customary landholdings) is treated as state land (Law No. 24 of 1997, article 1.3). On state lands, plantation operators obtain access to land through long-term leases (under the Basic Agrarian Law and the Plantation Act of 2004). While many local resource users gain access to resources through “customary” (“*adat*”) rules (for instance as documented by Colchester et al, 2006 for the Sanggau, West Pamasan and West Lampung districts), customary land rights are legally protected only so long as customary systems still exist and their exercise is consistent with the national interest and with legislation. Local land rights may be taken for a public purpose, which includes business activities run by private corporations (article 18 of the Basic Agrarian Law and subsequent instruments; see Colchester et al, 2006).

These conditions for the legal protection of customary rights give government agencies wide discretion in determining whether customary systems are still

functioning effectively and whether their operation is consistent with the national interest, which opens the door to abuse and limits the ability of local groups to exercise their land rights (Colchester et al, 2006). Internationally, there are also broader questions of the extent to which “prior informed consent” can be freely granted by a community or user group when basic development and services, such as roads and education, may be contingent on accepting the incoming commercial land use project (e.g. Freeman et al, 2008).

Where local land rights are taken, local groups have no right to stop land acquisitions, and can only obtain compensation based on negotiations. Case studies in the Sanggau, West Pamasan and West Lampung districts show that local groups were not involved in decisions concerning allocations of land for oil palm development; they were merely informed after key decisions had been taken. While in some cases negotiations between companies and local groups resulted in enforceable written agreements, in others they led to oral agreements that have very weak status under Indonesian law. As for compensation, the case studies documented several examples of non-compliance with the (albeit weak) protection accorded by Indonesian law to local land rights. For instance, in some cases compensation was offered only for titled lands, to the exclusion of customary land rights. In the eyes of local groups, this compensation tends to be seen not as the price obtained for a permanent transfer of land, but as compensation for the temporary transfer of a right to use the land, while palm oil companies understand compensation to extinguish the land claims of local groups (Colchester et al, 2006).

Issues of tenure security for local land rights are even more important where legal protection of these rights is subordinated to the fulfilment of productive use requirements (such as the “*mise en valeur*” requirements under much land legislation in Francophone Africa, or under Tanzania's Land Act 1999) and where legislation or administrative practice provide no clear definition of what “productive use” might be. This is even more so as biofuels may be seen as more productive than existing forms of local land use. Certain forms of resources are particularly vulnerable to this possession, such as pastoralism (Box 2).

3.5 Aggressive land seizures

In countries where legal and political frameworks are contested and difficult to implement, securing access to land for biofuel feedstocks can involve more direct, aggressive land seizures. This has been alleged specifically in the case of palm oil cultivation in Colombia. Palm oil in Colombia is in a period of strong expansion with 300,000 ha currently under cultivation, up from 188,000 in 2003, making it the fourth largest producer of palm oil worldwide (WRM, 2006). However, according to recent reports, this expansion has been accompanied by armed groups in Colombia driving black and indigenous communities off their land to make way for palm oil plantations (Balch and Carroll, 2007). According to these reports, paramilitary groups have carried out a “campaign of killing and intimidation”, which has driven thousands of people off their land, primarily in the palm oil growing areas on the Caribbean coast (Balch and Carroll, 2007). There have been unconfirmed allegations of links between the paramilitary groups and palm oil companies. The situation prompted a government investigation, which found that “at least 25,000 hectares suitable for the

cultivation of oil palms, which had been awarded by the state to black communities, were acquired by private interests through illegitimate land titles” (Martinez, 2006).

This is against the background of a strengthened legislative framework for indigenous land holdings in the country in recent decades. The 1991 constitution recognises the right of Afro-descendent and indigenous communities to their ancestral lands, and in 2000, two government resolutions assigned uncultivated land to displaced indigenous communities in Curvaradó and Jiguamiandó. However, when these communities returned to their land they found it was occupied by a palm oil company, and they are currently involved in a lengthy legal process to reclaim the land (WRM, 2006).

These alleged “land grabs” are likely to become increasingly associated with the booming biofuels market. According to the National Federation of Oil Palm Growers (Fedepalma), palm oil is the primary feedstock for biodiesel production in Colombia, and demand can be expected to increase in the future following Law 939 of 2004 which introduced a mandatory 5% biofuel blend for diesel across the country as well as a growing export demand (WRM, 2006).

