REDD+ SYNTHESIS REPORT

Socio-economic conditions in REDD+ pilot areas

A synthesis of five baseline surveys

Synne Movik, Gene Birikorang, Adrian Enright, George Kajembe, Luiza Lima, Suelen Marostica, Thais Megid Pinto, Gorettie Nabanoga, Maria Nantongo, Justine Namaalwa, Dos Santos Silayo and Arild Vatn

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For a full list of publications please contact:
International Institute for Environment and Development (IIED)
80-86 Gray's Inn Road, London WC1X 8NH
Tel: +44 (0)20 3463 7399
Fax: +44 (0)20 3514 9055
pubs.iied.org

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Design by: Eileen Higgins, email: eileen@eh-design.co.uk
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Poverty and sustainable development impacts of REDD architecture; options for equity growth and the environment

About this project...

Poverty and sustainable development impacts of REDD architecture is a multi-country project led by the International Institute for Environment and Development (IIED, UK) and the University of Life Sciences (Aas, Norway). It started in July 2009 and will continue to December 2013. The project is funded by the Norwegian Agency for Development Cooperation (Norad) as part of the Norwegian Government's Climate and Forest Initiative. The partners in the project are Fundação Amazonas Sustentável (Brazil); Hamilton Resources and Consulting (Ghana); SNV (Viet Nam); Sokoine University of Agriculture, Faculty of Forestry and Nature Conservation (Tanzania); and Makerere University, Faculty of Forestry and Nature Conservation (Uganda).

The project aims to increase understanding of how different options for REDD+ design and policy at international, national and sub-national level will affect achievement of greenhouse gas emission reduction and co-benefits of sustainable development and poverty reduction. As well as examining the internal distribution and allocation of REDD+ payments under different design option scenarios at both international and national level, the project will work with selected REDD+ pilot projects in each of the five countries to generate evidence and improve understanding on the poverty impacts of REDD+ pilot activities, the relative merits of different types of payment mechanisms and the transaction costs.

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Contents

Introduction

Deforestation and forest degradation are among the most important single sources of emissions of anthropogenic greenhouse gases (GHG), contributing about 17 per cent of total global greenhouse gas emissions annually (IPCC, 2007). Reducing Emissions from Deforestation and Forest Degradation – REDD+ – is a United Nations collaborative initiative that seeks to reduce emissions from forest degradation in developing countries. REDD+ came into being as a response to a UNFCCC decision on REDD+ at the Conference of the Parties (COP) 13 in Indonesia. The REDD+ programme supports processes at the national level to implement REDD+ projects, emphasising the involvement of all relevant stakeholders.

The project *Poverty and sustainable development impacts of REDD+ architecture: Options for equity, growth and the environment* (POVSUS-REDD+) was initiated in 2009, and aims to increase the understanding of how institutions can be created to facilitate the implementation of REDD+ at international, national and local levels, and to what extent its implementation will bring about reductions of greenhouse gas emissions, poverty reduction and sustainable development.

The POVSUS project is a collaborative effort led by the International Institute for Environment and Development (IIED) and the Norwegian University of Life Sciences (UMB), with the following partners: Fundação Amazonas Sustentável (Brazil); Civic Response (Ghana); SNV (Viet Nam); Sokoine University of Agriculture, Faculty of Forestry and Nature Conservation (Tanzania); and Makerere University, Faculty of Forestry and Nature Conservation (Uganda).

The aim of the project is to generate knowledge on how REDD+ can be designed at international and national levels in order to promote co-benefits, through assessing different options for the distribution and allocation of REDD+ payments.

The project works with selected REDD+ pilot projects in each of the five countries to improve understanding of the poverty impacts of REDD+ pilot activities, the relative merits of different types of payment mechanisms and the associated transaction costs. As part of the research, a baseline study was carried out in pilot sites in all five countries, to map out the existing livelihood conditions, production constraints and resource use practices before the pilot projects were introduced. While this was important so that the impacts of introducing REDD+ projects could be measured later, the baseline study also undertook to identify potential challenges for establishing and running REDD+ activities and to understand the expectations and demands of households and communities. Each study included a survey, focus group discussion, and interviews with local 'resource persons'. This report synthesises the main findings from these studies. For more detailed information, the reader is referred to the specific country reports.

This overarching report is structured as follows: section 2 describes the pilot areas studied, section 3 gives an overview of household characteristics and livelihoods, section 4 discusses tenure systems and forest management, section 5 looks at perceptions of climate change and demands concerning REDD+, while the final section offers concluding remarks and reflections on the implications for REDD+. Since this is a synthesis report, it only touches on the key features of each country and pilot.

Given the geographical spread and the diversity of the five pilot areas, there was considerable variation in the findings of the baseline studies. Below is a brief description of each pilot area.

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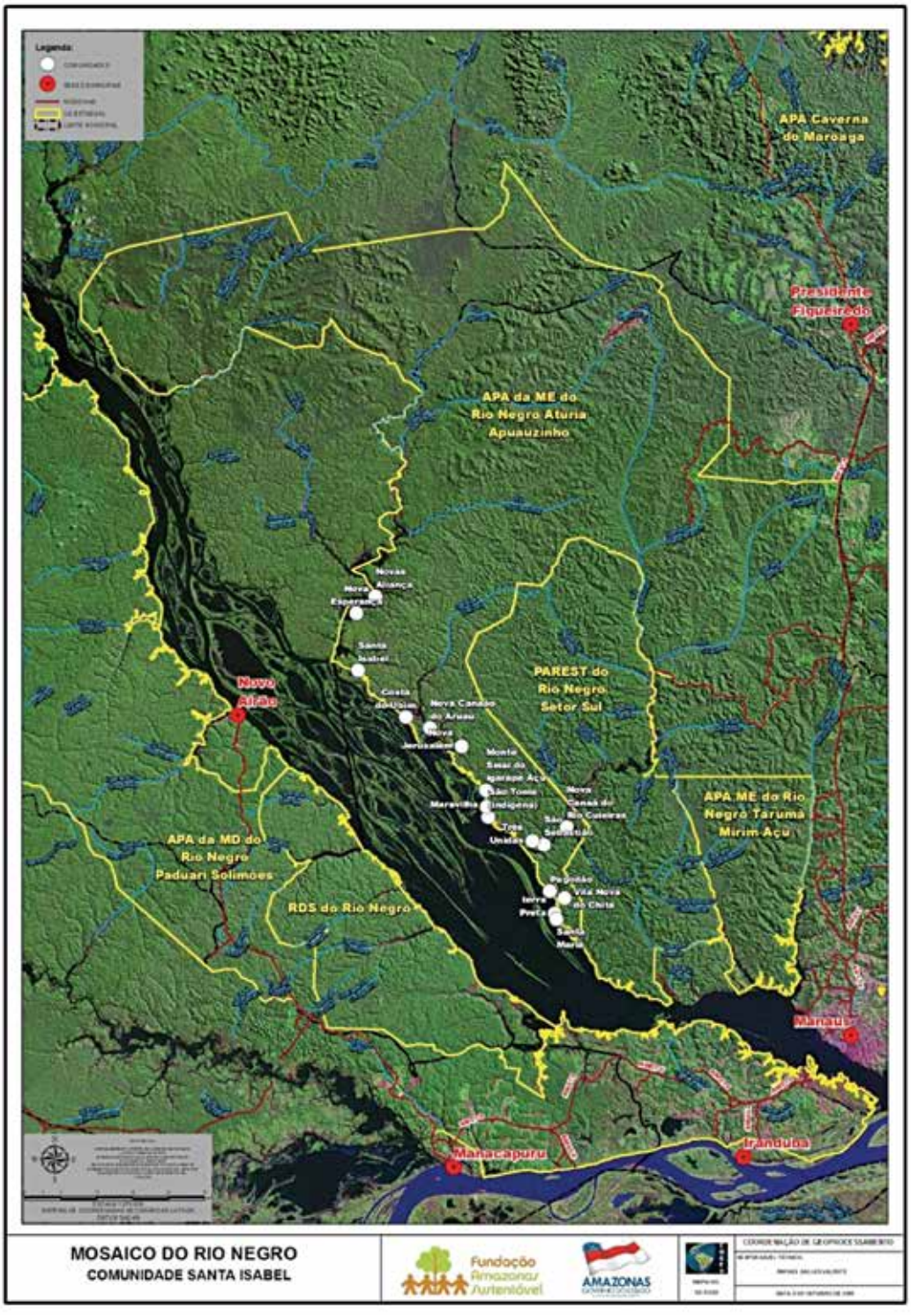
The pilot areas

In each participating country, REDD+ *pilot areas* were established to develop insights into how to introduce REDD+ at the local level. The POVSUS-REDD+ team chose one such pilot in each country to be followed and studied. A first step was to survey current livelihood conditions and resource use practices. The intention is to survey these same areas after REDD+ pilot projects have been implemented and operating for some time, in order to gauge the effect of the project. In addition to the pilot sites, *control areas*, i.e. areas where no REDD+ projects are envisaged to be rolled-out in the near future, were also surveyed, in order to provide a basis of comparison when assessing the effects of REDD+. Needless to say, the use of controls is fraught with problems, as it is very hard to find villages that are similar in all aspects, but it was still believed that having controls would offer a useful counterpoint to the REDD+ areas.

Brazil: The pilot site was located in the Rio Negro Environmental Protected Area (APA) in the state of Amazonas. The Rio Negro APA is the 15th state-protected area (PA) in Amazonas to benefit from the *Bolsa Floresta* programme run by the non-governmental organisation Fundação Amazonas Sustentável (FAS).[1] The *Bolsa Floresta* programme offers economic incentives to induce communities to engage in sustainable use of natural resources, including forests, and environmental conservation, as well as developing activities that can help improve people's overall livelihood conditions. The APA Rio Negro area was selected primarily because it was possible to conduct the survey before the programme was initiated. Two other PAs located near the pilot area served as control areas. The main economic activities within the Rio Negro APA are agriculture, hunting, fishing, and extraction of non-timber forest products (NTFPs) for subsistence or manufacture of handicrafts, such as basketry and roasting spits (Cardoso, 2010). Because of its scenic beauty and proximity to Manaus, the region has a high potential for ecotourism. Logging rates, which were previously high, have declined substantially in recent years due to increased monitoring and enforcement of penalties (Amazonas, 2007).

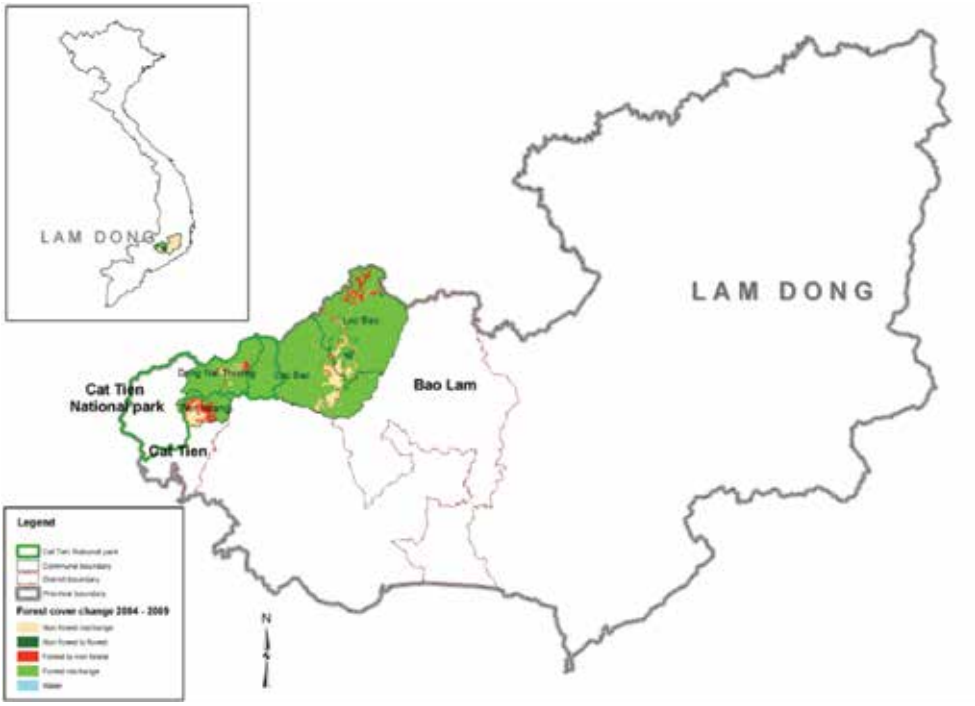
1. See http://fas-amazonas.org for more information about FAS.

