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## Land governance

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# Editorial

## Dear Reader,

It is undisputed that land plays a special role as a natural resource. Land is a major source of people's identities and livelihoods as well as being a key asset for households. Land ownership and land use rights crucially affect both equality of opportunity and economic and environmental stability. It is entirely justified to include these rights in the Sustainable Development Goals and not without reason that the adoption of the Voluntary Guidelines on the Responsible Governance of Tenure (VGGT) attracted so much attention four years ago.

In the first part of our focus, our authors explain the significance of land governance for poverty alleviation and economic prosperity and how it can be strengthened. Secure tenure provides incentives for land-attached investments while discouraging environmentally unsustainable practices; land ownership implies having collateral and therefore being eligible for loans from the finance market; ownership rights can be transferred, so that the land can be worked by those who are best fit to do so. Often, land remains the only source of livelihood for poor and marginalised households. Thus improved security of land rights first of all creates secure access to basic necessities such as housing and nutrition. When such needs are met, the poor are more likely to be able to afford education, which helps people exit the vicious cycle of poverty. So efforts to secure and clearly define land rights bear large benefits, as an analysis of various legal systems based on property rights and patterns of land tenure also demonstrates (p. 10). The use of recent technological developments such as improvements in access to data processing, connectivity and remote sensing facilitates these efforts. Not only can new technology help lower the cost of registration and maintenance of records and improve land use planning, it can also make a considerable contribution to transparency, as our author demonstrates with the World Bank's 'Land Administration Quality Index' (p. 6).

Extensive land reform measures are often applied to achieve improvements in access to land and hence in the living conditions of the rural population. However, our examples from South Africa, Tanzania und Cambodia present a rather sobering picture. Lack of coherence in agricultural and land policies, not enough support for informal markets, concentrating on private ownership and the usurpation of land reform by elites are just a few of the reasons for 20 years of land reform in South Africa having achieved hardly anything worth mentioning for the poor rural population (p. 14). Neither are 15 years of land reform in Tanzania a success story, except perhaps for a handful of individual projects. Factors our author blames for the very progressive legislation e.g. on protecting women's rights and vulnerable groups having largely remained a toothless tiger include underfinancing and a lack of co-ordination among the ministries involved as well as the country's policy drive towards commercial agriculture (p. 18). Things look even worse in Cambodia, where the Economic Land Concessions introduced with the 2001 Land Law have contributed to widespread dispossession of the rural populace and the increase of rural poverty (p. 20).

Our case studies from Laos, Sierra Leone, Ethiopia and Uganda address the specific relation between land tenure security and food security. Our authors from Laos see a clear link here. The population groups with lower access to ownership of land are more likely to be food insecure and face problems of malnutrition, according to their analysis. These results from literature studies have been borne out by interviews with locals (p. 23). Not only has leasing 6,500 hectares of cropland to foreign investors in Malen Chiefdom in the South of Sierra Leone and turning the land into palm oil plantations driven up prices on the region's food market by more than a quarter in just one year. The rural population claim that they have now less food available in their households than before the deal. Our author maintains that employment opportunities created did not suffice as an alternative way of providing access to food (p. 26). Things look different in the regions of Gambela in Ethiopia and Bugiri in Uganda. Here, the arrival of large-scale investors led to an increase in wages and boosted the local non-farm rural economy; a vital rice value chain has developed in Uganda that also benefits large numbers of smallholders. However, these developments have also resulted in social and economic inequalities. Our author suggests a very close analysis of the impact channels via which the investments take effect on the local population and rural economy (p. 28).

The main target groups of land-related policies, who often also tend to be their losers, are the already marginalised and vulnerable sections of the population such as Indigenous Peoples or pastoralists. Organisations like the Rights and Resources Initiative or Vétérinaires Sans Frontières are campaigning for their interests (pages 17 and 30). The organisation Natural Justice shows how Community Protocols can enable these groups in particular to have a seat at the table (p. 32).

We wish you inspired reading.

Silvia Richter

**Partner institutions of Rural 21:**

Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung

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# In this issue



Photo: FAO/Caroline Thomas

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# Land grabbing – far from just a Southern phenomenon

*In Romania too, land concentration is increasing – at the expense of small farmers.*
*Photo: Jörg Böthling*

Land-grabbing by powerful corporations is by no means limited to developing countries. Farmers in the Krasnodar Region of southern Russia staged a tractor rally in August to draw attention to their claim that a number of major enterprises were involved in land grabbing in the area. The farmers maintained that various deals had been signed in the Krasnodar Region on huge traits of land being handed over to agricultural corporations, with local courts awarding property rights to the latter and the farmers' rights being violated by court bailiffs executing the rulings. Regional administration officials and the Krasnodar Prosecutor's Office responded by stating that they would looking into the farmers' claims, and that a special working group would be set up to settle such conflicts should they arise again in the future.

Unimpressed by the local officials, the farmers carried on with their trek to the Russian capital of Moscow, and while several of them were detained by the authorities, accused of unlawful protest, the Russian Prosecutor General's Office now holds that businesses and authorities involved in the land deals could indeed have a case to answer. And the farmers have found an influential ally. Vasily Melnichenko, a Russian Green Party candidate for the forthcoming parliamentary elections, is a staunch critic of the government's rural policies, and has frequently reported on farmers' issues as a journalist. Melnichenko, who is also chairman of the agricultural production co-operative Galkinsky, owns a farm in the Urals.

A study issued by the European Union's Directorate-General for Internal Policies on the "Extent of Farmland Grabbing in the EU" finds "significant evidence that farmland grabbing is underway in the EU today". The study maintains that "land grabbing is about the construction of land holdings that represent a deep rupture with family farming and the scale of farming that has typified European agriculture so far". And while noting that the scale and scope of farmland grabbing in the EU is "limited" in comparison to countries in Africa, Asia, Latin America and former Soviet Eurasia, it nevertheless concludes that the issue "calls for a reform of European land governance".

The study emphasises that farmland grabbing in the EU interacts with land concentration, noting that "Europe is currently experiencing tremendous and rapid land concentration" and referring to this as "a matter of high policy and social concern". In 2010, the top 3 per cent of farms controlled half of the total utilised agricultural area (UAA) in the EU, while 80 per cent of farms controlled just 12 per cent. And although large farms, as defined by EUROSTAT, accounted for a mere 0.6 per cent of all European farms in 2011, they were in charge of a fifth of the EU's total UAA, an area the land size of Germany. The study concludes from this that in terms of land inequality, the EU "is on a par with or even above countries that are noted for their highly skewed land distribution patterns such as Brazil, Colombia and the Philippines". The process of land concentration is at the expense of small farmers, who are losing control of their land at what the survey calls "an alarming rate".

Farmland grabbing appears to be particularly concentrated in Eastern European Member States. Foreign direct investment in the agricultural sector has soared in these countries in recent years. The EU study quotes statistics showing that FDI in euros per capita increased almost fivefold in Estonia between 2003 and 2008, and nearly six-fold in Romania in the same period. The accession treaties of these countries contained strict rules on foreign ownership of agricultural land that recently expired or are about to expire.

Following the 2008 financial crisis, several European banking groups and pension and insurance funds invested in these areas via specialised agricultural investment funds. A subsidiary of the German Allianz insurance group is one of the major players in the Bulgarian agricultural sector, while the Italian Generali insurance group holds large areas of farmland in western Romania. And this country's largest farm belongs to the Lebanese-owned Maria Group, which also operates its own slaughterhouse and port in Romania for meat and cereal exports.

*Mike Gardner*

# Expanding palm oil plantations without deforestation

Land used for palm oil production could be nearly doubled without expanding into protected or high-biodiversity forests, according to a new study published in the journal „Global Environmental Change". The study maps land suitable for palm oil production on a global scale, while taking into account environmental and climate considerations. Palm oil production has expanded massively, from six million hectares in 1990 to 16 million in 2010, an area about the size of Uruguay. The oil, which is used for cooking and as a food additive, now accounts for about 30 per cent of all vegetable oil used worldwide.

Palm oil is controversial, in particular because much of this expansion came at the expense of biodiversity-rich tropical forests, which were cut to make room for new plantations. But oil palm farming has also contributed to lifting millions of people out of poverty in Indonesia and Malaysia, the top palm-oil producing countries. And an important share of palm oil producers are smallholder farmers who rely on the commodity as their primary source of income. With palm oil as the number one cooking oil in Asia, where populations are rising, demand for the oil is expected to continue growing, and many developing countries are looking to expand their production. Yet it was not clear how much land is available for expansion.