3.6 Power asymmetries

The security of local land rights depends not only on how these rights are legally protected (in terms of substantive protection or of procedures and remedies), but also on the extent to which local land users have access to information and capacity to make use of the law. Large-scale commercial biofuel projects typically involve different actors with very different negotiating powers, from the biofuel investor to different government agencies to different groups of local land users. Many of the investors in biofuels are already among the largest operators in the agribusiness and energy sectors, which dominate bioethanol production: agricultural commodity companies such as Archer Daniels Midland (ADM), Noble and Cargill; energy companies such as British Petroleum (BP); as well as major financiers, such as George Soros and the Carlyle Group, a private equity fund (GRAIN, 2006:10-15). In government, the locus of control over biofuels developments may be unclear, with ministries of land, agriculture, industry and energy equally eligible to be the lead agency (Dufey et al, 2007). Local land users are likely to be a less powerful, but by no means homogenous, group.

Power asymmetries may involve a range of different factors: differences in the capacity to influence decision-makers and opinion formers, to mobilise political support and to draw power from parallel processes of negotiation; differences in access to finance, technology, information and skills; differences in social status and networks; and differences in the degree of internal cohesion, for instance where local groups are divided in their position on proposed investment projects (Cotula, 2007).

Importantly, local resource users tend to constitute a heterogeneous group reflecting varied and even conflicting interests - along status, wealth, gender, age and social professional lines. For instance, local farmers and transhumant herders may have different interests with regard to the spread of biofuels. Similarly, the land access implications of biofuels are liable to be differentiated along gender lines (Box 2). These differences may be exacerbated by the higher stakes brought about by the biofuel project, when some groups may oppose the project while others (often local

elites such as customary chiefs) may strike deals with government and the private sector to the detriment of other local groups (Cotula, 2007).

An example of this comes from palm oil expansion in the ancestral land of the Dayak peoples in Sanggau district, West Kalimantan. Some Dayak (*adat*) community leaders have, it is reported, aligned themselves with a palm oil company that operates in the district in order to gain personal benefits for themselves and their family such as priority access to smallholdings. Some Dayak peoples have received smaller parcels of land than agreed with the company, and 37 families who transferred their land to the firm in 1982/83 have still not received any land for palm oil cultivation, agriculture or housing (Colchester et al, 2006).

Insights are also provided by experience with oil palm cultivation in Papua New Guinea, where land is predominantly under customary ownership. Private plantation companies are able to lease land for palm oil production through a “lease, lease-back scheme” by which a customary land-owning group registers itself and its land with government, which then provides a basis for sub-letting to a plantation company. However, there have been some concerns that the schemes are negotiated by, and in favour of, local leaders and that poorer families and women are disenfranchised and do not receive a fair share of royalties, nor participate fully in decision-making (Koczberski et al, 2001).

3.7 Investment promotion policies and agencies

Many governments have established investment promotion agencies (or equivalents), responsible for attracting investment, particularly foreign investment, including to the biofuels sector. The extent to which, and the ways in which, these agencies work to facilitate land access for prospective investors varies widely, ranging from facilitating investors’ dealings with government land agencies to a more direct role in allocating land to investors.

In Senegal, for instance, the *Agence Nationale Chargée de la Promotion de l’Investissement et des Grands Travaux* (APIX) acts as a one-stop-shop, accompanying investors in the rather complex and cumbersome process to obtain land from relevant government agencies.⁸ Similarly, in Ghana and Mozambique, investment promotion agencies act as one-stop-shops, facilitating the acquisition of all necessary licences, permits and authorisations. Their direct role in facilitating land access seems focused on helping investors in their dealings with other agencies. In Mozambique, while investment legislation makes no explicit mention of the role of the *Centro de Promoção de Investimentos* (CPI) in facilitating land access, the application form for prospective investors to seek government approval of the investment projects does mention, among possible areas where CPI assistance is sought by the investor, the “identification and licensing of land”.⁹

A somewhat more “hands-on” role is played by Tanzania's investment promotion agency, the Tanzania Investment Centre (TIC). Under the Tanzanian Investment Act 1997, the TIC is mandated, among other things, with identifying and providing land to

⁸ APIX website (www.investinsenegal.com)

⁹ CPI website (www.cpi.co.mz)

investors, as well as with helping investors obtain all necessary permits (article 6). This entails identifying land not currently under productive use and directly allocating it to investors. Under this arrangement, the land is vested with the TIC and transferred to the investor on the basis of a derivative title (under article 19(2) of the Land Act 1999). After the end of the investment project, the land reverts back to the TIC (article 20(5) of the Land Act).¹⁰ In order to perform this function, the TIC has set up a “land bank” of 2.5 million ha identified as suitable for investment projects, as shown in Table 1.¹¹

The TIC has been active in identifying and negotiating access to land for foreign biofuel investors. One example is a 9,000 ha area for jatropha cultivation for a British firm in Kisarawe District. The TIC has been working with the Kisarawe District Council and the 11 villages that currently occupy the land, but the process has stalled due to allegations that the compensation offered to villages was too small (Kisembo, 2007).