Map 1. Map of the pilot area, location of the communities represented by white dots



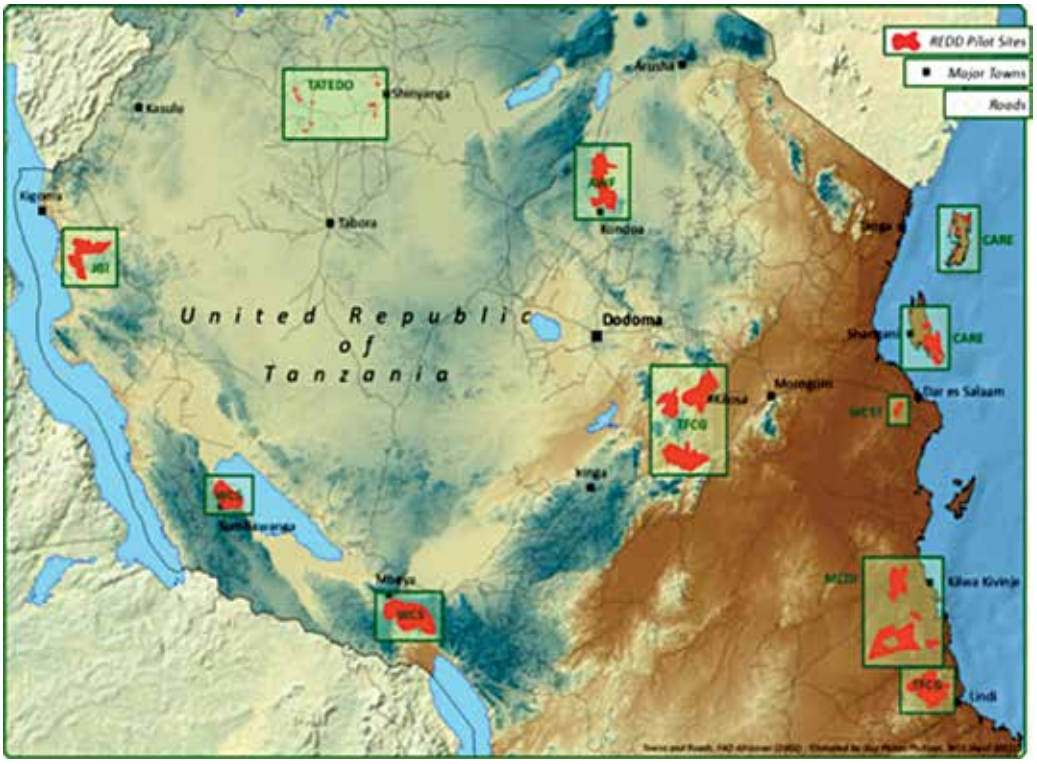
Viet Nam: The pilot sites were located in the Cat Tien and Bao Lam districts in Lam Dong Province, in the central highlands of Viet Nam, and SNV, a Dutch development NGO, was the organisation responsible for carrying out the study here. People living in these districts are generally poor with low levels of education and depend on low-yielding agriculture, and many are reliant on government support. Important drivers of deforestation are the encroachment of agricultural land into neighbouring forests, and also illegal felling and the collection of fuelwood. The Cat Tien National Park was also until recently the last remaining habitat of the Javan rhino population in Viet Nam. Pressures from habitat conversion and illegal hunting have led to the demise of the Javan rhino and continue to pose a considerable threat to biodiversity in the area – existing government legislation and support alone are not providing enough incentive to prevent continued deforestation and degradation. Fuelwood is the primary cooking source for most households in the pilot areas, but opportunities exist to introduce reduced biomass energy solutions.

Map 2. Map of the 4 REDD+ pilot communes



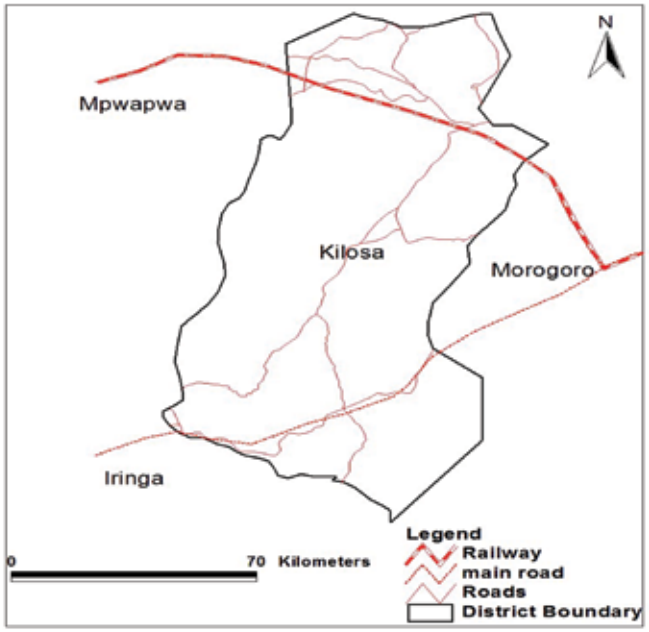
Note: Tien Hoang was not included in the survey exercise as similar surveys had already been carried out there.

Map 3. Location of REDD+ projects in Tanzania



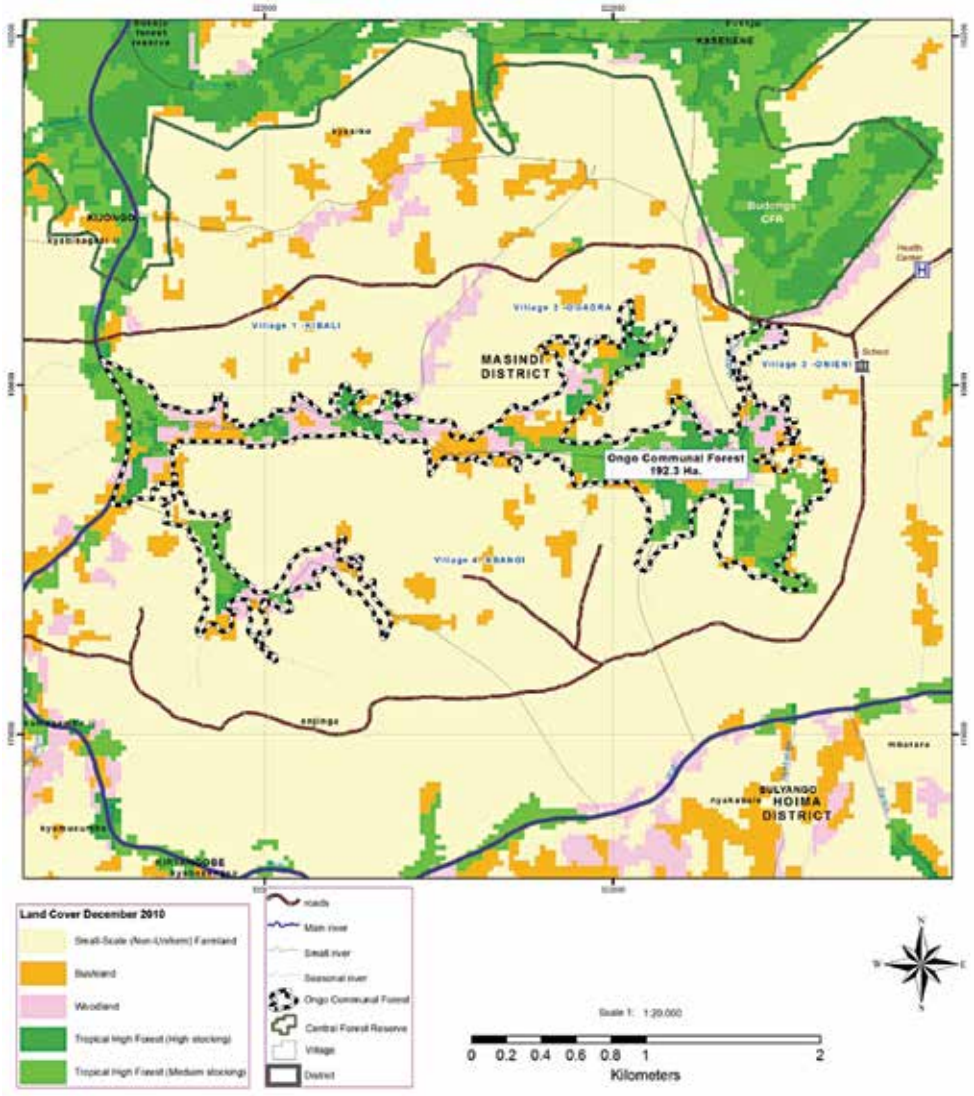
Tanzania: The Kilosa district in the Morogoro region is located approximately 300 km from the coast and Dar es Salaam, and is situated on the old caravan route that stretched from Bagamoyo to the eastern part of Congo (Benjaminsen, Maganga *et al.*, 2009). Most people in Kilosa depend on agriculture and forest-based resources for their livelihoods. The non-governmental organisation Tanzania Forest Conservation Group (TFCG), in collaboration with the Tanzania Community Forest Conservation Network (MJUMITA), is implementing REDD+ in the Kilosa district, and the programme aims to rehabilitate extensively threatened forests on 'general land' (cf. section on Property Rights) by preparing land-use plans and establishing participatory forestry management (PFM) in villages in the area.

Map 4. Administrative map Kilosa district



Uganda: The Masindi district is located in the Western Region of Uganda, which is very rich in fauna, and here the NGO Ecotrust is responsible for implementing the REDD+ pilot project. The forests in Masindi are under a variety of different management regimes, including private forests, forests managed by the National Forestry Authority, forests managed by Uganda Wildlife Authority, several local forest reserves managed by the local government, and patches of community forests. The survey was conducted in the villages found in Kasenene parish, Budongo sub-county in Masindi District, which surround the Ongo community forest of some 220 ha.[2] The main activity of households is subsistence agriculture, with the forest mainly used for fuelwood and poles, but the country team also observed that agricultural expansion is encroaching on the forest boundaries.

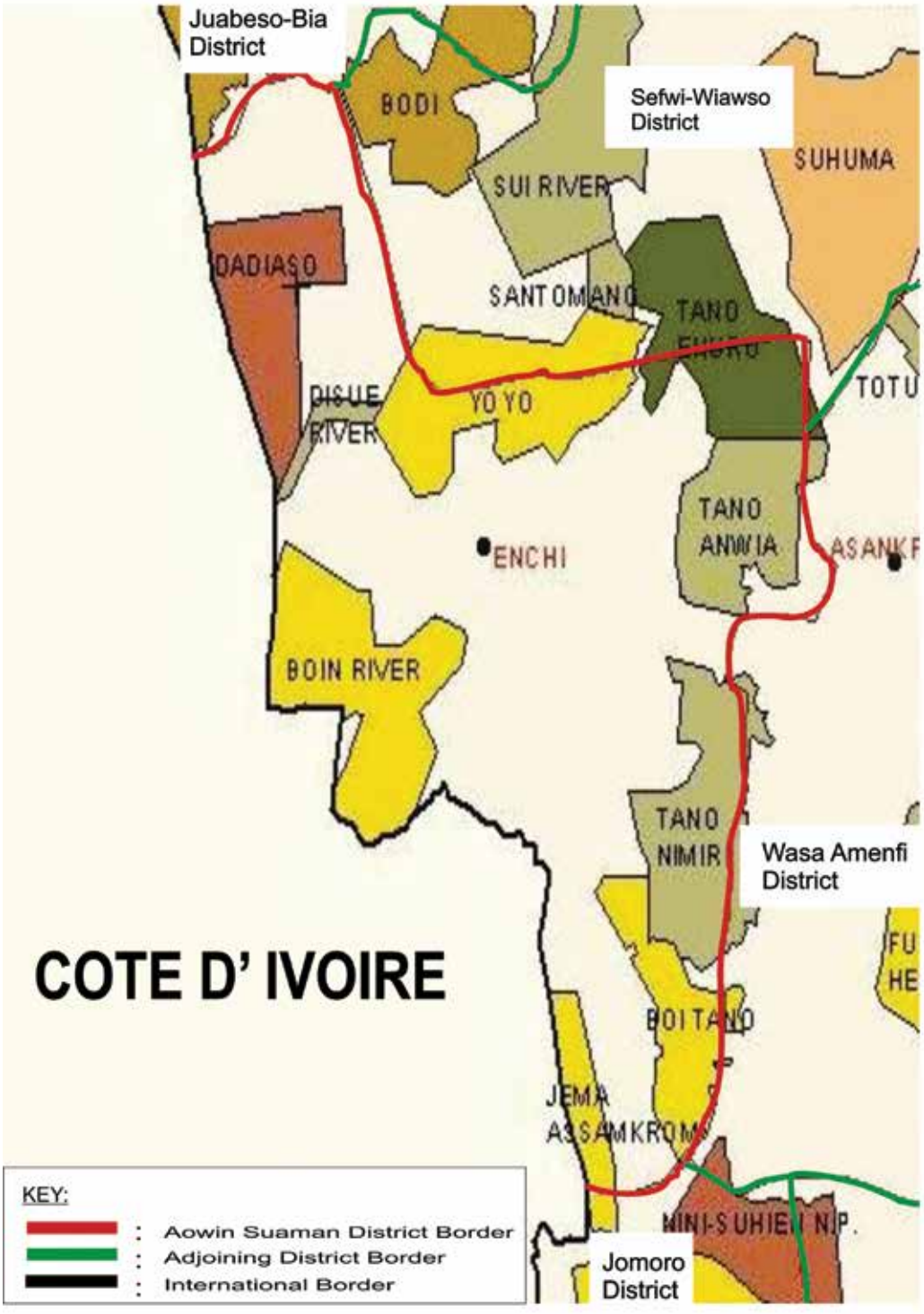
Map 5. Map showing Ongo Community Forest and the surrounding villages



2. The forest was originally regarded as public land close to Budongo Centrol Forest Reseve (Block B6) with no clear rules regarding ownership/use rights and it was under a freehold tenure system. Later, the community, with assistance of the district forest officer and the Budongo Forests Community Development Organisation (BUCODO), a local NGO, mobilised themselves and took over the management of Ongo as a community forest. The district forest office realised that the forest would be under threat considering that it was not gazetted as a local or central forest reserve. The forest was first clearly demarcated by BUCODO in 2003 and later revisited by Ecotrust in 2007, and there is now an Ongo Community Forest Association which is in the process of acquiring a registration certificate from the Uganda Land Commission. See the Uganda PRA report 2011 for details.

Ghana: The pilot areas were located in the Aowin Suaman district, which is made up of two traditional areas, Aomin and Suaman, in the Western Region of Ghana – the area currently holds Ghana's forest reserves. It is the Ghana Forestry Commission (GFC) that will be responsible for implementing REDD+ in this region. The land is characterised by forests, mostly rainforests, and sacred groves, as well as plantations, agricultural farms and wetlands. There are nine fragmented forests in the region, and acute conflict of interests exist over forest lands, as most people living in the area are engaged in agriculture (mainly producing cocoa, a cash crop) and are interested in expanding the agricultural areas.