*Palm oil production is also an important source of income to many smallholders.* Photo: FAO/Caroline Thomas

From a purely biophysical perspective, the researchers found that nearly 1.37 billion hectares of land globally are suitable for oil palm cultivation, in Africa, Central and South America, and Asia. From this, they then removed any land which is already being used for other purposes, such as farming, residences, or cities. Finally, the researchers ruled out areas that are protected by law, as well as forests that are particularly valuable from a biodiversity or carbon-storage perspective.

With all of these areas removed, the resulting map includes an area of 19.3 million hectares of very suitable land which could potentially be available for future production. This is slightly more than the current extent of palm oil production, 18.1 million hectares. However, about half of this area is more than a ten-hour drive away from the closest city, which might not allow for economically profitable oil production. *(ile)*

# Cushioning climate-conditioned economic losses in agriculture through trade liberalisation

A new study by a team of scientists of the Potsdam Institute for Climate Impact Research (PIK) quantifies economic impacts of global warming and analyses the role of international trade as an adaptation measure. The researchers found that economic losses in agriculture owing to climate change could add up to the annual amount of roughly 0.8 per cent of global GDP at the end of the century with a very restricted trade regime. As small as this percentage sounds, it actually translates to losses of 2.5 trillion US dollars and is comparably higher for regions with limited agricultural resources with respect to growing agricultural demand, for example the Middle East, Africa and India. In contrast, further trade liberalisation in agricultural commodities could reduce financial damage globally by 65 per cent, to 0.3 per cent of global GDP, the researchers have established.

Both global warming and free trade favour northern regions like Europe and the US, since producers' gains increase as trade patterns shift northwards. At the same time, southern regions like Africa or India could theoretically reduce climate change-related damages by half through more liberalised food markets, the authors state. Independently of the assumptions on global trade, climate change will result in reduced crop yields in many areas. This could result in intensifying production or expanding cultivated land into previously untouched areas and, as a consequence, additional greenhouse gas emissions through tropical deforestation or increased fertiliser use. These emissions could then further enhance climate change pressure on agriculture.

As the impact of climate change cannot be avoided, an open and diversified trade system suggests itself as an adaptation system, the authors claim. It can account for changes in global patterns of agricultural productivity and thus allow for reducing production costs and enhancing food security. But as climate change will have an amplifying effect on the gap between developed and developing countries, reductions in trade barriers will have to be accompanied by measures for poverty reduction and social safety nets. *(ile)*

# Improving land governance – for the sake of the rural poor

Land and associated property is a major source of individuals' identity and livelihood. The way in which land rights are assigned and can be used is a key determinant of equality of opportunity, environmental sustainability, social/economic transformation, and the ease and extent of public service provision. This article discusses why land rights are important but often only weakly protected and describes how recent technological developments make public efforts to secure such rights much easier – with tangible impacts for rural development.

Public efforts to secure and clearly define rights to land will have large benefits, especially for traditionally disadvantaged groups, via a range of channels. Secure tenure provides incentives for land-attached investments to enhance productivity of land use and discourage environmentally unsustainable practices (e.g. soil mining) that generate negative externalities. While customary land tenure systems offer high security if population density is low, a host of factors including population growth, urban expansion, outside investment, or speculation can undermine tenure security, especially for marginal groups, and create a threat of land loss. For example, in Malawi, 22 per cent of small farmers are afraid that their land will be taken away from them. For women but not for men, this perception is associated with a 10 per cent reduction in output. Protecting existing rights will thus be important.

*Land and associated property is households' main asset virtually everywhere.*
*Photo: Jörg Böthling*

## A key determinant of human development

Land and associated property is also households' main asset virtually everywhere so that land ownership rights affect equality of opportunity in the broad sense, including women's bargaining power and the ability to invest in physical and human capital and to withstand shocks. Women are often disproportionately affected by land conflict, which is frequently inheritance-related. Joint issuance of land documents can help overcome gender discrimination, and may be less difficult to implement than often assumed (see Box on page 7, above). In India, legal reforms to put women's inheritance rights to land on an equal footing with those of men increased their ownership of assets and their autonomy (e.g. having a bank account of their own), and resulted in higher spending on education (and less on alcohol or tobacco), with knock-on effects on girls' performance in school and age of marriage.

Unambiguously documented land rights also make land rental easier, helping to bring land to its best use and support non-farm growth, raising land-constrained households' income. An inverse relationship between farm size and productivity in un-mechanised agriculture implies that this will also improve equity. While short-term land transfers to locals require little documentation, longer-term leases involving outsiders who may have access to capital and expertise that are lacking locally will

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often require formal records. For example, a national programme to certify community land rights in Mexico provided a basis for long-term rental and out-migration of individuals less skilled in farming, thereby increasing agricultural productivity and enhancing household welfare. In Rwanda, land tenure regularisation activated land rental markets, improving efficiency of land use. Routine availability of registry information at low cost can also reduce the transactions cost of accessing credit and, if such costs are a main constraint preventing use of land as collateral for mortgage-based financing, credit access. In the Indian state of Andhra Pradesh, computerisation of land records that allowed online access by Banks increased urban credit access by more than 10 per cent but had no significant effects in rural areas, supporting the notion that in most rural areas of developing countries, expecting broad credit effects from better documentation of land rights is unrealistic.

## Broader challenges from unclear land rights

In many developing countries, peri-urban land prices have skyrocketed over the last decades. Weak or non-existent tax maps as in much of Africa made it difficult to ensure that, via property taxes, part of these gains would have accrued to (local) government to proactively provide services and infrastructure instead of contributing to speculation and unplanned urban sprawl. These shortcomings also make local governments dependent on central transfers or distortionary land transfer fees that drive transactions underground and encourage under-reporting of sales prices.

Land for infrastructure and public spaces will need to be acquired by the state. Failure to plan ahead, weak records, and weak valuations make expropriation a conflictive and expensive process. Often, expropriation threats imply that peri-urban land is not used for high value crops as is the case in China or Nigeria. If low quality or limited coverage makes it impossible to use existing records as evidence of rights, private investors will want to acquire land via expropriation to ensure that any unregistered claims are extinguished. This is likely to delay investment decisions, make them dependent on political forces, and burden courts and public institutions at large, often leading to viable projects being abandoned (e.g. the

### Awareness raising and efficient service provision can enhance women's access to land titles

The challenges posed by widespread urban informality are well-known. To explore whether poor slum-dwellers are interested and willing to expend resources for more secure property rights, an experiment in **Dar es Salaam** offered randomly selected households the opportunity to acquire a Certificate of Right of Occupancy (CRO), the most secure document available, at a subsidised price that varied depending on whether or not a female was listed as a (co)-owner.

Two findings stand out: First, at more than half the average monthly wage, median willingness to pay for secure tenure was surprisingly large. As this is still well above the cost charged by Government, it suggests that efficient service provision is of utmost importance.

Second, while in the past, titling programmes often ended up extinguishing women's informal rights or widening the gender-asset gap, results suggest that, if linked to sensitisation, formalisation could help empower women. In the case at hand, dissemination raised the share of those who indicated that they would have a female co-owner on the CRO from 24 per cent to 89 per cent, an enormous increase over the 5 per cent of documents that actually have at least one female co-owner. Land tenure formalisation programmes that creatively aim to empower women can thus make an important contribution to overcoming long-standing gender bias.

### Large-scale programmes to regularise ownership are possible and can strengthen women's rights

Land tenure regularisation in **Rwanda** illustrates the impact of a participatory low-cost approach to adapt technology to local circumstances, monitor impacts in real time, and scale up as needed. With land scarcity and insecure tenure as a proximate cause of the 1994 Genocide, land required urgent attention. The 1999 inheritance law eliminated bias against female land ownership, followed by the 2004 land policy and the 2005 organic land policy establishing local institutional and administrative structures.

In 2007–10, a pilot registering some 15,000 parcels in 4 cells relied on local para-surveyors using aerial photography for systematic demarcation and adjudication. They recorded, in public and with presence of neighbours and local authorities, agreed plot boundaries on the image, possibly after minor disputes had been resolved by local elders. This led to issuance of a demarcation slip, generation of a unique parcel ID, registration of a claim, and issuance of a claim receipt to the owner. Data was digitised and displayed publicly on office walls at the cell level for at least a month for objections and corrections as needed. Thereafter, titles and lease certificates were issued at central level and distributed to land owners.

An evaluation of the pilot found impact in three areas, namely (i) improved land access for legally married women and better recordation of inheritance rights, although women who were not legally married saw diminished property rights, an issue that was corrected before embarking on the national roll-out; (ii) significant investment impacts, e.g., a doubling of the change in investment in soil conservation, that were particularly pronounced for female-headed households in line with the notion that these had suffered from higher levels of insecurity before; and (iii) a marginal reduction in land market activity rather than a wave of distress sales.