While the role of investment promotion agencies in identifying “idle” lands may help bring underutilised land into production, it may also create risks of dispossession. Where forms of local resource use are perceived as low-productivity, land may risk being classified as idle or under-utilised, and therefore available to prospective investors, despite the economic, social or cultural functions it performs for local people (see Section 2.2).

3.8 The Clean Development Mechanism

International measures to contain land use changes may have unintended consequences on land access. The 2001 Marrakesh Accords provide detailed rules for the implementation of the Clean Development Mechanism (CDM). They limit CDM “Afforestation and Reforestation” projects (the only admitted land-use change projects) to land that had been cleared as of 31 December 1989.¹² Afforestation and reforestation projects formally include the establishment of biomass plantations for energy production and the substitution of fossil fuels (UNEP, 2004:44).

Governments and biofuels producers have expressed interest in CDM qualification as a means to improve commercial viability through trading in carbon credits. For instance, some recent legislation specifically states that biofuel projects are eligible for CDM credits.¹³

At the project level, the recent Kavango Biofuel Project in Namibia, which involves the cultivation of jatropha on communal land, has paid specific attention to

¹⁰ Tanzania's Land (Amendment) Act 2004 introduced another land access arrangement - the establishment of joint ventures between foreign investors and local groups (under article 19(2)(c) of the Land Act, as amended). Under this arrangement, local groups retain land rights while the investor obtains lesser land rights from the local group.

¹¹ TIC website (www.tic.co.tz) particularly at <http://www.tic.co.tz/TICWebSite.nsf/2e9caf3e472ee5882572850027f544/729d4c075f2b03fc432572d10024bea6?OpenDocument>.

¹² UNFCCC, COP7 (2001), Decision CMP.1, articles 1(c) and 13 of the Annex to the Decision, <http://unfccc.int/resource/docs/cop7/13a01.pdf#page=54>

¹³ e.g. Mexico's *Ley de Promoción y Desarrollo de los Bioenergéticos* of 2007, and Paraguay's *Ley de Fomento de los Biocombustibles* of 2006, both quoted in Jull et al (2007)

compliance with Kyoto Protocol requirements: project staff collected evidence to show that the project area had already been cleared in the past, and that “much of that land” was no longer cultivated (Jull et al, 2007). Similarly, in India, Southern Online Biotechnologies are applying for CDM approval for a cultivation of 1,000 ha of jatropha on wasteland and a biodiesel plant in the state of Andhra Pradesh.¹⁴

The purpose of the Marrakesh Accords was to prevent CDM projects from fostering deforestation, but may create incentives to establish biofuel projects on land that has been cleared but is in use. However, possible unintended consequences stemming from the CDM provisions of the Kyoto Protocol are likely to be mitigated by the short timeframe of the Protocol (which runs to 2012).

3.9 Safeguards for local rights

Procedures for accessing land may perform a useful role in establishing safeguards for local land rights. These safeguards aim to ensure that, at a minimum, local groups are not arbitrarily dispossessed of their land as this is made available to investors. In this regard, a particularly interesting example is provided by Mozambique, where investors are legally required to consult “local communities” holding rights in the land area sought for the investment project (article 12 of the Land Act 1997 and article 27 of the Land Act Regulation 1998).

Under Mozambique’s Land Act, community consultation must be undertaken regardless of whether the land has been registered. The consultation process is required before land use rights are allocated to investors; the specific purpose of this consultation is to ascertain that the land area is “free” and “has no occupants” (article 13(3) of the Land Act; see also article 24 (1)(c) of the same Act). The mandatory community consultation process is meant to pave the way for the negotiation of benefit-sharing agreements between local groups and the investor applying for land.

This model constitutes an interesting approach to facilitating investors’ access to land while protecting local land rights – both of which were explicit objectives pursued by the National Land Policy, which preceded the adoption of the Land Act. However, shortcomings in the design and implementation of the community consultation process have been reported in the literature (Johnstone et al, 2004; Norfolk, 2004; Chilundo et al, 2005; Durang and Tanner, 2004). The system is centred on a one-off consultation between the investor and the community. This is at odds with the long-term duration of land allocations and forest concessions (Johnstone et al, 2004; Durang and Tanner, 2004).

In practice, several agreements between communities and investors emphasise one-off compensation for loss of land rights rather than long-term benefit sharing. They usually involve very small payments compared to the value of the forest concessions acquired by the investor (Norfolk, 2004; Durang and Tanner, 2004). In addition, there are no established mechanisms to monitor compliance with the agreement on the part of the investor. No effective sanctions exist in case of non-compliance – there are no effects on the concession (Johnstone et al, 2004; Durang and Tanner, 2004).