Map 6. Aowin-Suaman District, Western Region, Ghana



Livelihoods

Household characteristics and education levels

Number of households interviewed

Brazil – 150 (across 15 small communities)
Viet Nam – 220 (across 8 villages)
Tanzania – 180 (across 3 villages)
Uganda – 158 (across 4 villages)
Ghana – 150 (across 5 villages)

The study focused on a selection of villages and communities in each pilot area (the criteria for village/community selection are provided in each specific country report). The number of households interviewed ranged from 150 to 220 – see overview in the right margin. Except in the Tanzanian case, the communities under study were relatively small across all countries, and household size too was quite similar across the pilot areas. A key characteristic across all pilot areas was the low level of education, which was a result of the relative remoteness of the communities. Generally, about half the population in the pilot areas had attended primary school, whereas only a marginal few had any higher education. However, Ghana had a relatively larger proportion of people having attended higher education (see Figure 1). It seemed clear that the low levels of education affected productive potential in most cases, in terms of limiting people's knowledge of improved techniques, and so on – this was particularly highlighted in the case of Viet Nam, where the lack of education was seen as one of the key constraints.

In terms of ethnic composition of communities in the pilot areas, there were quite distinct differences – in the Brazilian case, most people were of mixed origin, the majority being what the country report terms caboclos, a miscegenation of Indians and whites, along with a small population of different indigenous peoples. In Viet Nam, there were five major ethnic groups, with one particular group, the Kinh, being openly discriminated against. In Uganda and Ghana, there were diverse ethnic groups, but a clear dominance of one in each country, representing more than two-thirds of the population – the Lugbara in Uganda and the Akan in Ghana. Tanzania represented a more complex picture with more than 23 distinct ethnic groups, the dominant group – the Kaguru – making up a little over one-third of the total population.

Household size

Viet Nam had an average of two children and two adults per household. In **Ghana**, average household size was 4.6 members; in **Brazil**, 5; and in **Tanzania** and **Uganda** about 6.

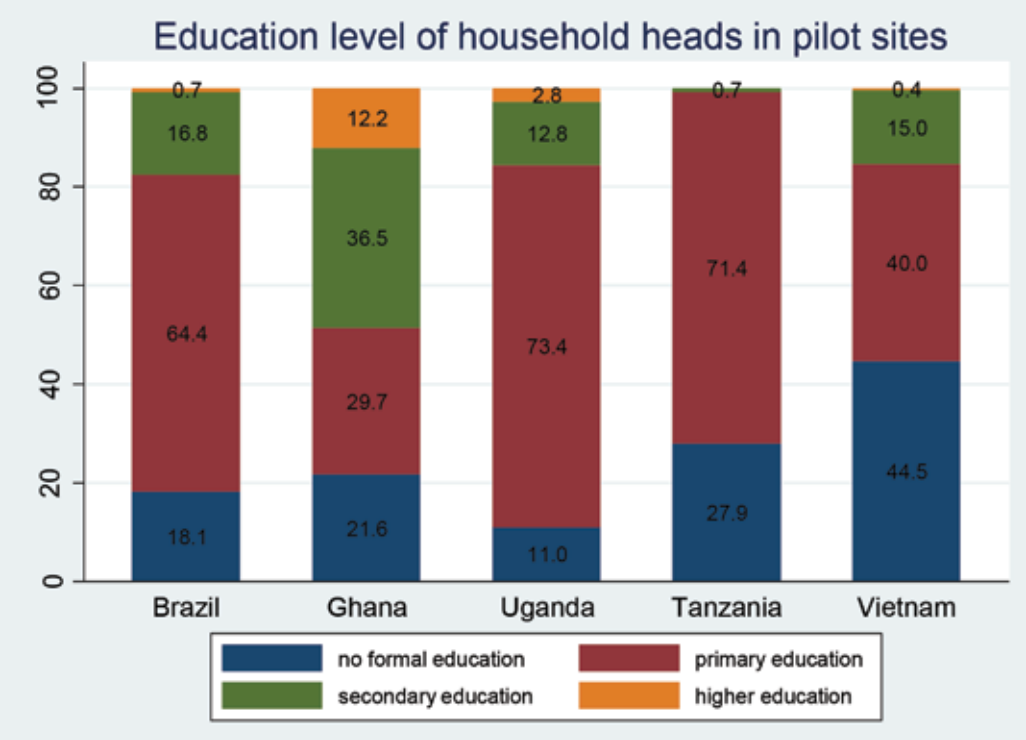
Ethnicity and levels of in-migration are important factors determining the levels of trust and stability in communities, something clearly demonstrated in the Tanzanian case, where the villages with the most hybrid and less stable populations were also those with the least developed rules in terms of forest access. The villages that were close to the urban centres and close to the former sisal estates were characterised by high levels of in-migration as people came to settle in these areas looking for jobs. These observations serve to underscore the importance of understanding how history and cultural factors shape people's practices and habits.

Material assets

In this section, an attempt is made to provide a 'snapshot' of people's material conditions in the pilot sites. The exercise of measuring key indicators of wealth provides a useful benchmark for future measures of impact of REDD+ activities, as it is seen as a delivery mechanism not only for mitigation purposes, but also for key social and environmental co-benefits.

Across all pilot sites, most people owned their own house – the materials with which the house was built indicated what wealth category the household belonged to (thatched roof, etc.). Most

Figure 1. Education levels in pilot sites



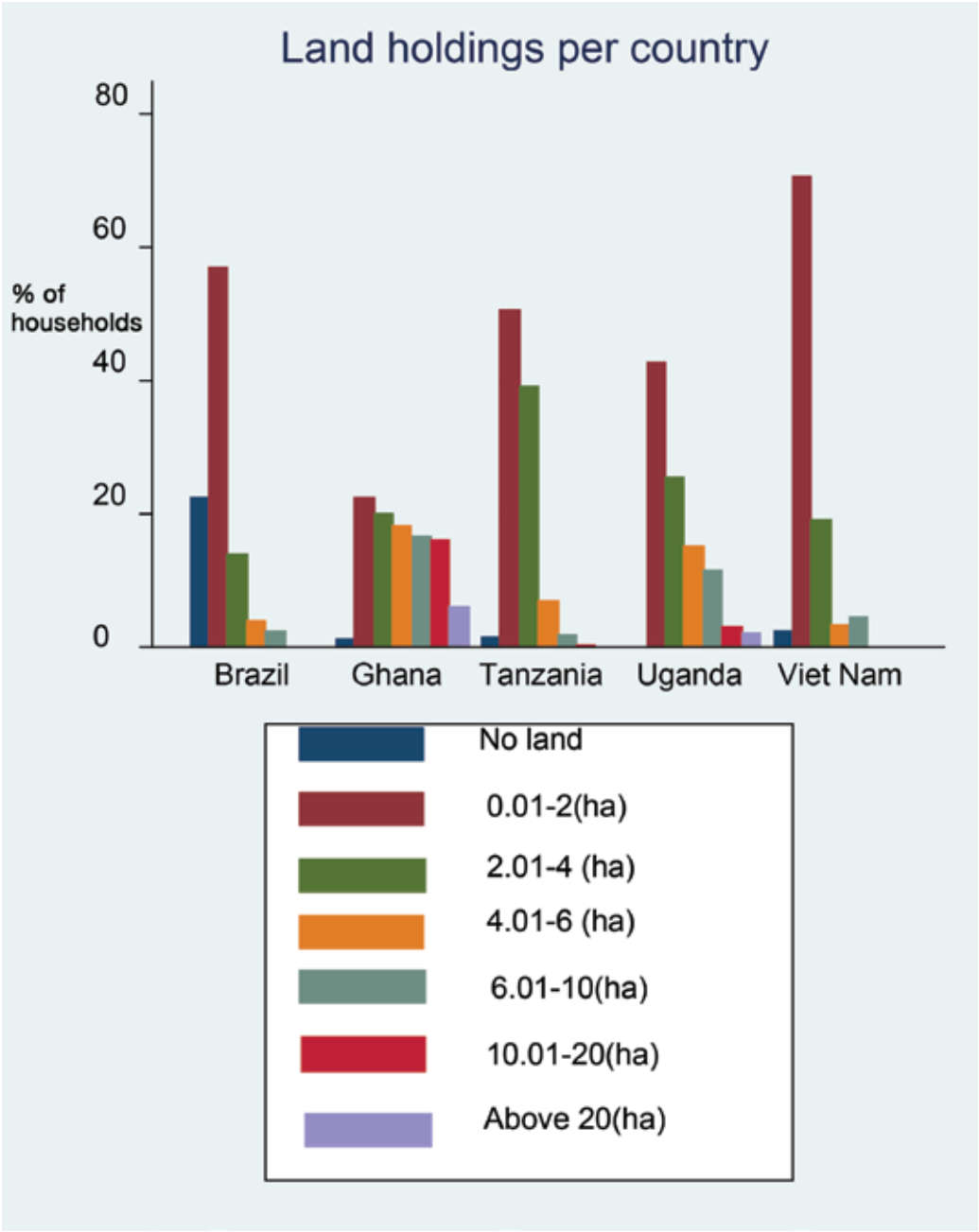
people had simple agricultural tools such as hoes and pangas.[3] Bicycles were common as a means of transportation in Uganda and Tanzania, motorbikes were used in Viet Nam, where they were one of the most important assets owned by households, and canoes/boats were important assets and means of transport in Brazil. Cars were very rare, and only a few people had the capacity to rent tractors. Mobile phones were common assets across all areas, with the exception of Brazil, and were frequently used to negotiate market prices for agriculture inputs and produce. The reason for the low ownership of mobile phones in Brazil – less than half of households owned one – was because there was no telephone signal. Radios were common in all pilot areas, TVs were common in Brazil and Viet Nam, but few households owned TVs in Ghana, Tanzania and Uganda. About one in five households had a mill in Brazil, and in Tanzania each village had access to a maize or rice mill. Households in Brazil had access to community generators, and around a third of households also had a generator of their own.[4]

In terms of land holdings, most farmers had relatively small plots in the range of 1 to 4 hectares, while there were some farmers with areas larger than 10 hectares as well. While most pilot areas were dominated by smallholders, there was a more even distribution of land holding sizes in Ghana. In Brazil, however, there were no land holdings larger than 10 ha, and more than one in five had no land at all. See Figure 2 below.

3. Focus group discussions brought to light people's frustration with having only 'primitive' agricultural tools such as hoes and pangas; there was a keen desire to invest more both in tools and inputs to improve production. The government runs a project that provides every village with subsidized fertiliser, but businessmen tend to buy up these lots and resell at higher prices.

4. An important aspect of the Vietnamese case is the level of government investment in infrastructure, such as roads, small dams for agricultural purposes, and electricity networks – since 2006, almost all the households have been connected to the power network. There are landline, cell phone and television networks in the area, which have contributed significantly to the socio-economic development and awareness in the communes. There are also primary schools and health centres. There is extension and veterinary services that organise training for villagers (see the Vietnamese PRA report 2011 for details).

Figure 2.



The study sought to assess the levels of trust among villagers and other actors, such as NGOs and the government, and also to what extent villagers thought their area was a 'good place to live'.

Overall, communities appeared to think that their village/community was a good place to live. For instance, only one per cent of the Brazilian respondents said that they disliked living in the area. Of course, this positive assessment might obviously be due to bias, but the overall impression was that there were few grave conflicts, and that the level of trust was high. While levels of trust within the communities were reported as generally high in Viet Nam as well, the relationship with NGOs was more strained – three out of every four households reported the relationship as being merely 'fair'. This probably stems from people's lack of familiarity with NGOs. In Tanzania, reported levels of trust were high for both NGOs and village councils. During

focus group discussions, the point was made that people were more comfortable with living in their areas of origin, despite social and economic hardships, as they found the uncertainty associated with moving someplace else inhibiting. Trust levels in Uganda were also relatively high; the only cases where bad relations, reported by a few respondents was with village councils and local government officials. In Ghana, too, levels of trust were reported as high, with the majority of respondents saying their communities were good places to live in. They considered their relationships with neighbours and village institutions as better than with local government officials and NGOs. Generally, therefore, trust levels were high or fairly high, though as expected they varied in the different contexts.

Sources of income

The survey attempted to estimate the amount of income generated from different sectors – agriculture, forestry, livestock and other income-generating activities. 'Income' in this instance covers both income from regular selling of products in local markets, as well as the value of own consumption, using prices obtained if the product had been sold. (For a detailed discussion on the determination of what constitutes 'environmental income', please see Sjaastad, Angelsen *et al.* (2005).)

Figures 3 and 4 give an overview of the total income of households, and a breakdown of the sources of income. Brazil clearly has the highest income per household, with Ghana in second place. Whereas more than half of households' income comes from agriculture in Uganda, Ghana and Viet Nam, income from agriculture plays a much less important role in the case of Brazil. Here, households have more diverse sources of income, including fishing and forest-based activities, but the most important category is 'other', which refers to a mix of government support, remittances and wage labour. Uganda and Ghana are most dependent on agriculture, whereas forest-based incomes play a significant role in the livelihoods of households in the Tanzanian pilot areas.