Thorough refinement of processes based on rigorous evaluation of the pilot experience allowed rapid national scale-up. In less than three years, the Rwanda Natural Resource Authority (RNRA) demarcated the country's estimated 11.5 million land parcels at less than 6 US dollars (USD) per parcel with 86 per cent having a registered female (co)-owner. Beyond improving rental market functioning, the programme increased tenure security for all males and females, including those not legally married. Administrative data, used to monitor how what has been accomplished is sustained, including by gender, also point to 2.6 billion USD of mortgage lending since 2013 and can help assess the impact of efforts to increase subsequent registration.

**Key dimensions of land administration quality globally**

| | *Total* | *EAP* | *ECA* | *LAC* | *MENA* | *OECD* | *SAS* | *SSA* |
|---|---|---|---|---|---|---|---|---|
| **Land registration infrastructure** | | | | | | | | |
| Records fully digital | 0.17 | 0.08 | 0.36 | 0.00 | 0.14 | 0.52 | 0.13 | 0.04 |
| Records scanned | 0.43 | 0.36 | 0.60 | 0.59 | 0.48 | 0.42 | 0.13 | 0.30 |
| Records paper only | 0.39 | 0.52 | 0.04 | 0.41 | 0.38 | 0.06 | 0.75 | 0.66 |
| Electronic database for encumbrances | 0.51 | 0.36 | 0.92 | 0.56 | 0.52 | 0.90 | 0.00 | 0.17 |
| Maps fully digital | 0.31 | 0.24 | 0.48 | 0.31 | 0.14 | 0.81 | 0.13 | 0.04 |
| Maps paper only | 0.44 | 0.48 | 0.08 | 0.34 | 0.52 | 0.06 | 0.88 | 0.81 |
| Maps are stored in electronic database | 0.47 | 0.44 | 0.76 | 0.50 | 0.38 | 0.94 | 0.13 | 0.11 |
| Records & maps in linked databases | 0.39 | 0.28 | 0.32 | 0.28 | 0.71 | 0.65 | 0.13 | 0.30 |
| Records & maps in integrated database | 0.11 | 0.04 | 0.40 | 0.03 | 0.10 | 0.19 | 0.00 | 0.00 |
| **Transparency and information access** | | | | | | | | |
| Records accessible online | 0.34 | 0.12 | 0.72 | 0.31 | 0.14 | 0.87 | 0.13 | 0.04 |
| Registry complaints mechanism exists | 0.09 | 0.16 | 0.12 | 0.13 | 0.00 | 0.19 | 0.00 | 0.00 |
| Official registry statistics is public | 0.26 | 0.20 | 0.56 | 0.09 | 0.24 | 0.58 | 0.13 | 0.06 |
| Maps freely accessible | 0.24 | 0.12 | 0.28 | 0.25 | 0.19 | 0.61 | 0.00 | 0.09 |
| Cadastral fee schedule online | 0.42 | 0.32 | 0.88 | 0.41 | 0.24 | 0.68 | 0.00 | 0.21 |
| Cadastre service standard exist & online | 0.14 | 0.20 | 0.36 | 0.13 | 0.05 | 0.16 | 0.13 | 0.04 |
| Cadastre complaints mechanism exists | 0.06 | 0.12 | 0.08 | 0.06 | 0.00 | 0.13 | 0.00 | 0.00 |
| **Geographic coverage** | | | | | | | | |
| All private plots in country registered | 0.22 | 0.24 | 0.32 | 0.03 | 0.14 | 0.68 | 0.13 | 0.04 |
| All private plots in main city registered | 0.42 | 0.56 | 0.56 | 0.16 | 0.48 | 0.90 | 0.25 | 0.15 |
| **Dispute resolution & legal reliability** | | | | | | | | |
| Law requires registration of transactions | 0.90 | 0.80 | 1.00 | 0.94 | 0.86 | 0.94 | 0.88 | 0.89 |
| Property registration is guaranteed | 0.78 | 0.72 | 0.88 | 0.78 | 0.71 | 0.97 | 0.38 | 0.72 |
| Compensation mechanism is in place | 0.29 | 0.24 | 0.60 | 0.31 | 0.10 | 0.52 | 0.00 | 0.11 |
| Documents checked before registration | 0.96 | 0.84 | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 0.96 |
| Statistics on land disputes available | 0.12 | 0.16 | 0.36 | 0.03 | 0.05 | 0.19 | 0.00 | 0.02 |
| **No. of countries reporting** | **189** | **25** | **25** | **32** | **21** | **31** | **8** | **47** |

*EAP = East Asia and Pacific; ECA = Europe and Central Asia; LAC = Latin American countries; MENA = Middle East and North Africa; OECD = Organisation for Economic Co-operation and Development; SAS = South Asia; SSA = sub-Saharan Africa*
*Note: Data collected in the 2016 round of "Doing Business."*
*Source: Own computation based on 2016 Land Administration Quality Index (LAQI) data.*

Tata Nano factory in West Bengal). As unclear records are often at the root of such issues, investment in better record keeping could eliminate some of these problems from the outset.

Land providing amenities such as wetlands, forests, parks, road reserves, or schools should be held by the state. Failure to identify and publicise boundaries of public land, monitor encroachment and quickly act on it can foster corruption and create enormous losses for the public. Avoiding these requires that public land no longer needed be divested by open tender, with key contract conditions public and processes audited.

## New ways of improving and monitoring performance

Institutional arrangements in many developing countries may fail to harness the sector's potential as a catalyst for transparency and change in the dynamics of gender relations, decentralisation, and urbanisation, due to gaps between often very progressive legal provisions and their actual implementation. *Prima facie*, this is often caused by lack of regulations to implement legal provisions. But lack of awareness of rapidly expanding possibilities, their benefits, and ways to translate them into local reality is also relevant.

Recent improvements in access to data processing, connectivity and remote sensing have potential to close implementation in three ways. First, by reducing the cost of efforts to secure land rights by an order of magnitude. For first-time registration, this is illustrated by Rwanda's use of para-surveyors and high resolution imagery, an intervention that resulted in a positive impact on land access of legally married women and investment in soil conservation (see Box on page 7, below). For maintenance of records, having locals operate internet kiosks to register transactions, in addition to providing a host of other services, is another example.

**Combining different data sources can improve policies to regulate and monitor large-scale land acquisition**

Although most of the 'land grab' debate focuses on allocation of uncultivated land, investors' failure to use land as stipulated may be more relevant in the long term, especially if land is not transferable and concessions need to be cancelled/reassigned. **Malawi**, where more than one million hectares or 20 per cent of the country's arable land was transferred to estates, mainly under 21-year leases, in the late 1980s, illustrates this and the scope of data to inform policy. Paper-based records made it impossible to assess size and location of unused estate land with expired leases that could potentially be reassigned to other users. Digitisation of lease documents and estate boundaries was thus a first step. Linking it to automated land use classification based on medium resolution imagery suggests that only some 60 per cent of estate land is cultivated, highlighting the scope for policies to improve land use and providing material allowing to pinpoint relevant areas.

Analysis of **Ethiopia's** 2014 commercial farm (> 10 ha) census highlights four results. First, since the 1990s, about 1.3 million ha were transferred to 6,612 commercial farms, some 78 per cent of them with more than 50 ha. Yet, even at the peak of the "land rush," amounts of land transferred to agricultural investors, most Ethiopians, remained well below claims by popular reports. After 2011, levels of annual land transfers were about equal to those pre-2007. Second, around 55 per cent of land transferred remains unutilised. Third, with one permanent job per 20 ha, large farms' labour intensity remains low and direct benefits to neighbouring smallholders as well as employment generation limited. Finally, for most crops, commercial farms' yields (on cultivated area) peak in the 10–20 ha category.

Second, benefits from land registries can be greatly enhanced by allowing realisation of synergies from synchronising land information with other data sources (banks, courts, taxation, land use) to improve land use planning, valuation and verification of private sector compliance with global norms via certification schemes. The Box above illustrates some of these for the case of large-scale land acquisition.

Finally, technology can improve accountability and transparency by objectively monitoring progress with implementing countries' land policies, strategies, and programmes. At global level, the 'Land Administration Quality Index' (LAQI), part of the World Bank's Doing Business (DB) indicators since 2015, illustrates this. Data for 189 countries show large implementation gaps (see Table). Laws are well developed everywhere – 90 per cent of countries (94 % in Latin America and 89 % in sub-Saharan Africa) require registration of transfers, 96 per cent check documents, and 78 per cent have a state guarantee. But limited record coverage renders this ineffective: all the country's (main city's) private plots are registered in 22 per cent (42 %) of countries overall, 3 per cent (16%) in Latin America, and just 4 per cent (15 %) in sub-Saharan Africa, compared to 68 per cent (90 %) in the OECD.