¹⁴ Biodiesel production and switching fossil fuels from petrol-diesel to biodiesel in transport sector - 30 TPD Biodiesel CDM Project in Andhra Pradesh, India. The CDM project document is available at http://cdm.unfccc.int/UserManagement/FileStorage/FS_686206579. On this project, see also Gonsalves (2006: 30-31).

The implementation of these provisions has been beset with difficulties. In many cases, consultation processes only involve a few community members, usually customary chiefs and local elites who also monopolise the benefits (Norfolk, 2004; Durang and Tanner, 2004). In some cases, the consultation did not take place at all - or at least there is no record of it (Norfolk, 2004; Johnstone et al, 2004). Even where consultation takes place as required, communities lack the bargaining power and technical skills to negotiate with foreign investors on an equal footing (Johnstone et al, 2004; Durang and Tanner, 2004).

Recently, government authorities have taken steps to reduce what are perceived to be constraints on investors' access to land. In October 2002 a government decree set a 90-day time limit for the processing of investor land applications (including community consultations) (Kanji et al, 2005). The tightening of the legal regime around local consultation processes is putting pressure on the quality of these processes. The period of 90 days may seem long, but meaningful consultation among large communities in contexts characterised by significant power asymmetries between private companies and local groups would require sustained investment in time and effort in order to build local capacity to engage in consultation and negotiation exercises (Kanji et al, 2005).

Government interventions to ease the requirements and reduce the time set aside for community consultation came partly from the assertion that such requirements impose an excessive burden on investors and may therefore discourage firms from investing in Mozambique. However, much of the burden perceived by investors is linked to bureaucratic requirements imposed by government agencies (e.g. concerning investment approval requirements) rather than by local consultations *per se*. The effectiveness of Mozambique's legislation in securing land access for poorer rural groups when areas are allocated for biofuels plantations, such as in the Procana project, remains to be seen.

Another country where, on paper, local groups have a say in decisions to allocate land to outside investors is Senegal. Here, the exact nature of this say varies depending on the legal status of the land in question: whether it belongs to the state, to private interests or to the *domaine national*, a land area held by the state of which the bulk (*zones de terroir*) is managed by local governments (*communautés rurales*). Where land belongs to the state or to parastatal agencies, central government agencies can directly allocate land to investors without much local consultation. On the other hand, local governments have a say in the allocation of land within the *zones de terroir*, over which they hold considerable powers. The extent to which local governments have the skills and confidence to resist an investment project that enjoys central government backing, and the extent to which they have been able to use their legal powers to influence the distribution of the costs and benefits generated by the project, will be of great importance as interest in biofuels production expands.

3.10 Alternative business models

A compelling strategy for securing land access for small-scale farmers is to facilitate their direct engagement in and benefit from the biofuels industry. Economies of scale in production, transport and processing will favour extensive cultivation (Kojima and

Johnson, 2005; ICRISAT, 2007), even for those feedstocks that have high labour demands (Box 3). Even so, appropriate policy incentives can promote inclusion of small-scale operations on an economically viable basis (UN-Energy, 2007; Dufey et al, 2007). Possible business models are extremely varied: rather than a dichotomy between small-scale and large-scale there is a continuum of options. For example, economies of scale at the processing stage may co-exist with production by smallholders, provided that institutional arrangements are in place to link up smallholder production to large-scale distribution. Joint ownership of both production and processing, giving farmers shared equity in value-addition as well as primary production, is another option (Dufey et al, 2007). Some examples of operational business models that link small-scale and large-scale business are discussed below.

Box 3. Feedstocks and the scale of production

Specific biofuels feedstocks may be more or less suited to extensive or intensive production. Biodiesel feedstocks that require harvesting by hand, specifically jatropha and palm oil, are the most suited to small-scale cultivation. Smallholders in West Africa and South-east Asia have a long history of cultivating palm oil while jatropha has traditionally been grown for its oil or as a hedge in India and throughout dryland Africa; both crops continue to be harvested by hand even in large-scale commercial plantations. Bioethanol feedstocks such as sugarcane and maize, on the other hand, can accrue sizeable cost savings through large-scale mechanised harvesting. Even though both of these crops are grown commercially by small-scale farmers (e.g. outgrower schemes for sugarcane exist in Kenya and South Africa), economic incentives to concentrate production will be much stronger than for oilseed crops (jatropha and oil palm) where labour remains an important input.

In addition to the economies of scale linked to large-scale cultivation, pressures towards large-scale business models may originate from economies of scale in processing and distribution. A recent commentary noted that “The competitiveness of a biofuels industry is highly dependent on gaining economies of scale. Costly, sophisticated processing plants require massive, steady inflows of feedstock in order to produce sufficient volumes of fuel at competitive prices. [...] Small-scale operations will not be economically competitive except perhaps for running village pumps and engines in remote, impoverished areas that are largely disconnected from the cash economy” (ICRISAT, 2007:15). Thus land concentration might be driven by the economics of processing, including for crops like jatropha that are particularly touted for their suitability for small-scale cultivation.