Figure 3. Household gross total income

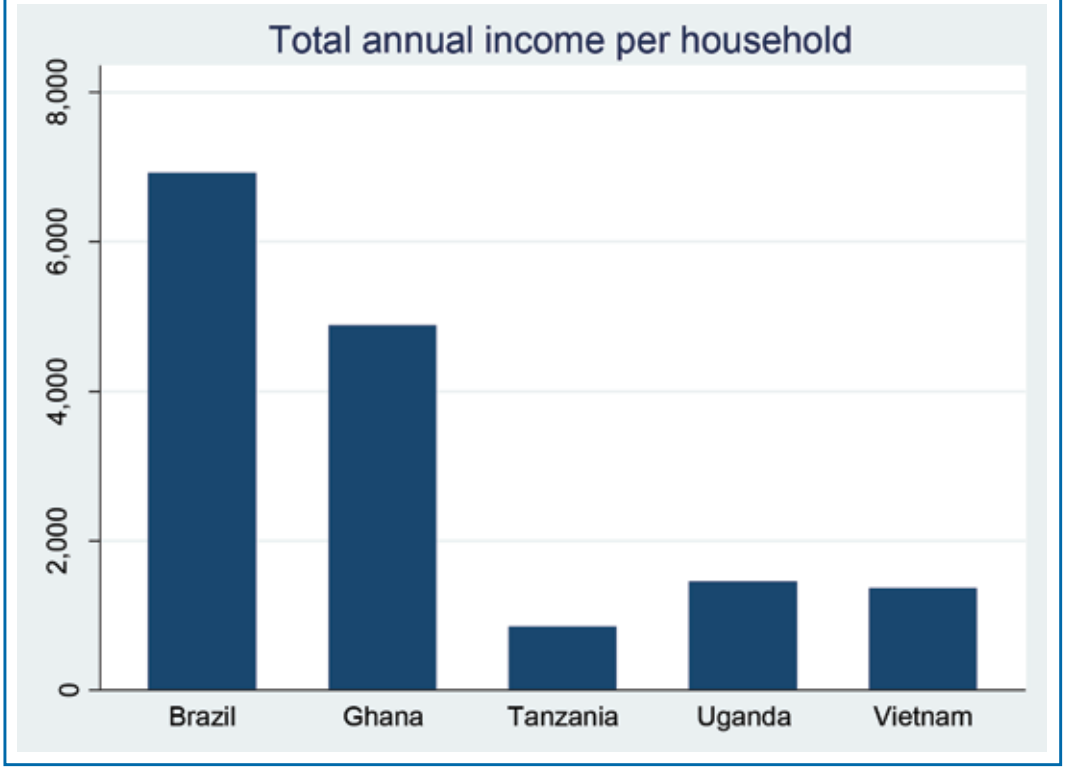
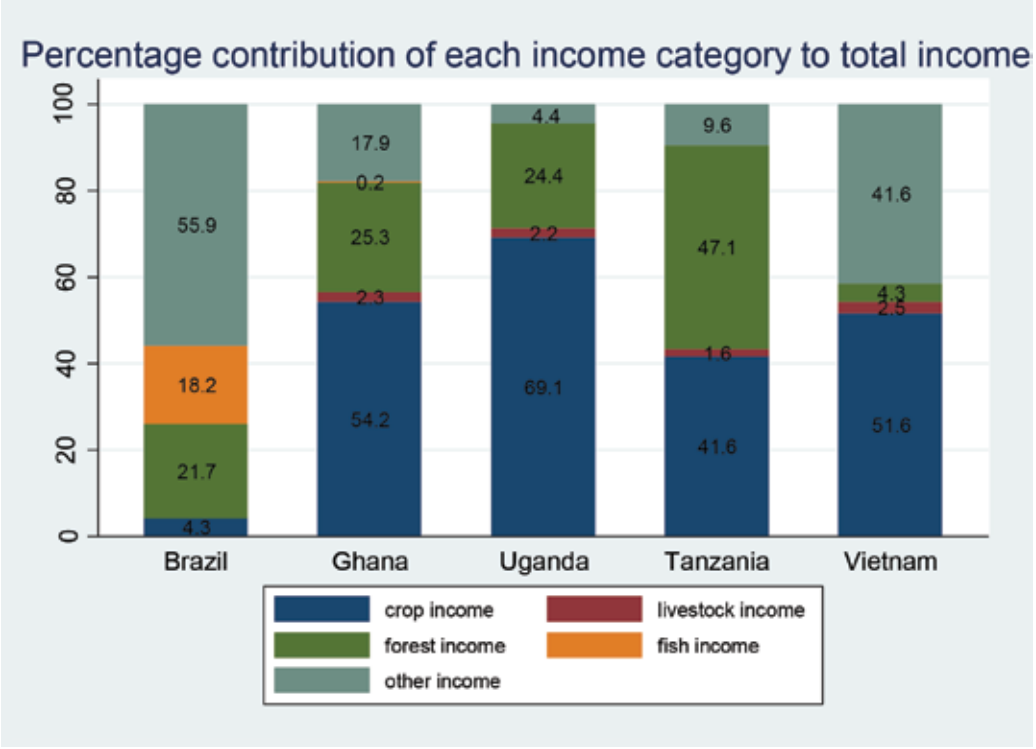


Figure 4. Breakdown of household income



Agriculture

Agriculture was a mainstay across all pilot areas except Brazil (see Figure 4), and generally the poorest households are also the ones most dependent on it. In Viet Nam, for example, agriculture accounted for around 20 per cent of gross domestic product (GDP) in 2010, and two-thirds of the workforce is engaged in agricultural activities (Do and Iyer, 2008). The most common crops in the Vietnamese pilot areas are tea and coffee, with cashew and acacia experiencing a recent surge following market price increases. Recent developments in forestry have also seen an expansion of rubber plantations, with future planning in the area also suggesting this will continue. Tanzania and Uganda are even more reliant on agriculture – in Tanzania, agriculture accounts for roughly half of GDP and 80 per cent of the workforce is engaged in agriculture, mainly small-scale food crop production.[5] Agriculture is the foundation of the Ugandan economy as well, but in addition to foodstuffs it also produces cash crops such as coffee, cotton, tea and sugar. Ghana is also heavily dependent on agriculture – in this case, the agricultural sector is dominated by the cash crop cocoa, which was the main crop grown in the pilot areas.

Important crops in pilot areas

In **Brazil** cassava and banana were the two most important subsistence crops, with sugarcane, yams and cassava being the most important crops produced for the local markets.
In **Viet Nam** tea, coffee, cashew and acacia were important crops.
In **Uganda** maize, cassava, millet, beans, sweet potatoes, bananas and groundnuts were important subsistence crops – cassava being the most important – with tobacco and upland rice making up the main cash crops.
In **Tanzania** maize was the dominant crop grown by almost every household, but also grown were rice, millet, bananas, tomatoes, cassava, sunflower, pigeon peas, sweet potatoes, beans and a variety of vegetables.
In **Ghana** cocoa, plantain, cassava and maize were the most important crops cultivated, with cocoa being the pillar of the household economy.
(See Table 1)

5. http://www.tanzania.go.tz/agriculture.html

Off-farm income generating activities – including bricklaying, commerce, wage labour and working as health agents – were important alternative income sources in Brazil. Fishing, forestry (including harvesting of non-timber forest products) and hunting were less important in monetary terms, as was livestock keeping. In Viet Nam, alternative sources of income included payments for forest protection through various government schemes (see the Viet Nam country and PRA reports for details), and working as hired labour on plantation farms or as construction workers. In Tanzania, forests offer an important source of income, particularly through the making and selling of charcoal. Forest-based income is the second most important source of income in Tanzania, representing roughly a third of households' total income. Hence, of the countries under study, Tanzania appears to be most dependent on forests as an active income source. Non-farm income was third in importance, making up around 16 per cent of the average household's total. The households with the highest overall income tended to use a substantially greater amount of all forest products as compared to those with the lowest income, except for non-timber forest products (NTFPs). There were significant differences between villages in the pilot site as to the importance of environmental and off-farm income, suggesting that they had quite different livelihood strategies depending on whether they were close to forests or urban centres.

Table 1. Importance of crops[6]

Country	Crops		
Brazil	Cassava (200)	Banana (43)	Pineapple (14)
Viet Nam	Coffee (506)	Tea (113)	Cassava (85)
Tanzania	Maize (141)	Beans (98)	Simsim (71)
Uganda	Tobacco (269)	Rice (241)	Millet (126)
Ghana	Cocoa (2,443)	Plantain (118)	Vegetables (38)

Given the high dependence on agriculture in countries other than Brazil, one would expect there to be relatively high rates of clearance. However, as Figure 6 below indicates, more than half of all respondents in Ghana, Uganda and Tanzania said that they were 'not dependent at all' on forest clearance. These findings should be treated with caution, though, as people felt inclined to under-report clearance. Judging from the figures alone, it appears that in all countries except Uganda (which reported very little dependence) roughly one out of five reported being dependent on forest clearance; in Tanzania the figure was roughly one in four. In Viet Nam, over 45 per cent (orange and green fields in Figure 6) were either quite dependent or very dependent on clearing forests for the expansion of agriculture – clearance was a serious problem as observed by the country team. Focus group discussions in Viet Nam revealed a high incidence of encroachment and illegal felling, people even hiring help to clear the land to make way for tea and coffee plantations. The total loss of forest as a result of land conversion was estimated to be about 2,400 ha over a period of 10 years. Moreover, provincial land-use planning decisions in 2008 resulted in a large area of degraded forests being converted to non-forestry purposes.

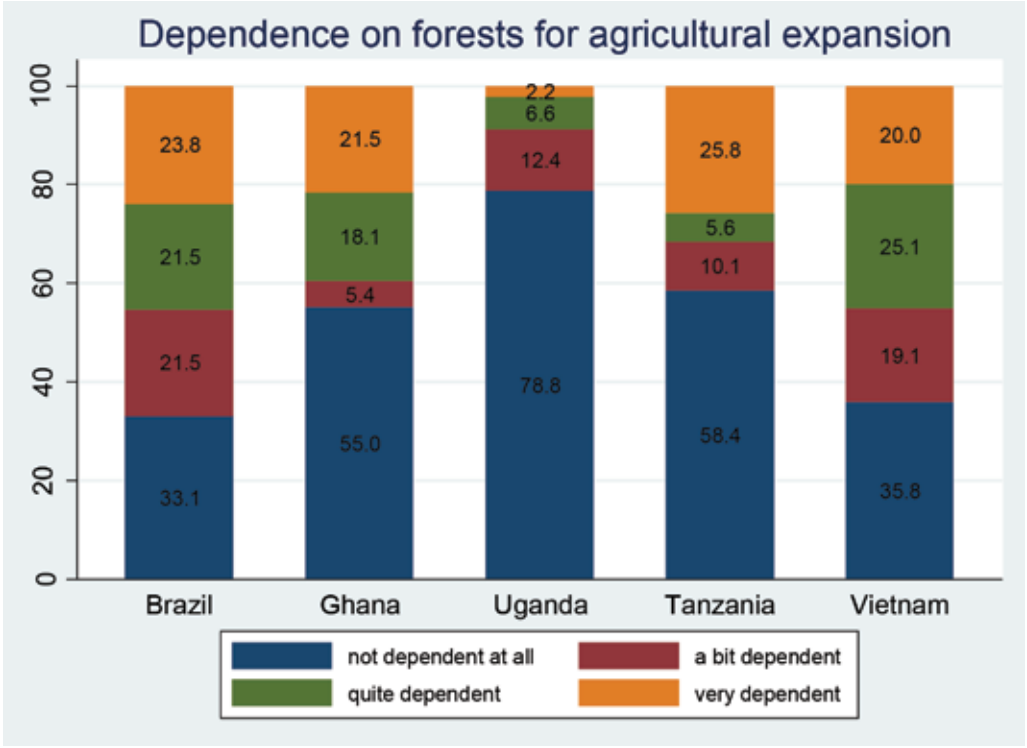
Uganda had the lowest number of respondents declaring that they were dependent on clearance and correspondingly the highest number reporting that they were not dependent at all, roughly three-quarters of respondents. However, the country team observed encroachment along the forest frontier, which was not reflected in the surveys. For instance, it was evident in several cases that rice and tobacco were cultivated in newly cleared forest frontiers. Hence, contrary to

6. In order of average income (USD) from each product for each country.

what respondents reported, it seems that land clearing for agriculture and harvesting of poles for constructing tobacco barns do represent clear threats to the forest in the Ugandan pilot areas. In Ghana, cocoa farming has shifted to the high forests due to the deterioration of soil fertility in other areas. There is little land left under fallow, and there is increasing pressure on the forest for the expansion of cocoa production – yet few households reported clearing land.[7]

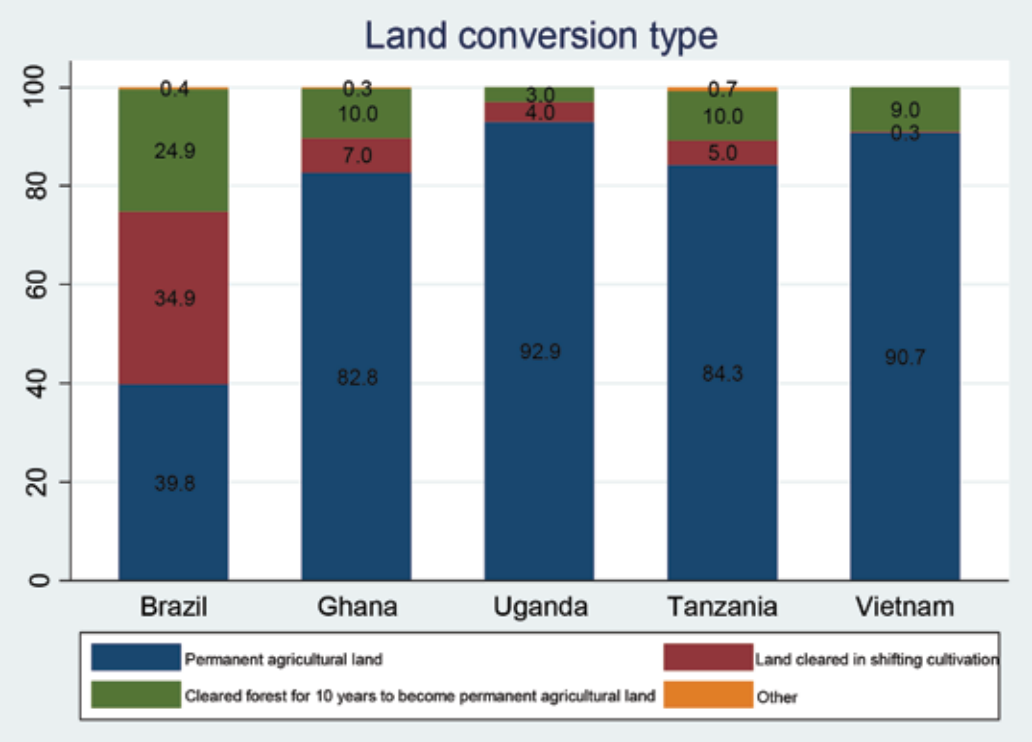
Generally, across all pilot sites, most land clearance was done more than 10 years ago according to responses to the survey (see Figure 7), whereas the responses to the other categories of clearance seemed to indicate that these forms of clearance were less important, except in Brazil, where over a third responded that they did clear land for shifting cultivation. However, the caveat that these results should be treated with caution bears repeating, as both focus group discussions and country team observations indicated a high degree of under-reporting.

Figure 5.