Quality of the infrastructure to record textual and spatial elements of land rights varies widely: 39 per cent of countries (from 75 % for South Asia to 4 % in Eastern Europe & Central Asia) rely on paper records only. Paper maps which make land use planning difficult if not impossible are still almost exclusively relied on in rapidly urbanising regions such as South Asia (88 %) or sub-Saharan Africa (81 %). Integration of textual and spatial records – a precondition to benefit from systematic recording – remains limited: compared to 50 per cent of countries globally only 26 per cent, 32 per cent and 41 per cent in South Asia, East Asia, and Sub-Saharan Africa have a link between databases. The ability of African countries such as Rwanda to achieve scores well above the OECD average highlights the scope for leapfrogging, while reforms initiated by many countries to improve their ranking illustrate the usefulness of performance monitoring using a comparable set of data.

Publication of administrative data can similarly enhance accountability and create incentives for improved performance at sub-national (province, district, or village) level. Key variables should include (i) coverage with textual or spatial records and levels of registered sales/mortgage transactions by gender; (ii) actual vs. potential property tax revenue; (iii) amount of land expropriated and compensation paid; and (iv) land-related disputes. Linking these to imagery-based evidence of land cover change or data from household surveys which the Sustainable Development Goals (SDGs) aim to promote provides vast scope to strengthen analytical capacity in the sector and improve the quality of the policy dialogue.

## A valuable tool for development cooperation

Development partners can harness this potential in two ways. First, by documenting benefits from better performance by land sector institutions and identifying win-win outcomes. Well-designed experiments can help assess impacts in a non-confrontational way and use experience from doing so to prepare regulations and strategies for scale-up. Second, by routinely using evidence-based data-driven approaches to monitor land policies/strategies and design and implementation of land programmes to align incentives and identify good practice. In the spirit of the SDGs and the Voluntary Guidelines on the Responsible Governance of Tenure (VGGT), the programme to 'Strengthen Land Governance in Africa', supported by BMZ under its 'One World – No Hunger' initiative, builds on this philosophy of strengthening local analytical and technical capacity for a participatory results- and evidence-based approach that could profoundly change the nature of the debate on and the political dynamics of the land sector. The immensity of the challenge of securing millions of male and female smallholders' land rights all over Africa and enabling them to manage their land in a productive and sustainable manner demands nothing less.

For a list of references and related literature, see: ➤ **www.rural21.com**

# Why property rights matter

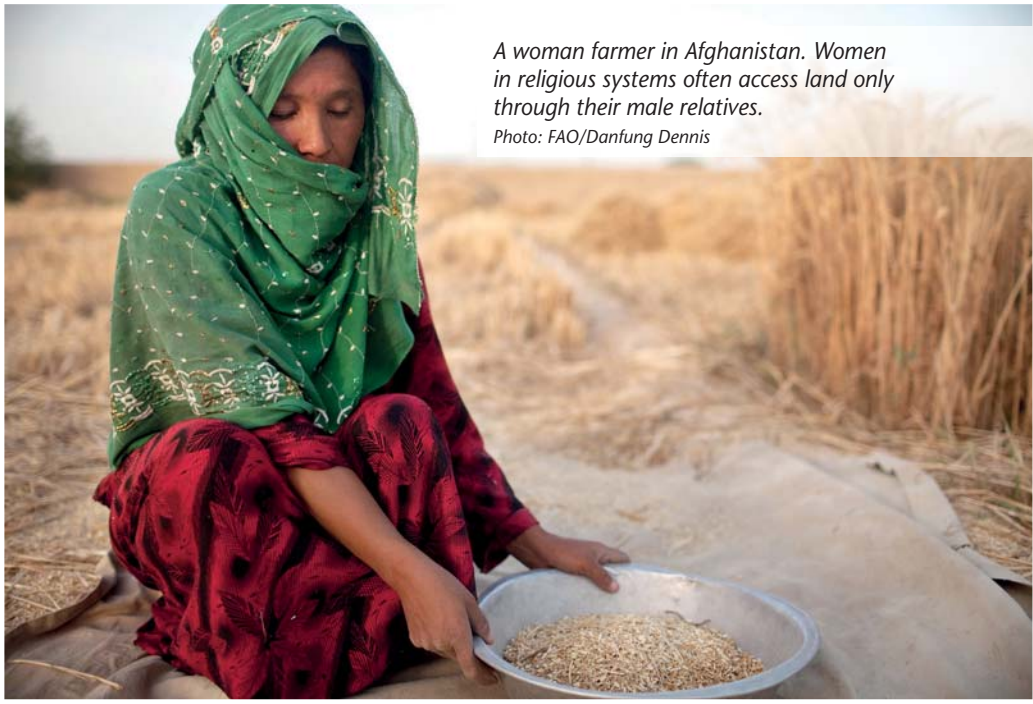
**It is widely accepted among economists and policy-makers that secure and well-defined land property rights are integral to poverty alleviation and economic prosperity. But how do legal systems, land tenure and economic development really relate to one another? Our author demonstrates the links using her latest research results from 146 countries.**

The fundamental reason why property rights are at the centre of the economic growth nexus is their pervasive and important role in shaping incentives in political, social and economic exchange. For instance, it is often asserted that, when land property rights are secure people have more incentives to invest into land improvements because their efforts are adequately protected. Next, secure land titles facilitate borrowing on capital markets since the land can then be used as a collateral. Finally, clear land ownership rights allow for transfer of those rights through sale or lease. This improves the efficiency in resource allocation as it enables the land to be worked by those who are best fit to do so.

Secure land property rights are also of crucial importance in the context of poverty alleviation. In many developing countries, land remains the only source of livelihood for poor and marginal households. Improved security of land rights, thus, translates into more secure access to housing, food and income. Furthermore, when basic needs like shelter and nutrition are met, the poor are more likely to be able to afford education, which would help them exit the vicious cycle of poverty.

## Property rights and law

A high-quality legal system is, on the other hand, an absolute *conditio sine qua non* for establishing a system of secure land property rights. Law defines the bundle of rights in land which may range from full private ownership, use rights and lease rights to customary rights. It also defines restrictions and limitations imposed by the state on those rights, as well as conditions under which land can be expropriated from a landowner. Law sets out the rules for land transfers, whether through sale or lease, and stipulates how land is inherited. Law also provides a foundation for creating institutions responsible for land administration as well as defining mechanisms for land dispute resolution. Despite their importance, property rights associated with land are either non-existent or ill-defined across a number of countries in the world. In many developing countries, land rights continue to be governed through a complex framework of often conflicting formal and informal rules resulting in a situation of legal pluralism. This ambiguity with property rights over land greatly distorts incentives and has an adverse impact on economic performance.



*A woman farmer in Afghanistan. Women in religious systems often access land only through their male relatives.*
*Photo: FAO/Danfung Dennis*

## Legal systems based on property rights and land tenure

In our research, we collect comprehensive data on property-related legislation and patterns of land tenure for 146 countries across the world, spanning the entire 20th century. Then, we use econometric techniques to group similar countries together and derive a new classification of legal systems based on property rights and patterns of land tenure. There are seven distinct legal systems operating around the world: fully private ownership systems, state-dominated systems, private-state mixed systems,

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private ownership systems with customary elements, de jure customary systems, de facto customary systems, and religious systems.

**Private ownership** systems include countries such as Australia, France and Germany, where the source of law is solely formal, written statutory law and where the law-making process includes strict checks and balances. Private land ownership constitutes an important part of total land ownership and is unambiguously protected by Constitution. Cadastres are well-developed, and the correctness of land registers, where all land rights are systematically recorded, is typically guaranteed by the state. This has facilitated the practice of using property as a collateral when obtaining loans from the banks.

In contrast, **state dominated systems** (i.e. China, Belarus, Uzbekistan) either do not recognise private ownership or have only very recently allowed for this form of ownership in their legislation. Individuals, households and organisations typically access land through allocated land-use rights or land leasing from the state, offering little to no protection and easy for the state to cancel. The state has also a very decisive role in land use, planning and development. For example, after introducing a series of law changes promoting private property, the government of Tajikistan continued to mandate production of cotton even for privately owned farms. Cadastre and land administration in general are underdeveloped, lack resources and technical support making it nearly impossible to use property for accessing loans.

**Private-state mixed systems** can be thought of as countries with a socialist legacy that underwent transition in the 1990s to a system fully supporting private property rights. Despite the fact that post-socialist land reform programmes – more or less successfully – privatised land, the state continues to own a significant share in total land ownership, especially with respect to agricultural land. Unlike countries belonging to state-dominated systems, many of the countries in this system (such as Croatia, the Czech Republic or Hungary) had well-functioning cadastres and land registers before the socialist period, and their activities simply resumed after transition.