On the other hand, experience to date shows that economic drivers may sometimes push towards the small-scale. For example, one of the drawbacks of palm oil is that fruits must be processed within 24 hours of harvest, which has tended to tie small-scale producers into selling to the closest large-scale mill within reach. The lack of price competition has more recently given rise to an upsurge in establishment of independent small-scale mills (Vermeulen and Goad, 2006).

Contract farming

In Ethiopia, a German firm has invested US\$ 77 million in a biofuel project in Oromia Regional State. The company will plant castor beans on 10,500 ha of farming land and construct a biodiesel processing plant. An area of 8,000 ha has been granted by Oromia Investment Commission, which operates a “one-stop shop” for processing land applications, signing agreements and granting title deeds (Oduu, undated; for more on the role of investment promotion agencies see below). The additional 2,500

ha will be planted in “community farming” areas in the Fadis and Miks districts (*woredas*) of the East Hararge zone, where the firm has signed a Memorandum of Understanding with the regional farmers’ association. Under the agreement, farmers will cede two ha of land for a period of five years, and the company will provide seeds and buy their produce. It is reported that farmers welcome the investment in their region and are looking to diversify away from coffee production due to volatile prices (Zenebe, 2007). In general, contract farming schemes offer price stability and technical support to farmers, but have the disadvantage of locking both sides into arrangements that may be perceived as less fair and advantageous as market conditions progress over time (Mayers and Vermeulen, 2002).

Joint ventures

In Namibia’s Kavango Biofuel Project, jatropha production is to be led by local farmers in collaboration with a Namibian company, Prime Investment. The project involves the establishment of a joint venture (the “Farming Company”) to run farming activities, with Prime Investment initially holding 60% of its shares and the Kavango Jatropha Farmers’ Association holding the remaining 40%. The Association is a legally constituted body run by the growers and representing their interests (Jull et al, 2007). Under this project, families who wish to become jatropha farmers are contracted to grow jatropha on communal land. Farmers contribute communal land and labour, while Prime Investment covers capital costs and compensates participating farmers with food and cash for loss of maize and millet. As not all residents have access to qualified land, the project plans to grant priority to those without access to project land for other project-related employment opportunities (e.g. tractor drivers, factory employees) (Jull et al, 2007).

In Sarawak, Malaysia, three-way joint ventures involving companies, government and customary landowners have been in place for palm oil since the mid-1990s under a government-led scheme known as *Konsep Baru* (New Concept). A private plantation company, selected by the government, holds 60%. Rather than purchase land, the company provides financial capital for landowners to develop the land for palm oil production. The local community that holds native customary rights to the land is awarded a 30% share for this investment. A Land Bank mechanism allows farmers to register their land in a bank as an asset, which enables the private company to use the land as a guarantee for bank loans. Finally, the government, acting through a parastatal agency, acts as trustee and power of attorney, and holds the remaining 10% (Majid-Cooke, 2002). While there may be good financial returns from *Konsep Baru* arrangements, customary landowners have also raised many concerns, such as lack of real choice in whether to accept or reject the schemes, little say in negotiating the terms or length of the agreement and uncertainty over land access once the standard 60-year contract comes to an end (Vermeulen and Goad, 2006).

Purchase agreements

Since 2003 Brazil has pioneered an innovative institutional arrangement to integrate smallholders into the production of biodiesel through the National Programme for the Production and Use of Biodiesel (PNPB). The Federal Government has facilitated an arrangement where by two previously antagonistic groups, rural trade unions and agricultural companies, cooperate to avoid a repeat of the social and ecological

damage associated with the spread of sugarcane monoculture and the PROALCOOL programme (Abramovay and Magalhães, 2007).

The PNPB is especially active in northeast Brazil. Companies and trade unions work together through the award of a “social label”. In order to qualify for the label companies must buy from 10% to 50% of biofuel feedstock from family farms, depending on the region (Abramovay and Magalhães, 2007:11). The social label, in return, guarantees companies that the product will be bought by PETROBRAS and entitles them to tax breaks. The trade unions play a vital role in mediating between producers and industry through the negotiation of contracts. There is also a price guarantee and companies supply technical assistance to smallholders (Abramovay and Magalhães, 2007).

As the PNPB was set up only recently, it is too early to judge its impact on land rights, however, some of the early signs are promising for the inclusion of low income farmers into the biodiesel market. Over 68,000 contracts have been signed with family farms, mainly on the basis of castor oil but also soybeans. Average holdings are between 2 and 5 ha (Abramovay and Magalhães, 2007). The programme is not without its critics, however, including the MST (Landless Movement). They point to the fact that the largest biodiesel feedstock is soy, which is associated with monoculture, deforestation and land conflicts, and that smallholders are not the “dominant producers” of biodiesel (GRAIN, 2007).