7. Moreover, adopting intensified farming methods in order to stay on the same piece of land was perceived by most farmers as expensive and agricultural production therefore mainly took place on marginal lands.

Figure 6.



Forests and energy

Dependence on forest products varied quite markedly in the different pilot areas, with Tanzania's being the most dependent, and Brazil's apparently the least. Table 2 provides an overview of the most important forest products in terms of value. However, this does not mean that 'poles' are more important than 'fuelwood' in the Tanzanian case, for instance, but rather that it is the most valuable product in monetary terms. But forests are clearly a very important source of fuelwood in all countries except Brazil.

Table 2. Importance of forest resources[8]

Country	Forest resources		
Brazil	Fuelwood (943)	Poles (512)	Charcoal (23)
Viet Nam	No income from any forest resources		
Tanzania	Poles (125)	Charcoal (41)	Fuelwood (19)
Uganda	Poles (249)	Fuelwood (78)	Charcoal (3)
Ghana	Fuelwood (888)	Poles (192)	Charcoal (142)

Energy is therefore a key issue with regard to the implementation of REDD+. Table 3 below offers an overview of the relative importance of alternative energy sources in each pilot site.

8. In order of average income (USD) from each product for each country.

Table 3. Most important source of energy

Country	Most important source of energy (% most answered option/total HH interviewed)
Brazil	Gas
Viet Nam	Fuelwood collected from area that will become REDD+ pilot forest
Tanzania	Fuelwood collected from other forested landscapes (non-REDD+ area)
Uganda	Fuelwood collected from area that will become REDD+ pilot forest
Ghana	Fuelwood collected from area that will become REDD+ pilot forest

The main source of energy in the Brazilian pilot area was gas, largely due to its relative proximity to Manaus and the ease of access, and the relative affordability of gas. Interestingly, even though most of the households in Viet Nam were connected to the electricity grid, fuelwood remained an important source of energy for cooking, largely due to cultural preferences according to the responses elicited in focus group discussions. When exploring alternatives, there is a need to pay attention to issues of availability, affordability and appropriateness. In Tanzania, charcoal played a particularly important role as energy source. It is used largely by the better off, but charcoal production is also an important source of income for the less well off. Kerosene was a secondary source of energy in some villages, used mainly as a source of light. Although there is electricity in a couple of villages, few households have managed to connect because of high connection charges and tariffs.

In Tanzania, the electricity subsector contributes only about 0.6 per cent of total energy consumption,[9] and less than 15 per cent of the country has energy access – in rural areas, access to electricity is a meagre 2 per cent.[10] Hydropower is the cheapest source of electricity, but has experienced a steep decline in recent years, partly due to the uncertainty caused by droughts, which has resulted in thermal power being on the rise.[11] In Uganda, the majority of households rely on prospective REDD+ areas as a potential source of fuelwood, and over half of the surveyed households had no access to alternative sources of energy for cooking – electricity was hardly mentioned. Hydropower schemes have been plagued by problems (large environmental impacts, forced resettlements) and the moves to exploit the countries oil resources are making slow progress partly due to difficult relations with neighbouring countries and an unstable political climate. In Ghana too the majority of households relied on fuelwood as the most important source of energy, while electricity accounted for less than 10 per cent and liquefied petroleum gas (LPG) only around 2 per cent. Ghana still relies heavily on hydroelectric power, which makes up 80 percent of total installed capacity, with thermal power sources in the main accounting for the rest. Ghana's expanding economy and growing population implies a growing energy challenge as well – the government, through the Ministry of Energy in January 2009, is set on increasing power generation capacity and also make electricity accessible to every part of the country by 2020.[12]

8. In order of average income (USD) from each product for each country.
9. http://www.tanzania.go.tz/energy.html
10. http://www.esmap.org/esmap/sites/esmap.org/files/4b.%20TANZANIA_Innovation%20in%20Delivery%20of%20Services.pdf
11. See http://www.nve.no/Global/Seminar%20og%20foredrag/Energidagene%202009/Sesjon%207/NVE%20-Renewable%20Energy%20and%20Climate%20Change-%20Case%20Tanzania.pdf) for an overview of the Tanzanian energy situation.
12. http://www.ghana.gov.gh/index.php/information/speeches/12469-meeting-ghanas-energy-needs-current-status-and-preparations-for-the-future-a-speech-by-mr-goosie-tanoh-as-guest-speaker-at-the-3rd-ghana-policy-fair-dialogue-series-)

A number of issues emerge from these observations. The heavy reliance on fuelwood in four out of the five countries suggests that there is a need to pay much more attention to larger policy issues of energy supply and the potential for alternative energy sources. There are potential but largely untapped renewable energy resources in most countries, which could be harnessed for power generation and access expansion. There could be significant scope to explore alternative energy opportunities, such as biogas or other small-scale renewable energy solutions – this would have the added benefit of reducing respiratory-related health problems that are often associated with in-house fuelwood burning. However, a challenge is the often quite entrenched resistance to changing long-held, often culturally rooted practices, as observed in Viet Nam and also Tanzania. But some high-flying campaigns are pushing forward (for example, Hilary Clinton's campaign for efficient stoves, see http://www.guardian.co.uk/commentisfree/cifamerica/2010/sep/21/hillary-clinton-clean-stove-initiative-africa). Nevertheless, it is necessary to be cautious about 'hyping' one particular solution over others, and some would argue that such efforts are examples of 'palliative' economics (see e.g. Reinert, 2007). There is also a need to more explicitly link households' existing coping strategies in terms of securing energy supplies to national energy policies. Households are not potential passive consumers of energy services but actively engage in securing their own energy dependence; rather than relying solely on fuels bought in markets, households in rural areas adopt a strategy of both gathering fuelwood themselves and buying from local markets. In many rural areas, households still depend solely on fuelwood that they collect.

Having said all this, it is important to underscore the need to consider the whole picture. Looking at rural communities in isolation as comprising the main drivers of deforestation in terms of fuel consumption risks missing the demand for biomass fuel from expanding urban areas. In Tanzania, for instance, urban households still prefer charcoal as the main source of cooking fuel (and even in the capital, Dar es Salaam, only 50 per cent of households are connected to the electricity grid). There are also cultural issues, as already mentioned, such as the preference to use particular sources of energy rather than others, as these are considered better or more efficient. Understanding such cultural preferences is thus important in addressing energy needs in rural areas.

Livestock production

Livestock production was of minimal importance in Brazil and Ghana, slightly more important in Uganda and Tanzania where goats, pigs and cattle dominated but chickens were also common,[13] and of significant importance in Viet Nam: here cattle and buffaloes are important households animals, as well as poultry and pigs. Buffaloes are considered a prized asset for many Vietnamese households as they provide a means of ploughing land, provide fertiliser from manure and are also an important status symbol. Livestock were mainly kept as draught animals and for food security purposes. Rather surprisingly, only six per cent of households in the Vietnamese pilot area owned a buffalo. In Tanzania, livestock, especially cattle, are quite important. Livestock production is generally dominated by two ethnic groups, the Maasai and Sukuma, but these ethnic groups were hardly represented in the surveyed villages. Few villagers kept livestock, citing disease (in particular tsetse flies) and cultural factors, as well as fear that keeping livestock would increase already existing conflicts between farmers and herders, which are exacerbated through poor land-use plans, poor institutional structures and insufficient land.

13. Chickens were highly prized for their supply of eggs, meat and quick cash in times of need.

Constraints to production

Most important production constraints

Brazil – unfavourable sandy soils, transportation problems
Viet Nam – lack of capital, fertilisers, scarcity of land, limited knowledge
Tanzania – droughts and floods, pests and diseases, lack of capital
Uganda – shortage of family labour, lack of capital, health problems
Ghana – lack of capital, land scarcity, marginally productive land

In most countries, households experienced problems to varying extent that constrained their production potential. The problems included unfavourable soil conditions and marginally productive land (Brazil, Ghana), seasonal events such as droughts and floods (Tanzania),[14] pests and disease outbreaks (Tanzania, Ghana), lack of fertilisers and other inputs (Viet Nam, Tanzania), lack of capital (Viet Nam, Tanzania, Uganda, Ghana), transportation difficulties (Brazil), scarcity of land (Viet Nam, Ghana),[15] lack of knowledge (Viet Nam), lack of family labour (Uganda), poor health (Uganda) and crop raiding (Uganda). Whereas about half of households in Brazil reported having problems, almost all households in Viet Nam struggled – in their case, the lack of capital was cited as a key constraint. Though there are credit schemes and the opportunities of getting loans from banks, people are generally risk-averse with respect to borrowing money for capital investments. In the Ugandan pilot areas, there was increased food insecurity, especially during the months of July to October, which was attributed to the fact that most of the farmers sell off all the food they produce to obtain cash for purchasing other goods and assets. Agricultural inputs such as improved seed and fertilisers for tobacco growing were used to a certain extent, but drought, pests and diseases contributed to food insecurity. There were no credit institutions within the pilot areas, but a Savings and Credit Cooperative at the sub-county level. In Ghana, the main problem reported was that the lack of collateral means people have to turn to local money lenders who charge very high interest rates, but the need to move agricultural production into less fertile areas once productivity declined is also a major issue.

The implementation of REDD+ will also constitute a production constraint, as it will impose restrictions on the expansion of agricultural areas. Given the prevalent lack of access to fertilisers and other means of improving productivity, and the current trends of expansion into forest areas, it is clear that REDD+ will constitute a major restriction on people's production possibilities. It is therefore necessary to explore existing ways of improving productivity other than expansion: improved cropping techniques, fertiliser application, terracing, zero tillage, mulching, crop rotation, agroforestry systems, and so on. However, tradition, culture and lack of knowledge will contribute to making such changes a long-term effort, and it might not be possible to achieve the same levels of production on smaller areas even with improved agricultural practices. Great care needs to be taken to chart how such restrictions will impact on people's livelihoods, and in finding alternative means of sustenance.

This overview of constraints provides a basis for thinking about how individuals and communities could be compensated for loss of forest access and changing land-use practices. Drawing on the Vietnamese case as an example, it seems prudent to consider disbursing direct payments in small quantities over time, to compensate for the prevalent risk aversion and paucity of capital. There is also a sound case for providing in-kind compensation such as access to fertilisers and improved extension services, both in terms of coverage and quality of information, as lack of input and knowledge were other important constraints. Scarcity of land is another important factor raised in focus group discussions, as well as lack of knowledge in terms of agricultural production methods and lack of markets for their products – there used to be a tea processing factory in the area, but this is no longer in operation (see Viet Nam PRA report

14. Droughts and floods not only affected crops, but also infrastructure such as roads and bridges, making it even more difficult to transport produce to local markets.
15 In Ghana, lack of land and marginally productive land were probably under-reported as people did not want to indicate that they were encroaching on forests.

2011 for details). In other countries, Tanzania and Uganda, for example, people were much more geared towards community-wide initiatives rather than individually-based compensation. Again, finding ways that will help satisfy the fundamental necessities of securing enough food and energy are of key importance in these areas, as well as exploring alternative income-generating activities that might provide supplementary income to enable households to purchase basic foodstuffs and other items to complement the mainstay of subsistence agriculture. The project will study more in-depth the preferences and feasibility of different kinds of compensation alternatives in the various pilot sites, using focus group discussions on preferences, opportunity cost analysis and choice experiments.

Trends in living conditions

An attempt was made to assess the trends in living conditions that people in the pilot areas had experienced over the last five years by asking them to what extent they considered their income levels to be sufficient to cover their needs, how well off they considered themselves to be currently as compared to five years ago, and whether there had been any shortfalls in income and what the major causes of such shortfalls had been.

Figure 7.