One characteristic common to the following three legal systems is the existence of customary laws and modes of tenure to a greater or lesser extent. Countries belonging to the **private ownership system with customary elements** were steadily replacing indigenous tenure throughout the past century in favour of private ownership. While customs remain to partially govern matters of, i.e. inheritance, indigenous land tenure has been declining through decades. Formal law has, in general, unfavourably treated indigenous claims to land, and only very recently have some of these countries, such as Bolivia, Ecuador and Peru, started to recognise customary rights in their statutory legislation. Despite a relatively long history of private ownership, the majority of the countries have also failed to adequately protect private property rights, which is further complicated by persistently unequal land distribution.

The most distinct feature of **de jure customary systems**, on the other hand, is the formal recognition of customary tenure in their formal laws and Constitutions. Although private land ownership is not prohibited, community ownership prevails as the most dominant ownership form. One country representing this legal system is Botswana, where administrative power over residential, arable and grazing land allocations formerly held by chiefs is transferred to twelve district Land Boards. Allocated land is free of charge and inheritable, but cannot be sold. Also, the Land Boards have the authority to cancel customary rights to such land when it is not being used in accordance with the purpose of allocation.

In contrast to de jure customary systems, **de facto customary systems** do not officially recognise community-based tenure although such tenure type continues to be dominant. Some countries, like Angola, Nigeria and the Central African Republic, provide little or no reference to community land tenure, while Burkina Faso and Senegal have legally abolished it altogether. Also, there are countries (i.e. Burundi, Niger) that recognise customary rights to land but only in context of their conversion into private individual rights. Aside from non-recognition of customary tenure, these countries share a lot of similarities with de jure customary systems. For example, both systems suffer from underdeveloped or non-existent democratic institutions as well as contradictions between newly enacted and old colonial legislation that is in some cases still in effect.

Finally, **religious systems**, as their name implies, derive rules for governing land from religion. These rules are always codified and constitute part of a country's statutory legal framework. Religious systems also tend to be more inclined towards redistributive land reforms. Most importantly, religious rules are strictly followed in matters of property inheritance that typically exhibits gender differentiation. State ownership of land is the most prevalent form (i.e. in Afghanistan, the United Arab Emirates or Malaysia), although some religious systems have a longer history of private land ownership (like Iran and Lebanon).

## The impact of legal systems on education

Human capital accumulation is, according to economic theories, commonly emphasised as one of the main growth determinants. To measure human capital, we use school enrolment rates from the World Bank (2012) and Barro and Lee's (2013) educational attainment data. The results of our research suggest that different legal systems of property rights and land tenure have strong impacts on educational outcomes. We also find empirical evidence that some of these effects are gender-differentiated, suggesting that land might be an important source of gender disparity.

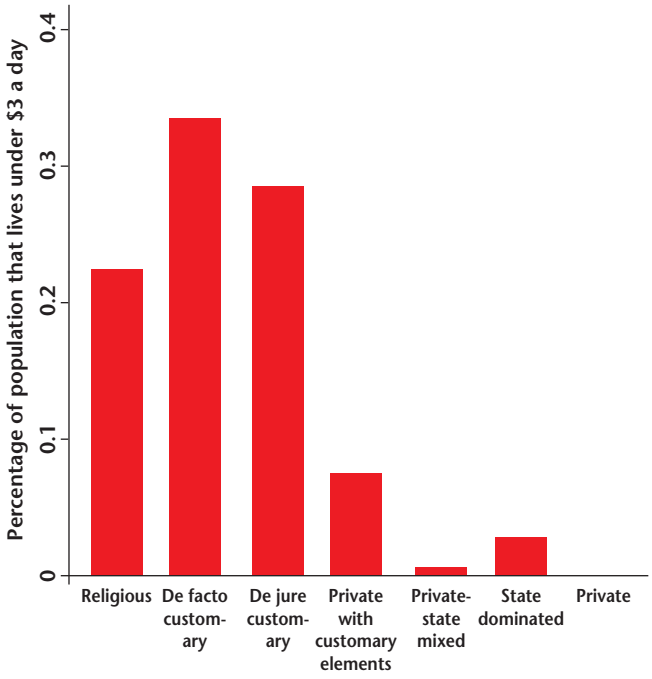
Looking at the enrolment for different educational levels (World Bank), all legal systems are significantly lagging behind fully private ownership systems. De jure customary systems, where dominant community tenure is officially recognised by law, typically see the least secondary school enrolment, followed by religious systems. This holds true even after we have checked how poor countries belonging to these systems are. On the other hand, while private-state mixed and state- dominated systems also exhibit lower rates of secondary school enrolment, the effect is less significant, and its magnitude is not so large. This is easily explained by the socialist legacy characteristic of both systems that supported programmes promoting universal education.

When tertiary-level education is taken into account, however, state-dominated systems fare worst out of all systems, closely followed by private ownership systems with customary elements, religious and de jure customary systems. In the case of countries belonging to private ownership systems with customary elements (most of Latin America), such strong negative results might be driven by high land inequality, where only the wealthy landowning elites could afford higher education throughout the past century. The results also reveal that religious, de jure and private ownership systems with customary elements tend to have significantly larger shares of female population that have not moved past primary schooling. Women in these systems often access land only through their male relatives, such as the father, husband or brother. Furthermore, inheritance rules in these systems either prevent women from inheriting land or allow them to inherit smaller shares than their male counterparts.

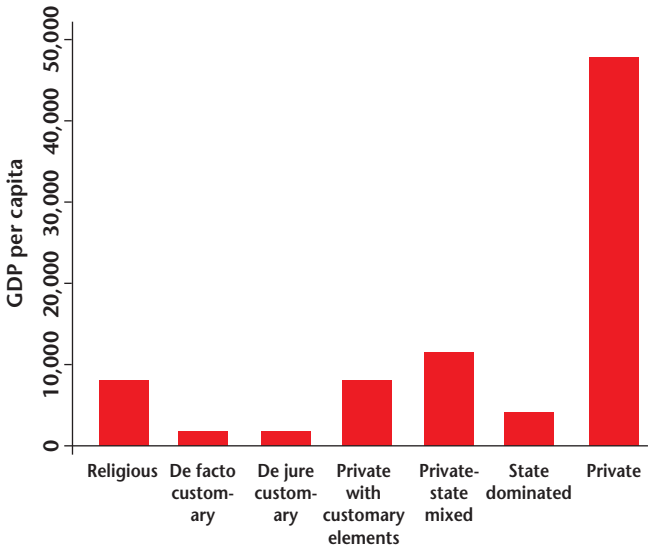
Overall, our results suggest that law plays an important role in establishing a system of secure property rights. We find strong support for the supremacy of private ownership systems compared to religious, customary, state and various mixed legal systems, not only in terms of education presented in this article, but also regarding a number of other indicators like investment and poverty. Our findings strongly support the initiatives for strengthening land property rights with the aim of reducing poverty, improving gender equality and increasing income per capita.

For a list of references and related literature, see: ➤ **www.rural21.com**

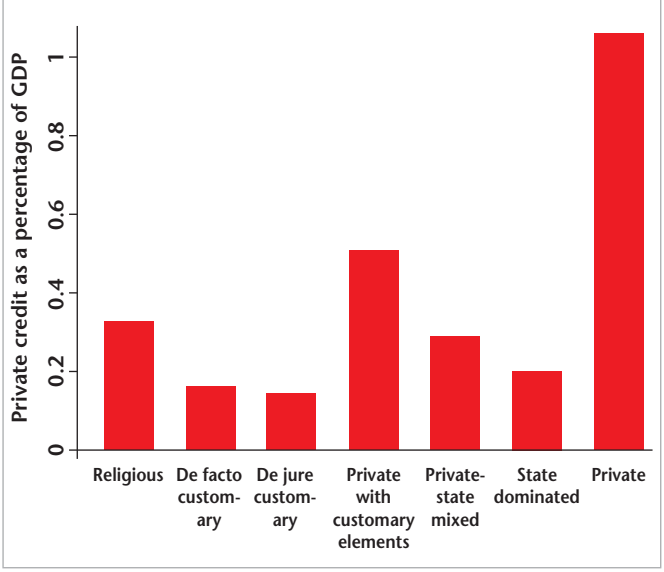
**Population share that lives under 3 US dollars a day (1960–2010) across different legal systems**




**Average GDP (1960–2010) in US dollars across different legal systems**




**Average share of private credit in GDP (1960–2010) across different legal systems**



# Land governance in German development cooperation

Access to land is key to achieving food security, poverty alleviation, social equity and environmental protection. A brief insight in land governance-related principles and policies of the German development assistance.