3.11 Sustainability initiatives

Multiple sustainability initiatives applicable to biofuels production are emerging or in operation. These can be broadly divided into multi-stakeholder initiatives, such as the roundtables on sustainable palm oil and soy, and government-led schemes such as the EU’s proposed biofuels sustainability criteria. The multi-stakeholder initiatives mainly combine a roundtable deliberation process with development of a set of voluntary sustainability criteria coupled with a system of internal governance that provides decision-making power and support for members as well as sanctions for members that do not adhere to the agreed principles of the roundtable. The government-led initiatives are more of a policy tool to discriminate between sustainable and non-sustainable production systems for purposes of differentially applying subsidies, tax breaks, soft loans or other policy instruments.

The Roundtables on Sustainable Palm Oil (RSPO), set up in 2002, is one of the most developed multi-stakeholder roundtables and private certification schemes. Members have agreed a set of principles and criteria, which include several clauses related to respect of land rights. Criteria 2.3, 7.5 and 7.6 establish the principle of “prior and informed consent” of existing land users to new palm oil cultivation, respect for legal and customary land rights, and compensation for land acquisitions.¹⁵ The RSPO has actively sought to incorporate smaller-scale producers of palm oil, who account for

¹⁵ Criterion 2.3 Use of the land for oil palm does not diminish the legal rights, or customary rights, of other users, without their free, prior and informed consent; Criterion 7.5 No new plantings are established on local peoples’ land without their free, prior and informed consent, dealt with through a documented system that enables indigenous peoples, local communities and other stakeholders to express their views through their own representative institutions; Criterion 7.6 Local people are compensated for any agreed land acquisitions and relinquishment of rights, subject to their free, prior and informed consent and negotiated agreements. See <http://www.rsपो.org/>

about 30% of global production, through Smallholder Task Force, which is seeking means to adapt the process of certification to smaller producers. The RSPO is aiming to be a mainstream rather than niche certification scheme, accounting for the majority of the world's palm oil.

In the case of soy, two of the nine principles of the Roundtable on Responsible Soy (RTRS) deal with land issues. Principle 3 states that “The soy value chain shall ensure that soy producers and other suppliers comply with all applicable national and local regulations related to land rights, including but not limited to, ensuring legal title to land, compliance with contractual obligations and respect for the formal and/or customary land rights of local communities including indigenous peoples” and Principle 4 that “The soy value chain recognizes the importance of small scale and traditional land use systems and shall adopt measures to integrate and support small scale producers into the chain of value in accordance with local conditions and practices”. However, the timeframe for implementation of a global certification scheme for soy is uncertain and long-term. In the case of sugarcane, the Better Sugarcane Initiative has no plans to incorporate land access or land rights issues (Willers, personal communication)¹⁶

A new initiative, the Roundtable on Sustainable Biofuels, coordinated by the Swiss EPFL (*École Polytechnique Fédérale de Lausanne*), is currently facilitating agreement on a comprehensive set of principles for sustainable biofuels. A draft version includes respect of land and water rights and the socio-economic development of communities (Principle 5) and food security (Principle 6).¹⁷

The EU and some national governments are also examining biofuel certification schemes. The European Commission has recently published its legislative proposal for the Renewable Energy Directive, which includes its proposed sustainability scheme for biofuels. In the proposal, only biofuels that meet the minimum certification requirements would count towards the 10% biofuel target. However, the proposed criteria are purely environmental, and seek to assure that biofuel “lifecycle greenhouse emissions” are 35% lower than fossil fuels while also stipulating criteria for biodiversity and high carbon stock areas. Therefore, direct land use changes are only taken into account in so far as they impact the carbon balance of biofuels and biodiversity, but not for social impacts including land access (GRAIN, 2007:8-9). Indirect land use changes are not considered at all.

Some European governments are implementing sustainability criteria for biofuels. The UK government has pledged that, from 2008 to 2011, companies will be required to report on comprehensive social and environmental criteria including some on land rights, such as “free, prior and informed consent”. The reporting requirement is however very weak and without obligation to comply. Furthermore, it will be required to come within the terms of the EU scheme, which does not include social criteria, in 2010 (Bailey, personal communication). Outside Europe, governmental certification of biofuels is also under consideration. The government of Colombia, for example, is developing a certification system based on the Netherlands' Testing Framework for

¹⁶ Personal Communication with David Willers, 19/10/2007. For more information about RTRS see <http://www.responsiblesoy.org/>; for the Better Sugarcane Initiative see <http://www.bettersugarcane.org/>

¹⁷ For more information see the *wiki* internet resource: http://www.bioenergywiki.net/index.php/Roundtable_on_Sustainable_Biofuels

Sustainable Biomass (Energy Transition IPM, 2007), which includes a criterion on protection of legal and customary land rights. The Brazilian government is also developing a national certification scheme that will include social elements, though it is unclear whether land rights will be included. However, compulsory standards could, at least in theory, be challenged as illegal barriers to trade under WTO rules (E4Tech et al, 2005).