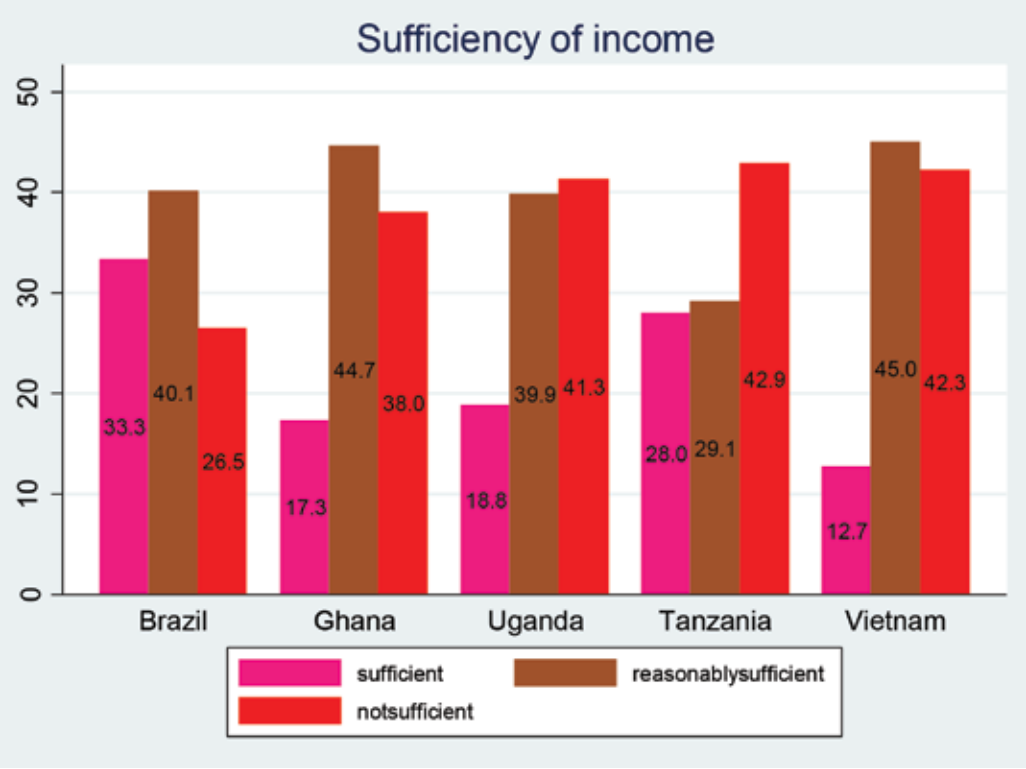
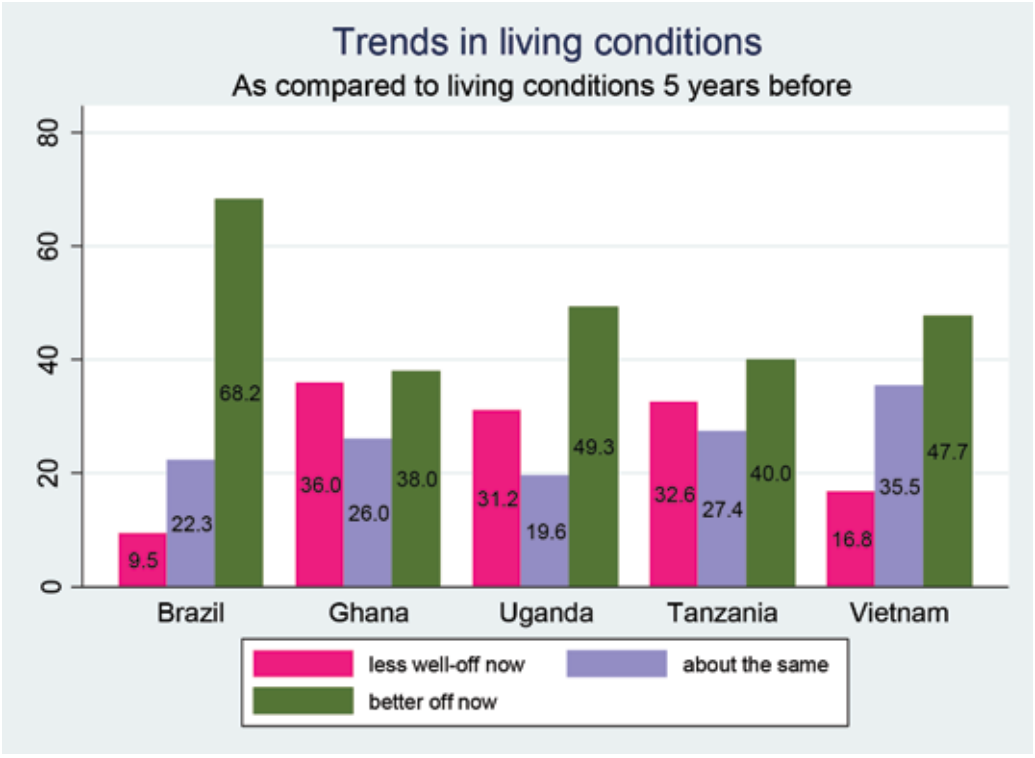


Figure 8.



Figures 4 and 5 give an impression of people's perceptions of income sufficiency, and trends in living conditions over time. More than 40 per cent of respondents in Tanzania, Uganda and Viet Nam regarded their income as insufficient, followed by Ghana with about 38 per cent. Interestingly, in the Tanzanian case, it was the group designated as the 'less poor' who most felt that their income was insufficient. Households in the Brazilian pilot areas were happier with their situation – more than 73 per cent reported that the family's income over the past 12 months had been 'reasonably sufficient' or 'sufficient' to cover what they considered necessities.

Interestingly, Brazil also had the highest proportion of people who thought they were better off now than five years ago: more than 68 per cent. In contrast, more than a third of respondents in Ghana, Tanzania and Uganda thought they were less well off now. In contrast to the regular financial support provided by the Brazilian state (and to some extent the Vietnamese), there is little state support in Uganda, Tanzania and Ghana. This lack of support may explain some of the trends, but otherwise trying to pinpoint the underlying reasons for these perceptions is fraught with difficulty as there are many factors at work that impact on sufficiency as well as shaping people's idea of what is considered 'sufficient'.

Three out of four households reported suffering income shortfalls in Viet Nam and Uganda, with roughly one in three households doing so in Brazil. Reasons for shortfalls included loss of wage labour, the establishment of protected areas, crop failures, the death or serious illness of a family member, droughts and floods, crop diseases, unreliable markets and price changes on goods and input factors, and land conflicts (see Table 4).

Table 4. Main reasons for income reduction in the pilot areas

Ranks (% most answered option/total HH interviewed)	Rank 1	Rank 2	Rank 3
Brazil	Loss of waged employment	Price changes on products and consumer goods	Serious crop failure
Viet Nam	Death/serious illness in family	Serious crop failure	Climate/drought/floods
Tanzania	Death/serious illness in family	Climate/drought/floods	Serious crop failure
Uganda	Death/serious illness in family	Price changes on products and consumer goods	Serious crop failure
Ghana	Death/serious illness in family	Climate/drought/floods	Serious crop failure

Tenure systems and forest management regimes

Tenure is an important issue in REDD+, as the nature of access to land and forests will shape mitigation activities and compensation practices. Land and forest tenure and access are complex issues, and the brief description in this report will not do justice to the nuances and multifarious dimensions of tenure and access. Tenure conditions in the pilot areas are shaped by the particular histories, modes of production, policies and power struggles that have played out there and thus cannot be adequately captured in simple categorisations. Nevertheless, an attempt is made to provide a brief overview to indicate the main features of tenure in each site. *Diversity* is a key word – the sites exhibited a range of different tenure regimes, where formal and informal systems overlapped, and often with distinct tenure systems for agricultural versus forest lands.

Forest and land tenure

Tenure systems are complex – high degree of legal pluralism.
Outright private ownership is rare – degrees of trusteeship and accommodation of customary practices more common.
Often separate tenure regimes for forests and agricultural land.

An interesting feature is that Brazil, Viet Nam and Tanzania all have various forms of 'trust' doctrines, where the land is either owned or held in trust by the state, whereas in Uganda and Ghana, the customary tenure regime is explicitly acknowledged by the state with respect to agricultural land. In the case where the land is held in trust, there are varying perceptions of use rights that are allocated to individuals, households, communities or companies.

As with land tenure, the practices relating to forest use and management were quite diverse across the pilot areas. As indicated in the section on energy sources, one of the most important uses of forest is for the gathering of fuelwood. Perhaps surprisingly, non-timber forest products (NTFPs) played a negligible role in the Brazilian pilot areas, but being of greater importance in Tanzania, Ghana and Uganda (see the Appendix for an overview of the relative importance of different NTFPs). In Ghana, the collection of NTFPs contributes significantly to household nutrition, food security, health and income especially during the off-farm season, and households in forest communities supply NFTPs to large markets without restrictions – for example, plant medicine is being traded on local markets (see Ghana country report for more details).

With respect to management and governance issues, there were protected areas in all the pilot sites except Ghana, and though most households claimed to be supportive of such protection measures, focus group discussions and individual interviews revealed that this support in many cases only ran skin deep. The main problem – particularly in Brazil and Tanzania – was that people did not feel they had been adequately consulted about the implications of establishing protected areas and national parks. While it may be observed that where the communities felt that they were able to exert more control over the access and use of resources, there was also greater commitment to sustainable practices and conservation, but this in turn hinged on the levels of trust and the make-up of the village, as illustrated in the Tanzanian case below.

Brazil

Tenure regimes in Brazil are complex.[16] Basically all of the land in the pilot areas is state owned, but local communities are acknowledged as having a right to live on the land. Two broad categories of informal land-use rights were identified: individual rights, in which each family's landholding was defined informally within the community, and community-based rights, where communities hold rights in common and managed the forests in common. The latter system was the case only for the indigenous peoples living within the study areas. Lack of formal titles was not perceived to be a major problem among interviewed households, although their right to live in the area was not formally recognised in law, they did not fear eviction.

The State of Amazonas intends to formalise and regulate land through issuing households with a certificate of temporary use, a Grant of Real Right Usage (CDRU). Such rights will be issued for forested land parcels, of roughly the same size, about 40 ha, and it will not be possible to sell or otherwise transfer such rights. The CDRU will be issued for an initial period of 10 years, during which the holder will have to prove that she or he is able to preserve 80 per cent of the area. After the period has passed, and it can be proven that the land has been used appropriately and in line with the conditions that apply, the land holder will acquire a formal legal title of ownership. However, progress with respect to issuing such temporary titles has been very slow, and few households in the area have one.

The management of forests in the pilot area, which is a protected area, is a state responsibility, involving managing, monitoring, control and surveillance. The consumption of timber is limited to two trees per family per year and requires authorisation from the State of Amazonas; marketing of forest products such as timber and lianas is strictly prohibited. But there are no restrictions on the use of NTFPs, hunting or fishing for consumption. There is thus a degree of familiarity with forest access restrictions and an understanding of the necessity of forest protection. Though people tended to be generally supportive of protection, support was less in the control areas where people were more dependent on forest resources.

The communities interviewed felt that they were not sufficiently involved in the rule-making process concerning forest management practices, and there was a prevalent feeling that their interests were not taken into account. Due to heightened supervision and sanctions, there has been a reduction in forest use, and in one village, the comment was made that rules had an enormous impact on community life; they depend on the forests for their survival and thus end up being forced to act illegally. There was also a belief in some villages that biodiversity was more important than people – 'the capybara and manatees are protected but not the human being'. The ban on marketing of wood and lianas was perceived as having a major impact on income, but this was to some extent alleviated through increasing government subsidies, such as the *Bolsa Família* and security through the fishing enclosures. Residents emphasised that communities need the forest resources to live and often the rules are too inflexible. They are particularly not happy about the use of fines and occasional violence – cases of abuse of power and threats from state inspectors and federal police have been reported, but this seems to be more a problem in the control areas that are more dependent on forest resources than the pilot areas.

16. See e.g. http://www.rightsandresources.org/documents/files/doc_4988.pdf for details on the different resource use systems in Brazil.

Viet Nam

Viet Nam was decollectivised in 1988, and the 1993 land law gave households the right to inherit, transfer, exchange, lease and mortgage their land-use rights. This was implemented by issuing land titles, or Land-Use Certificates – 'Red Books'[17] as they are known in Viet Nam – to all households, and represented an extensive land titling programme, the largest rural titling programme in the developing world (Do and Iyer, 2008). The survey found that the majority of households in the pilot areas – 92 per cent – had a Red Book for agricultural land, i. e. a lease from the state, which they perceived as *de facto* outright ownership. Other arrangements included sub-leasing land from state or non-state companies.

Whereas households hold agricultural land, economic organisations tend to control forest resources. In the pilot areas of Loc Bac and Loc Bao communes, for instance, economic organisations such as state operated forest companies are responsible for resource management decisions and resource use of forest resources, such as the Loc Bac Forestry Company, whereas People's Committees manage non-agricultural and non-forestry land (for example, for residential purposes). Vast areas of forest in the pilot areas had been subject to considerable exploitation, in part due to government policies to increase the area of crop lands and plantations. However, there are still areas of forests that are classified as 'Protected Forest' and various government policies have been established to provide incentives for reforestation and forest protection. In Loc Bac, for example, there is the Cat Tien National Park, which is in charge of more than 5,000 ha of forests that have been allocated a particular use, typically for biodiversity conservation or spiritual values.

About three-quarters of surveyed households knew about these forest protection measures and about half were very supportive of such measures. Non-supportive households cited their desire to obtain more land for agriculture as the main reason for their lack of enthusiasm. The majority of respondents – roughly 86 per cent – reported that some protection measures had been developed by the communities themselves, the most common being the establishment of safeguards to protect against illegal logging. Yet the success of these measures is questionable, with focus group discussions and field observations in the pilot areas revealing that illegal forest encroachment and logging frequently occur.

With respect to people's perceptions of their influence on forest management rules, around 58 per cent reported that they had a strong influence through village assembly meetings, which would get communicated to the commune forestry boards, whereas 39 per cent said that they had not taken part at all. There is a commune forestry board in each commune, on which sits commune forestry officials and forest rangers, and the board works closely with other government offices and forest holders in managing forests in the area. A forest company contracts local households to patrol forests on a couple of days every three months for which they receive a small honorarium. However, these patrols are not sufficient to protect forests from illegal activities and the general perception among households is that they are not being properly informed about contract conditions. (For more specific details on the tenure situation and the complex management practices in Viet Nam, please see the section on findings from the focus group discussions (2011) in the Viet Nam country report.)

17. There are three types of Red Books – one for residential areas, one for agricultural land and a third for other purposes (such as municipal infrastructure, etc.).

Tanzania

The Tanzanian system of land and forest tenure too is complex. The legal basis for land tenure derives from two laws that were passed in 1999, the Land Act and the Village Land Act. Under these laws all land in Tanzania is public land held in trust for the people by the president. At the same time the aim is to formalise traditional land tenure practices – currently, all land within village boundaries is under the auspices of the village council, which is supposed to give out and set aside land. The power to designate, adjudicate and modify land tenure status is delegated to the Commissioner for Lands. The laws recognise three categories of land; namely Reserve,[18] Village[19] and General.[20] In the pilot areas, 79 per cent of respondents said that their agricultural land was individually held,[21] 20 per cent was held in common, whereas only 1 per cent of land was listed as being state owned with no local use rights attached. The Kilosa district experiences high levels of land conflicts between sisal/cotton plantations and local communities, as well as restrictions imposed by the Mikumi National Park and other conservation areas. According to Tanzanian law, access and use of park areas is severely restricted. Villagers are not supportive of this kind of protection, citing poor compensation during gazetting of the parks, poor compensation in cases of wildlife destructions, and not realising benefits from tourism activities that take place around the parks.

With respect to forests, District Forest Officers are not able to enforce district and national rules on forest product use licensing and permits, partly due to a chronic lack of staffing. Even though villages are supposed to follow national and district by-laws in accordance with the Forest Act, access is still mostly regulated through informal practices. The survey indicated that although the villages under study had village by-laws that govern forest management, only one village in fact did have a forest that could be characterised as being under a community-based forest management (CBFM) regime. Generally, more than half of the respondents reported that their use rights were limited to some particular forest resources. Focus group discussions brought to light that people are not satisfied with the rules and regulations governing forest reserves, and as a result illegal activities and arson do happen – often as a means of expressing community grievances. This was in contrast to what had been reported in the surveys, and underscores the need for focus group discussions and interviews to supplement surveys, which are often liable to suffer from bias. Discussions showed that in villages where village forest reserves have been established under community management initiatives, portions of the forest had been demarcated, where communitities could harvest forest products – NTFPs and dead wood for fuel – and conduct non-destructive activities like rituals and beekeeping. In some cases harvesting of building materials, including poles and timber, is permitted. In order to access the forests, community members need a permit granted by village environmental committees who are responsible for the management on behalf of the village council. Going into the forest to get wood for charcoal production seemed to be accepted behaviour.