Over the last two decades, land tenure issues have become extremely important around the world. The increasing pressure on land through new complex challenges, such as tenure implications of foreign direct investments or increasing international trends in terms of environmental and socio-economic patterns linked to natural resources has intensified the global discussion. Access to and distribution of resources will remain cross-cutting issues and in fact, within the frame of the Sustainable Development Goals (SDG), land will be vital for future gender-balanced poverty alleviation, food security, social equity and environmental protection.

To face those challenges the German development assistance increasingly relies on strengthening land governance – an approach that focusses on processes and institutions by which land and other natural resources are managed through regulatory frameworks. It also concentrates on processes by which control over land tenure rights is delegated to decision-makers and how these design regulations to enforce their authority. In many developing countries weak governance and administrative structures as well as poor capacity for land management lead to an uneven distribution of resources and income, often resulting in violent conflicts. In consequence there is a crucial need for multi-layered rules and enforcement mechanisms to solve these land tenure problems and to strengthen sustainable land management.

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Germany's efforts in this context are based on the aims of the country's development agenda to improve socio-economic conditions for the people in partner countries, promote human rights and comply with its international commitments. Four principles guide German development assistance in achieving these objectives: (1) the meaning of property in a market economy, (2) the rule of law and human rights, (3) legal certainty and (4) participation of the population in political processes. These principles are key to sustainable development strategies such as improving land resource allocation, designing sustainable land use patterns or education in the field of land management. Creation of gender-sensitive legal tenure security and supporting access to land for rural groups are of vital importance, too.

*Capacity building for professionals and decision-makers is part of SEWOH's activities on land governance.*
*Photo: Jörg Böthling*

To ensure transparent, accountable and participatory conditions in partner countries, German assistance focuses on a wide scope of activities in knowledge exchange, awareness creation, capacity development and the establishment of multi-level dialogues. Designed to fight global hunger and malnutrition, the Special Initiative "One World – No Hunger" (SEWOH) of the German Federal Ministry for Economic Cooperation and Development (BMZ) deserves particular attention. Within this initiative, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) has been tasked with implementing a number of land governance-related projects in several countries, such as the global project "Responsible Land Policy", which seeks to establish framework conditions for transparent and responsible agricultural investments as well as secured land rights for the rural poor. Another SEWOH measure, "Strengthening Advisory Capacities for Land Governance in Africa", focuses on capacity building for professionals and decision-makers with regard to a wide spectrum of relevant topics. Moreover, the programme is establishing a Network of Excellence on Land Governance with African universities to strengthen educational capacities in the field of land management in partner countries. The third component, the accompanying research programme, provides a solid basis for evidence-based policy dialogue. In all these projects, the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests play an important role.

On behalf of BMZ, GIZ has produced a new publication, "Land in German Development Cooperation: Guiding Principles, Challenges and Prospects for the Future", that provides an introduction to this complex thematic area with a number of concrete tools, examples and experiences for dealing with land-related problems.

For more information and access to the study, please contact the authors.

# Land reform – the solution to rural poverty?

Following the end of apartheid, South Africa's government set itself ambitious goals with a planned land reform. However, there have since been barely any changes in the country's agricultural structure, and the positive impacts that were hoped for on rural livelihoods have hardly materialised. A critical assessment of 22 years of land reform policies.

Land grabbing over nearly 350 years of South African history saw the loss of key productive resources by indigenous populations and erosion of their rights to land and natural resources. Women's land rights were severely undermined, especially in areas where land was held and governed within systems informed by custom. Social differences and inequalities based on a complex articulation of race, gender and class identities underpinned the unequal distribution of land and insecure rights to land. Post-apartheid land policies were intended to eliminate these structural inequalities. But in 22 years, land reform has barely altered the agrarian structure of South Africa, and has had only minor impacts on rural livelihoods. Around eight per cent of farmland has been transferred through restitution and redistribution, and 20,000 settled restitution claims have not been implemented. Why have the results of land reform been so poor?

## Post-apartheid governments and their land reform policies

**Phase I: Focus on poverty reduction.** The first post-apartheid Government's early vision of land reform emphasised multiple objectives: addressing dispossession and injustice; creating a more equitable distribution of land; reducing poverty and assisting economic growth; providing security of tenure; establishing sound land administration; and contributing to national reconciliation. The rural poor (seen as comprising victims of land dispossession, small-scale farmers, farm workers, labour tenants, communal area residents, women and youth) were to be the primary beneficiaries. A constitutional framework for land reform was agreed for this purpose. It contains a provision for expropriation at compensation levels that are 'just and equitable', a right to restitution of land dispossessed after June 1913 (the month in which Natives' Land Act no. 27 was adopted, limiting, among other provisions, the extent of landed property of the majority black population to seven per cent of the country's overall farmland) and a right to security of tenure. The state must take 'reasonable measures', 'within its available resources', to foster conditions enabling equitable access to land. The Government adopted a 'willing buyer, willing seller' approach to land acquisition for purposes of redistribution, and prices paid since then have generally been around market value.

Progress was slow in the first five years of land reform, and most targets were not met. A host of new land laws were passed, aimed mainly at securing land rights. Communal Property Associations (CPAs) allowed groups to hold restored and redistributed land. Communal tenure, however, was highly politicised as a result of the lobbying power of chiefs, and progress in developing a policy framework was slow and incomplete.

**Phase II: Focus on black commercial farmers.** In 1999, policy priorities shifted from meeting the needs of the poor to servicing a group of aspirant black commercial farmers. The means test for those applying for land redistribution grants was removed, but in practice relatively few applicants were at the upper end of a sliding scale of grants. Many of the problems experienced in the first five years of land reform resurfaced: official processes remained cumbersome and slow, plagued by poor co-ordination between different departments and spheres of government. Group projects saw beneficiaries continuing to pool their grants to purchase large farms, but they were not allowed to subdivide these. Rhetoric about land reform for smallholders disguised the complete neglect of small-scale producers, with funds for comprehensive agricultural support largely directed to a minority of larger-scale producers.

Tenure reform was the orphan programme. Few resources were devoted to implementing the Land Reform (Labour Tenants) Act of 1996 or the Extension of Security of Tenure Act (ESTA) of 1997. Evictions of workers from commercial farms continued. In 2004, the Communal Land Rights Act was passed, premised on transferring ownership of land from the state to traditional councils under chiefs. It was never implemented, and in 2010 was struck down by the Constitutional Court on procedural grounds.

**Phase III: Focus on rural development.** After 2009, rural development, food security and land reform were identified as priorities of the

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*The improvements in the livelihoods of the land reform projects' beneficiaries are quite limited.*
*Photo: Adetola Okunlola*

government, and the Department of Rural Development and Land Reform (DRDLR) was created. One new direction was a Comprehensive Rural Development Programme (CRDP) aimed at creating 'vibrant and sustainable rural communities'. This is targeted at 'nodes' in wards where poverty is deep.

In August 2011, a Green Paper on Land Reform was published. The main focus of the merely eleven-page paper is on a 'four tier' tenure system, comprising leasehold on state land; freehold 'with limited extent', implying restrictions on land size; 'precarious' freehold for foreign owners (i.e. with obligations and restrictions); and communal tenure. The Restitution of Land Rights Amendment Act of 2014 opens up land claims for another five years, until 2019. This could jeopardise thousands of existing claims that have not been settled, as well as another 20,000 that are settled but not yet implemented. These could be swamped by new claims lodged since 2014, which already number over 120,000. In addition, government seeks to open up the claims process to traditional leaders. It is unlikely that the hundreds of billions of rand required to settle an estimated 397,000 claims will ever be available.

The State Land Lease and Disposal Policy (SLLDP) of 2013 applies on farms acquired through the proactive land acquisition strategy. It identifies four categories of beneficiaries: (1) households with no or very limited access to land; (2) small-scale farmers farming mainly for subsistence and selling some produce locally; (3) medium-scale farmers already farming commercially but constrained by insufficient land; and (4) large-scale commercial farmers with potential to grow but disadvantaged by location and farm size. This policy is biased towards medium-scale and large black commercial farmers. It assumes that there will be only one lessee per farm, and no mention is made of subdividing large farms. Categories 1 and 2 include labour tenants and farmworkers, who will be leased state land at a nominal rental of R1 per annum, without any option to purchase. But it is not clear whether or not any projects that actually involve these categories have been launched. Categories 3 and 4 are leased state land for 30 years, with leases renewable for another 20 years, and will then have an option to purchase. The first five years of the initial lease is treated as a probation period, and no rental is paid in this period.

A 2014 policy document on 'Strengthening the Relative Rights of People Working the Land', also known as the '50/50' policy, has not yet been approved. Each farm owner is to retain 50 per cent ownership of the farm, ceding the other 50 per cent to workers, whose shares in the farm will depend upon their length of 'disciplined service'. While couched in 'radical' language, this offers workers very little, but promises farm owners a massive windfall of public money. It is unclear if the scheme is to be compulsory or voluntary. Ironically, in 2009, a moratorium was placed on farm equity schemes, based on a government study never made publicly available. The Minister indicated that 'of the 88 farm equity share projects implemented between 1996 and 2008, only nine have declared dividends'.