In conclusion, the proliferation of certification schemes is a positive development, demonstrating awareness among governments, citizens, consumers and producers of the risks and challenges involved in expanding biofuel production. The inclusion of land rights criteria in some private certification schemes is also welcome. It is too early, however, to see whether they will have a real impact. The EU and government schemes, which are potentially far more influential, have not addressed land issues – in effect giving licence to European companies to ignore principles of prior informed consent in land allocation for large-scale biofuel crop cultivation.

3.12 Civil society actions

Popular protest against large-scale land transfers for purposes of biofuels production is an indication of public concern over the implications of biofuels for land use and land rights. For example, in Uganda there has been a strong public outcry against allocation of national forest reserves in Bugala and Mabira to foreign plantation companies for establishment of palm oil and sugarcane plantations. Civil society concern has been expressed through demonstrations in Kampala and a series of NGO-led court cases. Other mass tactics have included a boycott of Lugazi sugar, petitions and a mobile phone messaging campaign (Mayers, 2007). The Ugandan government has subsequently withdrawn Bugala forest reserve from conversion to sugarcane (Tenywa, 2007). Civil society actions have also become a feature in countries that import biofuels and biofuel feedstocks. An early focus on environmental impacts has broadened into a wider concern for abuse of human rights in areas in which biofuels are grown (e.g. Marti, 2008) – with a strong emphasis on issues of access to land.

4. Conclusions

Biofuels are not necessarily bad news for small-scale farmers and land users. Indeed, biofuels could be instrumental in bringing an agricultural renaissance that revitalises land use and livelihoods in rural areas. Price signals to small-scale farmers could significantly increase both yields and incomes, securing real, long-term poverty reduction in countries that have a high dependence on agricultural commodities. Large-scale biofuels cultivation could also provide benefits in the form of employment, skills development and secondary industry. In the long run, production of biofuels feedstocks can be expected to become a stable rather than a rogue element in land use (Box 4).

However, these possibilities depend on security of land tenure. Where competing resource claims exist among local resource users, governments and incoming biofuel producers, and where appropriate conditions are not in place, the rapid spread of commercial biofuel production may result - and is resulting - in poorer groups losing access to the land on which they depend. In these contexts, the spread of commercial biofuel crop cultivation can have major negative effects on local food security and on the economic, social and cultural dimensions of land use.

Some of the governments promoting commercial biofuel production have sought to address these concerns. For instance, Mozambique's Minister for Agriculture recently pledged that the Mozambican government will not allow biofuel production to compromise food security; and affirmed that while the government will continue to identify available land for commercial production of biofuel feedstocks, it will exclude land that is fit for food production from these activities (Agencia de Informacao de Moçambique, 2008). However, what is less certain is the extent to which such promises can be implemented, given the range of competing interests and the challenges to putting policies into effective action.

A growing body of evidence documents the negative impacts of large-scale commercial biofuel production for access to land, drawing on contexts as diverse as Africa (e.g. Tanzania, Mozambique), Latin America (e.g. Colombia, Brazil), and Asia (e.g. India, Indonesia, Papua New Guinea).

Promising approaches also exist, but they have so far received less attention. In some contexts, smallholders have been able to use and even consolidate their land access through seizing the opportunities offered by biofuel feedstock cultivation, whether for income generation or for local energy self-sufficiency. Large-scale and small-scale biofuels production can co-exist and even work together in synergy to maximise positive outcomes for rural development – and secure land rights for smallholders can provide an asset in their negotiations with larger players.

Documenting this “successful” experience, and analysing the conditions that made it possible, the spread of costs and benefits among local land users, investors and government, and the extent to which such experience can be replicated elsewhere, can help build and disseminate better practice.

Box 4. Will the bubble burst? Longer-term trends and the limits to the biofuels boom

Is the current boom in biofuels any different (or separate) from any what is happening to other commodities, or from previous commodity booms? Are the effects on land access going to be unprecedented, or much the same as the effects due to demands for land for food, fodder, fibre and other agricultural products?

Commentators have given wildly different predictions of how far the expansion of biofuels might go: from today's 14 million ha up to 35 million ha by 2030 under prevailing policy regimes (IEA, 2006), or up to as much as 1,500 million ha by 2050 (Field et al, 2007). The latter figure, which is equivalent to the entirety of the world's arable land today, assumes a scenario of strong demand but no brakes on biofuels expansion.