Management practices varied considerably, not least due to the heterogeneous nature of the villages in the area. As earlier mentioned, there were 23 different ethnicities in the study area, with five groups in particular being dominant. There were thus big differences in the make-up of villages, with some consisting almost entirely of one ethnic group while others comprised a mix; there were also significant differences in terms of the history and nature of the establishment

18. Reserve refers to conservation areas, game reserves and national parks.
19. Village councils are required to divide village lands into three categories: communal land, which is shared by a large number of individuals within the village and may include grazing, pastures, forests or other areas with natural resources; occupied land, which is used for housing, cultivation and businesses, and managed by individuals or families; and future land, which is set aside for future use by individuals of the community.
20. General land refers to all public land, which is not reserved land or gazetted. This type of land category is managed by the Commissioner of Lands, on behalf of the central government. Where the government fails to manage general lands, it is de facto open access.
21. Village land is guided by the Village Land Act No.5 and states that individuals, family units and associations which are ordinarily residents in the village can register for what is called Certificate of Customary Occupancy, which may be held indefinitely. If the village council allows these certificates can be sold (or given) to people, non-village organisations or corporations, but only if it is in the best interest of the villagers. In addition, granted rights of occupancy, or deeds to land, can be given in all categories of land, but is bound to a designated lease-period maximum og 99 years (Dyngeland, and Eriksson, 2011). *(Not) A REDD Light District? Implementation of a REDD Programme in Kilosa, Tanzania.* Department of International Environment and Development Studies. Aas, Norwegian University of Life Sciences.

of villages. Such factors will have important implications for management practices, as they will affect the levels of trust and the types of rules created.[22]

All the villages in the pilot area had been through a village border demarcation, but had yet to go through a formal land-use planning exercise determining what belongs to whom and for what purpose. There is a lack of clarity with regard to who has the right to what, which gives rise to conflicts over land and also less investment. For instance, there is ambiguity in terms of the distinction between village land and general land, which exacerbates conflicts, particularly between farmers and pastoralists. In addition to the lack of knowledge within the village about the relevant laws and policies, two other major factors contribute to the absence of coherent management practices: the great heterogeneity of villages, and the patterns of migration; which prevents the build-up of a sense of unity and shared norms and values critical for sustainable practices. Many people did not actually live in the village, but only came there to extract forest products and then left for town again. Another point to note is that those involved in forest extraction activities are often the ones with the highest income, while at the same time the poorest have a larger fraction of income from the forests.

Uganda

In Uganda the four villages in the pilot area were situated close to the Ongo Community Forest, which they used on a regular basis. Villagers saw the need to form an association to regulate use – the Ongo Communal Land Association (CLA) was thus established in 2000 following the provisions in the Forestry and Tree Planting Act 2003 and the Land Act in 1998, in which all community members were requested to register. The forest has suffered a heavy degree of degradation compared to five years prior to the baseline survey being carried out; members gave the main reasons as the cutting of trees by outsiders and cultivation within the forest. The CLA has formulated by-laws for forest use, and is expected to allow non-destructive use of the forest, such as bee-keeping and regulated harvesting of non-timber forest products (vegetables, wild food, medicinal plants) and firewood, permitted only on specific days, and organises forest patrols to ensure that the rules are kept. Villagers are permitted to harvest poles for house construction or repair twice a month, under supervision. Other than that, no harvesting of immature trees or timber trees is allowed. The committee has also planted trees to clearly demarcate the forest boundaries, some of which are non-existent due to frontier clearance for cultivation.

Villagers reported that they feel obliged to abide by the management rules and therefore try to follow them. Monitoring is mainly carried out by the elected/appointed members of the committee, who regularly patrol the forest boundary. Several sanctions were reported, ranging from being given a warning for the first offence, compulsory participation in beneficial activities such as enrichment planting for a second offence, and habitual offenders are made to buy seedling and replant the forest. However, the respondents highlighted the dishonesty of the management committee as they apply the sanctions selectively. Further, without an ownership document, regulation of access and imposing sanctions on trespassers is difficult to enforce. Many villagers expressed a desire to change rules and make them stricter, for example not providing permission to cultivate within the forest boundaries to anyone (this has been a source of conflict), no timber harvesting without a permit, and allowing the committee leadership to serve only one term. These issues came out during the focus group discussions, whereas the survey indicated that around 70 per cent of the respondents were very satisfied. The majority of respondents reported that they had a strong influence on the governance and management of community forests through village assembly meetings, but this was clearly village-specific.

22. For instance, in the village of Masugu people could do more or less as they pleased with regard to forest use, and as a consequence the forest base was heavily degraded. In contrast, in Lumanzi village, access to forest resources was highly regulated, based on a common set of informal rules and values rather than dictated by formal laws at the district level. The rules included the prohibition of taking live trees and not going into the thickest parts of forest with a machete. There was quite a well-organised system of enforcement and sanctioning – a village committee would patrol for illegal use and people would be punished according to preset measures by the village council. Self-reporting of incidents would incur smaller fees than if reported by someone else. Roughly 98 per cent reported being very satisfied with this system of informal practices – see Dyngeland and Eriksson (2011) for details.

In Uganda, there are four land tenure regimes namely Mailo,[23] Freehold, Leasehold and Customary, see e.g. Tukahirwa (2002) for details. Almost all farmland in the pilot area – 98 per cent – was under customary tenure, but individually held and passed on from generation to generation through the patriarchal system; 2 per cent of the land was reported to be owned by the state, in the form of the Budongo Reserve. Under the customary setting, individuals/families control parcels of land over which they can exercise several bundles of rights: using, improving, bequeathing, renting and disposing. Individuals do not have title deeds but are expected to acquire certificates of ownership/occupancy as provided for in the Land Act 1998.

The pilot site contains a community forest and the Budongo Central Forest Reserve (CFR). While the latter is under the management of the National Forestry Authority, the community forest is accessed and used by the community members and these activities are supposed to be managed and controlled by a parish-level managed committee with members elected from all the villages, but as they do not yet have the legal ownership documents (under processing by the District Land Board) the management committee is highly constrained in enforcing the rules and regulations on the access and use of the forest resources (see the Uganda country report for more details.)

Ghana

Ghana too has a complex system of land and forest tenure, which is subjected to a system of legal pluralism. Broadly speaking, chiefs control all land within their territorial borders through the institution of stools or skins, which essentially refers to the chief holding the community's land in trust for community members (see Amanor and Ubink, 2008, for a discussion on the legitimacy of chiefly land governance in Ghana). There is, however, a distinction between land and trees, in the sense that the traditional authorities control land, whereas the state controls forests, including what is termed 'economic' trees on agricultural land, and the management of forests and economic trees is delegated to the Ministry of Lands and Natural Resources. But the distinction between agricultural land and forests and management authority is not clear-cut, and confusion exists around the extent of authority of traditional leaders versus state management, and the government has started a policy review through the Ministry of Land and Natural Resources.[24]

Unclear property rights, particularly regarding forests on stool land, serve to complicate management. The institutions and coordination of organisations in relation to forest management is complex and weak, leading to illegal activities in the forests. (see Sambian, 2012, for details). It appears 'semi-legal' for landowners to engage in forest clearance for agricultural expansion, but illegal when trees are felled for commercial purposes. Forest management committees were selected by village leaders to assist forest officials in forest management but the selection of the forest committee members in the communities was not transparent, as elites exercised their influence in order to protect their interests. Currently, there is improvement in community involvement in forest management in some villages as NGOs are facilitating meetings to discuss forest-related issues. Perceptions and attitudes towards forest management practices varied, but the majority said that they were satisfied. This contrasted sharply with findings from the focus group discussions, where it emerged that in some villages there was no proper enforcement of rules: forest patrols were not effective and there was low community involvement in making decisions related to forest issues.

23. The mailo system arose out of the practice of colonialists giving vast tracts of land to notables and elite in the early 1900s. However, the people to whom this land was given often lacked the means to till them, hence they allowed tenants – *kibanja* – to settle the land for a fee. These tenants could not be evicted without due compensation. Thus, tenants have over time acquired strong rights to the land, including the right to bequeath, though only mailo owners have the opportunity to acquire formal title to the land. There are still a few mailo farmers around, but the majority of people settled on mailo land are tenants – see Place, F. and Otsuka K. (2000). 'Population Pressure, Land Tenure, and Tree Resource Management in Uganda', *Land Economics* 76(2): 233–51
24. The Ghana Forestry Commission (GFC) is the REDD+ implementing agency in Ghana.

Pre-REDD+ analysis

In this section, the focus is on understanding the extent of people's knowledge about climate change and how climate change is linked to forest management practices. We also look at people's expectations concerning REDD+ and their preferences concerning potential compensations.

Awareness of linkages between climate change and forests

Overall, there seemed to be a fair level of understanding of the relations between climate change and forests, though knowledge was patchy. In Brazil, for instance, around 37 per cent confirmed a level of awareness of the role of forests in climate change – but considering the educational levels of the interviewed households, this represents a reasonable awareness.

Awareness was slightly higher in Viet Nam, with roughly half of surveyed households saying that they were aware of the role forests play in climate change. Awareness was much more widespread in Tanzania, Uganda and Ghana, where the majority of households said that they were aware of the role that forests play in climate change. In Tanzania, most farmers associated changes in temperatures, precipitation patterns and disease outbreaks with climate change, and subsistence farmers were far more likely to notice climate change than large-scale farmers. Some farmers were aware of the risks that forest clearance might represent, such as causing streams to dry up, increasing soil erosion and declining soil fertility. In Ghana, many households attributed the drying-up of water sources, irregular rainfall patterns and changes in biodiversity to deforestation and climate change, and there was a strong perception that protection increased their long-term access to forest resources.

Incentives to stop deforestation

Most people had positive attitudes towards stopping deforestation and wood harvesting if induced to do so through the right mix of incentives and compensation. This was generally the case across all pilot areas, but there was a degree of caution present in most areas. For example, in Viet Nam, though households generally were supportive of forest protection, most were concerned that their forest-dependent livelihoods would be constrained too much by protection measures. In Tanzania, most people failed to give clear answers as they would first like to know the level of compensation. In Uganda, the households were positive towards compensation measures. Some of the reasons cited for agreement with the different compensation types were that forest protection is important and that compensation was seen as a way to improve local people's conditions as well as gaining access to more income. There was also a strong understanding that environmental conditions would be improved through reducing clearing (interestingly, cultural values played a negligible role in the Vietnamese case). Preferences for the types of incentives, and how these should be managed, differed in the various pilot areas.

Compensation measures

Households in Brazil argued that it would be difficult to fully compensate the use of forest resources through cash compensation only – hence, investing in alternative sources of income would be better than simply receiving cash. In Viet Nam, by contrast, households were much more positive about direct payments, for which there was a clear preference, but the creation of alternative job opportunities was also emphasised as being important. Interestingly, more

than three-quarters of households believed that a key issue as part of a compensation scheme would be whether the overall income of the village would be better off. Households in Tanzania and Uganda were much more opposed to direct cash compensation. In Tanzania, some of the measures suggested by farmers included support in establishing irrigation schemes, alternative cropping practices to suit the extreme variability in climate, and training and awareness campaigns. Some suggested creating crop insurance schemes and other kinds of financial support. Ugandan households also clearly favoured the provision of alternative sources of livelihoods and income opportunities, as well as the provision of better social services. Like the Vietnamese, the Ugandans were also concerned about the overall wellbeing of their community – over 80 per cent of the respondents believed that a key issue as part of a compensation scheme would be whether the overall income of the village would be improved. Households in Uganda suggested a range of different 'in-kind' compensation measures as an alternative to direct payments, for example, in the form of community services such as hospitals, schools and teachers' residences, protected wells, communication infrastructure and electricity, provision of inputs such as seedlings for woodlots outside the forest and enrichment planting; as well as small projects to provide alternative sources of income, such as ecotourism and small livestock rearing. These activities could be used to generate cash to purchase goods and commodities that would otherwise be obtained from the forest. In Ghana, social services were rated as important means of compensation, but a majority of respondents were also positive about direct cash payments (cf. Sambian, 2012).

Who should provide compensation?

In terms of who should be responsible for managing incentives and compensation mechanisms, the Brazilian households mostly pointed to government officials, village leaders and specially elected village committees. The main problem that could happen associated with these types of payments would be the diversion of funds, especially by the municipal administration; investments should be made primarily in infrastructure and technical assistance. In Uganda, the village members wished that the scheme be managed through a democratically elected team of caretakers for each in-kind investment. In Uganda, most households favoured a specially elected village committee taking responsibility for managing compensation, followed by NGOs and, lastly, government officials. In Tanzania and Ghana, households felt NGOs, followed by specially elected village committees would be the most suitable bodies for managing compensation programmes, rather than government officials and village elders. In Viet Nam, people generally preferred delegation of responsibility for the allocation of benefits to be entrusted to village heads, or to respected commune authorities or civil society organisations.

These observations could help to inform the type of benefit distribution system that would be most suitable for REDD+ activities in these areas. Attention needs to be paid to issues regarding the potential for corruption and payment equality – careful thought needs to go into the design of compensation distribution mechanism to avoid the pitfalls of elite capture and uneven and unfair benefit distribution. There is also a need to be aware of gender issues – for instance, in Uganda, the women expressed concern that if they were denied access to the forest due to the imposition of REDD+ restrictions, they would have nowhere else to collect fuelwood, and thus stated that they must be allowed to collect fuelwood in all planned compensation schemes. A key issue also relates to the impacts of REDD+ projects on land-use rights – this was an issue of concern in the Vietnamese households, who worried about the future status of their existing land-use rights.