## Impacts in brief

No systematic data on impacts are available; case study evidence suggests that around half of rural land reform projects have brought improvements in the livelihoods of beneficiaries – but often these are quite limited. It is unclear how many recorded 'beneficiaries' still reside on or use transferred land, or benefit from land reform in any way. Institutions such as Communal Property Associations through which land reform beneficiaries hold land in common remain poorly supported and are often dysfunctional. Tenure reform has largely failed. Farm owners have worked out how to evict unwanted workers within the parameters of ESTA, and have done so in large numbers. In communal areas, the only legislation that secures the land rights of residents is the Interim Protection of Informal Land Rights Act of 1996, which has had to be renewed each year. There are increasing reports of corruption by traditional leaders in areas with minerals. Chiefs are now seeking to extend the territories under their control through restitution claims lodged under the 2014 amendment.

## What went wrong?

There are several reasons for land reform not having become a success story in South Africa. Policy makers are encumbered by a number of wrong assumptions that shape policy design. For example, the rural poor and smallholder farmers are often seen as homogeneous groupings, but are in fact socially differentiated. As a result, targeting is ineffective. Owing to the assumptions that only formal markets count and that small-scale producers can easily be integrated into them, measures to promote the informal economy, including markets for food, are absent. A minority of small-scale black farmers, numbering around 200,000, sell farm produce to markets as a main or extra source of income. Most supply informal markets, often via sales to traders operating from small trucks. These 'loose value chains' are poorly documented and largely ignored by policy-makers. A much smaller number of black farmers, perhaps 5,000 to 10,000, supply formal markets.

The second reason is a lack of coherence in agricultural and land policies. Land reform has not been conceived of as part of a wider process of agrarian reform aimed at restructuring the class structure of the rural economy. Thus there was little real support for black smallholder farmers, and no land reform farms have been officially sub-divided. Spatial targeting of land and beneficiaries in zones of opportunity and need (e.g. farms located on the edges of densely settled former Bantustans, and on urban edges) has been absent, and local government has barely been involved in planning and implementation.

For policy-makers, private ownership with registered title deeds seems to constitute the 'gold standard' for land tenure. However, in 2011, some 60 per cent of South Africans occupied land or housing without their rights being recorded in official systems. This includes 17 million people in communal areas, 2 million on commercial farms, 3.3 million in informal settlements, 1.9 million in backyard shacks, 5 million in RDP houses without title deeds, and 1.5 million in RDP houses with inaccurate title deeds. Their claims to property cannot meet the stringent requirements of the cadastre and remain 'off-register'. On land reform farms, beneficiaries often lack clearly specified rights to the land they hold though CPAs and trusts.

*Most South African farmers supply informal markets, often via sales to 'bakkie' traders, who operate from small trucks.*
*Photo: David Neves*

Informal land tenure systems ('social tenures') are frequently characterised by local oversight of processes of claiming rights and resolving disputes, and social relations and identities directly inform the recognition of rights, as well as of institutional arrangements. A key criterion is need, rather than ability to pay. These tenure systems confer de facto tenure security to large numbers of people. But people inside such systems also experience many problems. The 'second-class' legal status of the tenures means that the state does not provide much oversight of their functioning, and they cannot always prevent abuse, including gendered forms of discrimination. Local institutional arrangements are often ineffective in contexts such as new informal settlements, or where informal land markets develop, and social tenures are not well served by planning and service delivery. Land reform has done little to date to secure these rights.

Land reform has been captured by elites. The most powerful voices are those of 'emerging' black capitalist farmers (often with non-farm incomes), traditional leaders, large-scale white commercial farmers and agribusiness corporates, who are all benefiting more than the poor. This has arisen in part because a once-effective civil society sector has lost capacity: most of its leadership went into government or consultancy, and its voice is barely heard except in relation to issues of traditional leadership. Farmworkers are weakly unionised, and small-scale farmers do not have their interests adequately represented within organisations such as the African Farmers Association of South Africa (AFASA). Last but not least, the process of land reform is complex and time-consuming. 'State capacity' is crucial, and comprises strong leadership and management, adequate budgets, appropriate policies, sound institutional structures, efficient procedures and an effective system for monitoring and evaluation. All of these have been problematic, and the DRDLR is known as one of the weakest of government departments. And good data on the rural economy are lacking – just one, inadequate, national survey of small-scale agriculture has been undertaken since 1994, and the census does not collect data on farm size.

# What about the land rights of communities and Indigenous Peoples?

Indigenous Peoples and local communities hold a large share of the world's land area under customary systems. However, there is a tremendous gap between what is held by communities in practice and what is formally recognised by governments.

When Indigenous Peoples and local communities lack formal, legal recognition of their land rights, they are vulnerable to dispossession and loss of their identities, livelihoods, and cultures. The environmental health of the land they manage is endangered, and the insecurity of communities' rights fans disputes over land and natural resources that can contribute to armed conflict. By contrast, countries whose governments formally recognise customary land rights are making progress towards realising human rights imperatives established in international frameworks such as International Labour Organization Convention No. 169, the UN Declaration on the Rights of Indigenous Peoples (UNDRIP), and the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries, and Forests (VGGT).

Indigenous peoples and local communities – at least 1.5 billion people – are estimated to hold at least 50 per cent of the world's land area through customary, community-based tenure systems. However, they only hold formally recognised ownership over ten per cent of the land, as the latest study by the Rights and Resources Initiative, "Who Owns the World's Land? A global baseline of formally recognized indigenous and community land rights", shows. Governments have also legally recognised communities' limited rights to access land, withdraw and manage resources, and/or to exclude outsiders from an additional 8 per cent of lands. The distribution of land and resource rights varies widely by country, with only five countries – Australia, Brazil, Canada, China, and Mexico – together containing approximately 67 per cent of the land area owned or controlled by Indigenous Peoples and local communities. China and Canada alone account for 24 per cent and 20 per cent respectively. If these two countries were not included in the results, the total per cent of land owned or controlled by communities would drop by a third, from approximately 18 per cent to 12 per cent of land area.

In many countries the extent of formal, legal recognition of community land rights is very limited. In half the countries studied (32 of 64), less than five per cent of community land is owned or controlled by communities, including 15 countries where communities have no legally recognised control over their lands. This can be contrasted with four of the 64 countries where formal statutes recognise rights of Indigenous Peoples and local communities to own or control more than 60 per cent of the land area, including Papua New Guinea (97%), Tanzania (75%), Uganda (67%) and Turkmenistan (64%). The situation is particularly bad in fragile states. Among the twelve fragile states included in the study, only 1.6 per cent of the land area has been designated for Indigenous Peoples and local communities, and another 0.3 per cent is owned by them.

Across Asia, Latin America and sub-Saharan Africa, at 26 per cent, Asia has the highest proportion of land formally owned or controlled by Indigenous Peoples and local communities. However, without China, Indigenous Peoples and local communities own less than one per cent and control only six per cent of land in Asia. In Latin America, the total area owned or controlled by Indigenous Peoples and local communities is 23 per cent, and this area is more evenly distributed across the countries studied, with eight out of 13 countries recognising community-based rights to more than ten per cent of their land area. The countries where the highest percentage of national land area is owned or controlled by Indigenous Peoples and local communities are Mexico (52%), Bolivia (36%), Peru (35%) and Colombia (34%). In Sub-Saharan Africa, the total area owned or controlled by Indigenous Peoples and communities is 15 per cent, with eight out of 19 countries exceeding 10 per cent. Across the 19 countries studied, less than 3 per cent is legally recognised as owned by communities, while less than 13 per cent of the area is designated for them.

Strikingly, in more than half of the countries studied, Indigenous Peoples and local communities have no formal, legal avenue to obtain ownership of their lands. This significant obstacle to justice results from the fact that 12 per cent of countries (eight of 64) have yet to enact any community-based tenure regimes, and another 44 per cent of countries (28 of 64) only designate lands for community control and have no tenure regimes recognising community ownership.

The Rights and Resources Initiative (RRI) is a coalition of 15 partners, 5 affiliated networks, 14 fellows, and over 150 international, regional, and community organisations advancing forest tenure, policy and market reforms.

For more information and to download the study, please visit:
➤ **www.rightsandresources.org/wp-content/uploads/GlobalBaseline_web.pdf**

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# Tanzania's Village Land Act 15 years on

The year 2016 marks 15 years since the new wave land reforms became operational in Tanzania. Despite its ambitious goals – encouraging land registration and titling, and empowering women and other vulnerable groups – the results are disillusioning. A brief overview of 15 years of implementation, using the Village Land Act as a case study.