Commentators commonly forecast unchecked upward trends, particularly sustained increases in prices, during commodity booms - but these predictions have not been borne out for any of the major commodities (Deaton, 1999). Analysis of the three major commodity booms in recent history (1950-51, 1973-74 and 2004-present) shows that all three were triggered by demand shocks, but otherwise have had different and complex sets of causes (Radetzki, 2006). The current boom, clearly longer-lived than those of the 1970s and 1950s, is driven primarily by growth in the Chinese and Indian markets, though it appears that irregularity of demand rather than growth in demand is the main factor behind rising commodity prices (Radetzki, 2006).

For biofuels, we can expect a range of factors to counter the current explosive growth in demand and production. On the supply side, competition with other crops (especially food and fodder – often exactly the same crop, as for maize and soy) will be a major brake on expansion, tending towards a dynamic equilibrium set by prices offered in the food, fodder and fuel sectors (see Schmidhuber, 2007). Food security issues will be problems of access (e.g. unaffordability of a nutritious diet for poor people) rather than of global food supply. Rising prices for biofuels will be a market signal to improve technologies and yields, leading to deceleration in land expansion. As costs of biofuels feedstocks rise, so will investment in oil exploration and other fuels, thereby damping incentives for untrammelled expansion of biofuels.

At a more speculative level, second generation biofuels will deliver a new set of technologies and land use implications, in theory at least reducing competition with food crops (though, presumably, increasing competition with fibre crops for the supply of paper versus fuel). If trends follow those of agribusiness and forestry, the business models of the emerging biofuels industry, with strong ownership-based vertical integration from plantation through to overseas processing (particularly for jatropha), is likely to be replaced by contract-based vertical integration.

In environmental terms, water is likely to be a key limiting factor to biofuels crop expansion at the regional level (de Fraiture et al, 2007). Over-use of marginal lands for biofuels could lead rapidly to salination, erosion and exhaustion of those lands. Climate change will increasingly drive irregularities in supply of biofuels and other agricultural commodities, ensuring that commodity prices are, if anything, even more erratic than they have been to date.

Preliminary experience, collated in Chapter 3 of this report, already provides several pointers for policy and practice by governments and the private sector at local, national and international levels. Some of the key issues are summarised below.

- Governments need to develop robust safeguards in procedures to allocate land to large-scale biofuel feedstock production where they are lacking and – even more importantly – to implement these effectively. Safeguards include clear procedures and standards for local consultation and attainment of prior informed consent, mechanisms for appeal and arbitration, and periodic review. Safeguards should be applicable across agricultural and land use sectors rather than specific to biofuels, to enable due process for both the direct impacts of biofuels crops and the indirect effects (displacement of non-biofuels crops from other farming areas by biofuels).
- Large-scale privately owned plantations are not the only economically viable model for biofuels feedstock production. Producers' associations, governments and investors may want to explore alternative business models such as joint equity in production and processing. Policy instruments based on financial incentives can help provide for inclusion of small-scale producers in the biofuels industry.
- Clearer definitions of concepts of idle, under-utilised, barren, unproductive, degraded, abandoned and marginal lands (depending on the country context) are required to avoid allocation (dis-allocation) of lands on which local user groups depend for livelihoods. Similarly, productive use requirements in countries in which security of land tenure depends on active use (*mise en valeur*) need to be clarified so as to minimise abuse.
- Land access for rural people requires policy attention not only to land tenure but also to the broader circumstances that determine land use and agricultural economics. Relevant policy areas include taxation and subsidies, regional and international trade, and standards for environment and labour.
- International policy arenas are also influential on the impacts of biofuels expansion on land access. Certification criteria, such as those under development by the EU, should incorporate free prior and informed consent, based on secure land tenure of local residents, as a fundamental requirement, disallowing production on contested land. Attention may need to be given to eligibility rules regarding land use change under the Clean Development Mechanism of the Kyoto Protocol and its successor. International governance of trade and investment will continue to be a major determinant of the economic potential of different forms of land use in producer countries.
- Policies, laws and institutions matter - but in contexts characterised by strong power asymmetries they are likely to achieve little if they are not accompanied by sustained investment in building people's capacities to claim and secure their rights.
- Local, national and international NGOs and civil society organisations have a continued role to play in holding governments and industry to account regarding their promises on protection of land access and food security to specific communities and more generally.

Finally, “biofuels” is a catch-all term for a set of very different crops and cropping systems, end-products, policy goals (e.g. commercial production vs energy self-sufficiency), business models (different combinations of ownership and benefit-sharing among large-scale and small-scale operations) and local contexts - all of which significantly affect land access outcomes. A better understanding of this diversity will promote a more balanced and evidence-based debate.