6

Conclusions and implications for implementing REDD+

This report has tried to summarise some of the key findings from the country studies, based on the questionnaires, resource person interviews and focus group discussions. The challenges of gathering data in this way are many – surveys often produce bias, they don't capture nuances and local politics and power constellations, and they provide an historical snapshot of the situation in a particular area. While the resource person interviews and focus group discussions go some way in complementing the findings from the survey, these suffer from time and resource constraints. For instance, the tenure situation in all countries is much more complex than is possible to capture through such exercises, and ideally more in-depth studies should be carried out to map the dynamics of tenure regimes in each area. Moreover, carrying out surveys under such disparate conditions also poses other challenges, as each area has its own unique features, opportunities and challenges. Understanding people's livelihood opportunities and constraints also implies the need to understand not only the local context and histories, but also larger issues relating to relevant policies and support mechanisms and their lack, problems with corruption, lack of transparency, and so on. As a recent report states (Angelsen, Brockhaus *et al.*, 2012), while REDD+ might be a good idea in theory, it is fraught with challenges in terms of implementation. Despite these challenges, there are still some tentative lessons and general insights that can be highlighted based on this first explorative survey exercise. For REDD+ to succeed, the focus needs to be on what inequities have to be addressed and how, what drivers are at work and how should they be tackled, and what interventions should be put in place.

First of all, all pilots were characterised by people having relatively low levels of education. Most areas were remote from urban centres, had little access to schools and education materials, and very few opportunities of attending education beyond primary school. While people may live good lives without being formally educated, there was a presumption among many of the interviewees across the pilot areas that their lack of access to education and knowledge was a key constraint, not just in general terms, but also with specific reference to agricultural productivity. Therefore, making sure that access to education opportunities is increased should be a key dimension of REDD+. Not only should this be the case with respect to primary schools and increasing overall literacy and numeracy rates, but should be focused on more practice-oriented, field-based courses that are flexible enough to meet local needs as well.

Most communities were highly dependent on small-scale agriculture for their livelihoods, supplemented with some cash cropping; the exception was Brazil, where wage income, fishing and support from the state were more important sources of income. Most landholdings in the pilots studied were small, and given the difficulties experienced in getting access to fertilisers and gaining knowledge of improved cropping techniques, it became very clear that agricultural expansion and encroachment are key threats to forests. In Viet Nam, for instance, illegal logging to clear forests for tea and coffee plantations was a major problem observed by the country team, and encroachment on forests were observed to varying degrees in the other countries – though these observations were often contrary to what was reported through the surveys, underscoring the need for participatory observation and focus group discussion as supplements to survey techniques when mapping people's practices. When implementing REDD+, serious attention needs to be paid to how to deal with the trend of agricultural expansion. Local farmers mostly engage in expansion out of sheer necessity, and imposing constraints needs to be accompanied by appropriate agricultural policies as well as economic policies and incentives more generally, in

particular with regard to creating alternative livelihood opportunities. There is a need to review agricultural policies, step up support for fertilisers and other agricultural inputs and facilitate credit and market access, as well as considering other income opportunities such as ecotourism.

Energy is another important aspect of forest use – Brazil was again an exception, as communities in the pilot areas get access to gas. However, in contrast to the other countries, where people either relied on generators or had no electricity supply at all, almost all households in Viet Nam were connected to the power grid. The high dependence of households on fuelwood as a primary cooking source suggests opportunities exist in project areas to introduce alternative energy sources such as biogas, liquid petroleum gas and improved cooking stoves. Such systems could provide an important element of REDD+ and also yield health benefits for local household members. Yet for reasons of tradition and cultural preference, people often prefer to cook with fuelwood rather than use electric stoves, and thus this issue requires careful thought in order not to 'push' policies and solutions that are bound to fail because people do not want them. In particular, solutions need to be developed that can be adapted to the particular needs of the local context, rather than advocating a standard solution across the board.

With respect to the role of long-term land-use plans in REDD+, there are different attitudes. In Tanzania, the NGO responsible for implementing REDD+ was heavily involved in developing land-use plans for the areas, which would demarcate what sites would remain forested and what practices would be allowed where. In Brazil, plans are afoot to deepen the forest protection measures in the area. Strikingly, whereas in the other countries most land-use planning measures were geared towards greater protection of existing forest resources, Viet Nam went in the opposite direction. The local government's plans towards 2020 involve clearance of large tracts of land for agricultural expansion, and so the local authorities themselves represent a threat to standing forest resources. This certainly has implications for REDD+ in terms of engaging actively with local politicians and policymakers with respect to developing future land-use plans.

Regarding forest management more generally, while it is difficult to get a comprehensive picture of the types of management arrangements that existed with respect to forest management, a few key issues emerged. First of all, it seems clear that participation in rule-making is an important aspect of people's perception of protective measures – grievances relating to lack of participation existed in several of the pilot areas, particularly in Brazil and Tanzania. This has obvious implications for REDD+ as it clearly cautions against a top-down approach that does not take account of local views and ideas about forest protection and sustainable use measures and is thereby in danger of imposing rules that are too rigid. There is a need to keep in mind that REDD+ is not only about conservation, but equally about sustainable forest management, to avoid it being seen as yet another approach to expand protected areas.

It also seems that community-based initiatives, where the communities themselves take the initiative to develop forest rules and management practices, as in the villages in Tanzania and Uganda, are the more legitimate management arrangements. This observation, though it needs to be backed up by more research, aligns well with previous experience. There has been 10–20 years of Community-Based Forest Management (CBFM), Participatory Forest Management (PFM) and Community-Based Natural Resource Management (CBNRM) with solid lessons. Unfortunately, in most cases, resources have been lacking to invest in alternative sustainable enterprises and in some cases benefit sharing mechanisms were not clearly defined to ensure equity within communities. REDD+ may be able to address some of these shortfalls. The analysis of the REDD+ architecture and payment mechanisms shows that both the government and the piloting NGOs are in favour of integrating Participatory Forest Management (PFM) models (Community Based Forest Management (CBFM) on village land and Joint Forest Management

(JFM) on state land) into REDD+, which seems like a potentially good idea given the outcomes from the survey and focus group discussions. An important point to highlight in relation to this is the need to understand the history and geography and local politics of particular communities – as was the case in the Tanzanian pilot, very heterogeneous villages that consisted of relatively recently settled migrants were not able to develop stable institutions as easily as areas with more homogenous populations and a greater degree of history and continuity.

Geography – i.e. the location of communities in relation to forest resources and urban centres – plays a major role, but by no means a clear-cut one. Proximity to urban areas might both entail a lesser dependence on forest resources, as other income opportunities are closer at hand, but it also potentially provides a ready market for the sale of forest products – again, the Tanzanian experience is a case in point, as villagers would sometimes simply come to a particular area for the purpose of extracting forest resources for sale on the nearby local market.

Intimately related to management practices is the nature of tenure regimes, which will in part determine how people are compensated. Property issues are complex, and there are no straightforward means of dealing with the issues, and one should be wary of the calls for 'establishing clear property rights'. Often, use rights to particular resources are flexible and overlapping in space and time, and subject to continuous negotiation among community members (see e.g. Otsuka and Place, 2001; Benjaminsen and Lund, 2003; Sikor and Lund, 2009). There thus seems to be a need to map in more depth and detail what the main issues with respect to tenure are in each country, and to assess how potential tenure reform efforts can effectively take into consideration local concerns, particularly women's. In Viet Nam, many respondents explicitly said that they were cautious with respect to the impact of REDD+ on existing land-use rights; REDD+ was seen as a potential threat to existing resource use. This will need to be considered carefully in the future design of REDD+ activities. In Tanzania, villagers complained of inadequate compensation when the state had designated as reserves forests bordering their village lands. Such perceptions of historical injustices on the part of the state may prove fertile ground for future conflicts if the state, as the *de facto* owner of forest lands, takes control over REDD+ payments. While this may be formally correct, such actions may not be considered legitimate among local communities. In Ghana, it is the state that controls forests and 'economic' trees on agricultural lands. In this situation, REDD+ could potentially infringe upon people's livelihoods, while the existing rights situation does not grant them any right to compensation. This highlights the need to think carefully about how compensation should be coupled to existing rights structures, and the issue of competing claims with respect to what is considered legal/semi-legal use of resources.

Judging from people's own perceptions of climate change, forest management and conservation, there seems to be broad support for protective measures, as many people expressed a clear understanding of the linkages between climate change and forests. However, this support was qualified by a degree of apprehension in terms of what effects such protective measures might have on their livelihoods – this caution was expressed in the Tanzanian case in the reluctance to accept the idea of compensation without knowing exactly what sort of compensation would be on offer. In most pilot areas, the idea that compensation should make the community as a whole better off, rather than singling out particular individuals engaged in specific protection measures, was strong, and this needs to be taken into account when further researching and designing alternative compensation packages. In Viet Nam, a worry was that REDD+ might infringe on people's current land rights, and in Brazil, there was a perception among some respondents that 'forests matter more than people'. Such legitimate concerns need to be taken seriously. Implementing REDD+ will only be successful if it adequately understands people's concerns and worries with regard to what sort of constraints they will face, and what the consequences on their livelihoods will be.

More generally, there is also a need not to become too 'blinkered' in studying households in pilot areas and trying to tease out the cause–effect relationships of forest reduction and degradation, without taking into account larger drivers at work, such as increased demand for biomass energy from urban expansion, commodity prices, government land-use policies, the practices of logging companies, and land grabs. For instance, while people practising slash and burn agriculture, or expanding into new forest areas for the purpose of agricultural production, are often seen as the prime culprits of deforestation, logging companies are issued with tax deduction incentives for 'sustainable practices' (Africa Institute of South Africa 2011). The main point is that local issues need to be placed in a larger context in order to properly understand the drivers and mechanisms at work.

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Appendix

Breakdown of income – tabulated data

	Brazil (N=150)	Ghana (N=150)	Uganda (N=138)	Tanzania (N=180)	Viet Nam (N=220)
Crop					
Cash	170.2	2540.4	669.6	231.4	665.6
Subsistence	124.3	106.5	333.3	124.6	39.0
Sub-total	**294.5**	**2646.9**	**1002.9**	**356.0**	**704.6**
Livestock					
Cash	0	112.7	31.3	14.0	23.55351
Subsistence	0	0	0	0	11.1441
Sub-total	**0**	**112.7**	**31.3**	**14.0**	**34.6**
Forest					
Cash	78.4	0	0.1	59.1	0
Subsistence	1401.2	1233.9	345.5	343.3	0
NTFPs	19.9	3.0	0.007	.36	0.72
Forest services	4.6	0	8.6	.04	57.4
Sub-total	**1501.1**	**1236.9**	**354.2**	**402.8**	**58.1**
Fish					
Cash	602.9	3.2	0	0	0
Subsistence	652.1	4.8	0	0	0
Sub-total	**1255.0**	**8.0**	**0**	**0**	**0**
Others					
Wages	2602.4	775.1	46.6	64.1	502.6
Business	58.7	81.4	11.9	13.8	1.6
Transfers/ remittances	1199.8	19.4	4.8	4.2	63.5
Sub-total	**3860.9**	**875.9**	**63.3**	**82.1**	**567.7**
Total	**6911.5**	**4872.4**	**1451.7**	**854.9**	**1365.0**

Relative importance of non-timber forest products

Fodder

	Do not collect	Somewhat important	Important	Very important
Brazil (N=149)	100%	0%	0%	0%
Ghana (N=150)	87%	7%	4%	2%
Uganda (N=131)	98%	0.8%	1.5%	0%
Tanzania (N=179)	93%	2%	0.6%	4%
Viet Nam (N=220)	97%	0.5%	2%	0.5%

Bamboo

	Do not collect	Somewhat important	Important	Very important
Brazil (N=149)	100%	0%	0%	0%
Ghana (N=150)	71%	13%	11%	5%
Uganda (N=130)	100%	0%	0%	0%
Tanzania (N=179)	63%	3%	10%	24%
Viet Nam (N=220)	71%	25%	4%	0%

Rattan

	Do not collect	Somewhat important	Important	Very important
Brazil (N=149)	99%	0.6%	0.6%	0%
Ghana (N=150)	91%	5%	1%	2%
Uganda (N=130)	86%	5%	9%	0.8%
Tanzania (N=179)	98%	2%	0%	0%
Viet Nam (N=220)	36%	56%	6%	1%

Medicinal plants

	Do not collect	Somewhat important	Important	Very important
Brazil (N=149)	85%	5%	4%	6%
Ghana (N=150)	66%	7%	15%	13%
Uganda (N=130)	59%	15%	18%	9%
Tanzania (N=179)	72%	5%	7%	16%
Viet Nam (N=220)	98%	1%	1%	0%

Wild fruit and leaves

	Do not collect	Somewhat important	Important	Very important
Brazil (N=149)	79%	5%	7%	9%
Ghana (N=150)	75%	10%	10%	5%
Uganda (N=130)	36%	19%	37%	8%
Tanzania (N=179)	65%	10%	14%	11%
Viet Nam (N=220)	31%	26%	21%	21%

Nuts

	Do not collect	Somewhat important	Important	Very important
Brazil (N=149)	85%	6%	4%	5%
Ghana (N=150)	84%	11%	3%	3%
Uganda (N=130)	84%	5%	9%	1%
Tanzania (N=179)	97%	2%	1%	0.6%
Viet Nam (N=220)	99%	0.9%	0%	0%

Bush meat

	Do not collect	Somewhat important	Important	Very important
Brazil (N=149)	85%	11%	1%	3%
Ghana (N=150)	74%	11%	10%	5%
Uganda (N=130)	94%	0.8%	5%	0%
Tanzania (N=179)	83%	8%	6%	3%
Viet Nam (N=220)	99%	0.9%	0%	0%

Mushrooms

	Do not collect	Somewhat important	Important	Very important
Brazil (N=149)	99%	0.7%	0.7%	0%
Ghana (N=150)	79%	9%	6%	6%
Uganda (N=130)	51%	11%	30%	7%
Tanzania (N=179)	50%	4%	17%	28%
Viet Nam (N=220)	93%	7%	0%	0%


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