In 1999, the Land Act, number 4 and the Village Land Act, number 5 were enacted to govern land administration in Tanzania. Both legislations started to be implemented in May 2001. Although numerous efforts have been made by the Government of Tanzania and other actors to implement the Village Land Act, progress has been slow and uneven, and has not moved beyond pilot projects. This brief urges that, given the insecurity that powerful interests are creating regarding the village lands, more needs to be done to increase the pace of implementation.

*In the last ten years, land dispute between farmers and pastoralists has increased exponentially.*
*Photo: TNRF*

## The Village Land Act in a nutshell

The Village Land Act, number 5 of 1999, refers to governance and administration of village land, which constitutes 70 per cent of the whole land mass of Tanzania Mainland. Other categories of land include general land (2%; governed and regulated by Land Act number 4) and reserved land (28%; governed by different legislations). About 75 per cent of Tanzanians live on village land, and 80 per cent of them practise small-scale farming.

Among other things, the Village Land Act provides for equal rights to access, use and control of land. It is considered among the most revolutionary legislations in recognition and protection of the rights of women and vulnerable groups in sub-Saharan Africa and sanctions all customary traditions that are repugnant to the rights it provides. Moreover, the Act establishes some institutions responsible for village land governance, such as the Village Council, the Village Assembly and the Land Adjudication Committee, as well as the Village Land Council, which is responsible for mediating land disputes. Although the law gives the Village Council the powers to administer all village land on behalf of all villagers, all decisions on village land are made by the Village Assembly. The Village Land Act also stipulates a compensation package that a landholder is entitled to, procedures for land transfer and powers of the Village Council to grant certificate of customary rights of occupancy to villagers.

While the Act is progressive in accommodating customary rights and gender equity provisions, it is yet to achieve its aspirations 15 years down the line. In the following, some major milestones and challenges of implementation will be highlighted.

## Implementation success and challenges

**The land use plan:** About 1,640 villages out of a registered total of 12,788 have undergone land use planning as of April 2016. Small budget allocation, land use conflicts, few skilled staff and the practice of subdivision of villages are some of the reasons for this snail-pace implementation of village land use plans.

**Issuance of customary titles:** As of April 2015, about 258,134 certificates of customary rights of occupancy (CCROs) were issued to individual villagers – a small number in a country of over 45 million people. The biggest challenge is that only few of these customary certificates have been accepted as collateral by financial institutions. There is growing scepticism from financial institutions over the security and acceptability of the customary certificates. Reasons noted by researchers are that CCROs are only registered at the District level and not at the Commissioner of Lands office and can hence easily be transferred to other villagers, and that in the event of default in repaying the loan, bankers can only exercise the right of sell to villagers who live in the village where the mortgaged land or property is located. To most bankers, this arrangement does not make business sense.

**Land dispute settlement:** The institutions responsible for land dispute settlement have been established from village to national level. However, those at the lower level do not func-

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tion effectively and have a backlog of cases. For instance, as of April 2015, the District Land and Housing Tribunals had 18,033 pending cases and an average of 11,542 cases instituted each year. The whole system is fragmented and is governed by three different ministries (the ministry of lands, the ministry responsible for local government and the ministry responsible for justice), which is making accountability an uphill task. The call has been made to streamline the whole system in the Judiciary for accountability. In the last ten years, land dispute between farmers and pastoralists has increased exponentially, and so have the conflicts between communities and investors. For example, the conflict between villagers and investors in the Kilombero, Kisarawe, Kilwa, Bagamoyo, Babati, Arumeru and Ngorongoro districts is well-known throughout the country. With most of the disputes occurring in village lands, institutions established by the Village Land Act are severely overstretched.

**Rights of vulnerable groups:** Although there are about 14 provisions in the Village Land Act that diligently safeguard rights of women and vulnerable groups, in practice, empirical evidence on the protection of women and vulnerable groups is insufficient. Women participation in investment deals has been very limited by traditional practices favouring patriarchy and the absence of legal requirements demanding women's participation in the decision-making bodies at village level. In the recent past, there have been evictions of pastoralists and indigenous people by powerful investment groups in Loliondo, Kilombero and Bagamoyo. Although some women have been given land title in their own names and others jointly own land with their spouses, the available data are only project-based.

**Co-ordination:** When the Strategic Plan for Implementation of Land Laws (SPILL) was designed in 2005, co-ordination between and among sector ministries was the key factor for implementation. However, SPILL (2005) died a natural death precisely because of a lack of co-ordination, and this is also seen in the land dispute settlement machinery and land use planning process. These have significantly affected the implementation of the Village Land Act. The Government of Tanzania developed SPILL (2013) by addressing some of the challenges that had hindered SPILL (2005).

**Funding:** The Ministry of Lands is not one of the priority ministries. It thus receives very limited budget, which contrasts with the large number of developments in the land sector that would warrant it to be the priority sector. In the last five financial years, the actual budget allocation for development projects of the Ministry of Lands has been sporadically decreasing, hitting zero allocation in 2014/2015. The total costs of the activity set out in SPILL (2005) was established at 300.169 billion Tsh, of which 297.259 billion Tsh was out of the standard Government Medium-Term Expenditure Framework (MTEF) process. SPILL (2005) proposed that the funding outside of MTEF was to be obtained through a Land Administration Infrastructure Fund (LAIF) that was to be established as a levy on land. The LAIF was never implemented.

**Review:** The Village Land Act is perhaps the only land legislation that has survived review in 15 years of its implementation, as opposed to the Land Act, which has been amended more than eight times. This is notwithstanding the fact that the fifth pillar of the Government's *Kilimo Kwanza* (Agriculture First) Policy, which aims at modernising the agricultural sector in Tanzania, proposed an amendment of the Village Land Act in order to make land acquisition for investment much easier. At the moment, the Government of Tanzania is in the process of reviewing the National Land Policy of 1995. This review process will eventually lead to the review of all land laws, including the Village Land Act.

## Conclusion

So far, the implementation of the Village Land Act has not moved beyond some pilot projects. The first project was launched in Mbozi District, renowned for its high-value agricultural production. In 2010 a total of 15,901 CCROs had been issued there, 1,930 (12%) of which were in the name of women and 3,161 (20%) were joint titles. Projects in other districts selected under various programmes followed, most recently the Land Tenure Support Programme (LTSP). Other stakeholders, such as international and local NGOs, have also contributed to the implementation work. Some best practices around land use planning of community grazing lands and the joint resource sharing plan in the rangelands have been developed and spearheaded by civil society organisations (CSOs). For example, the Ujamaa Community Resource Team (UCRT) and Tanzania Land Alliance (TALA) have managed to secure the first ever title deed of the community land owned by Hadza/Hadzabe indigenous ethnic group in Northern Tanzania. Tanzania Natural Resource Forum (TNRF) and the International Land Coalition (ILC) are among the pioneers of conducting joint resource land use planning in the rangelands.

While these are laudable efforts, there are other threats to tenure security in village lands. The country's policy drive towards commercial agriculture, which is implemented in the Southern Agricultural Growth Corridor of Tanzania (SAGCOT), is one of such threats. SAGCOT region covers 300,000 square kilometres marketed for large-scale agribusiness that spark an agricultural revolution in the county. While this may be a good decision economically, it is likely to cause land pressure and evictions of landholders which will block the aspirations of the Village Land Act. There is need to increase awareness of communities on their rights, strengthen the institutions established by the Village Land Act, and holistically implement the law throughout the country. Fifteen years of implementation has fallen far short of the intended objectives of the law and has proved to be slow and uneven.

For more examples of implementation projects and a list of references, see:
➤ **www.rural21.com**

# Cambodia: Land grabs and rural dispossession by government design

**The land reform process in Cambodia is full of examples of injustice and human rights violations. Promises to improve the situation of the landless and land-poor citizens have remained unfulfilled. Development co-operation efforts have not changed this either.**

As a post-conflict country, Cambodia has a particularly complex land legislation history. Under the Khmer Rouge Regime from 1975–1979, private land ownership was abolished and cadastral records were destroyed. During the ten-year long occupation by Vietnamese forces and several years of unrest that followed, rural areas in Cambodia were marked by large and unregulated movements of people and land possession by occupation of forestland and otherwise vacant land.

## Forrest concessions with devastating consequences

Following the Paris Peace Accord of 1991, the end of major civil conflicts and the repatriation of refugees, a policy of forest concessions was introduced that had enormous social and ecological impacts, particularly in terms of increasing insecurity of land tenure and reducing forest cover. From 1993 to 2002, more than 30 forestry concession zones were established, covering about 6.5 million ha and around 70 per cent of forestland. After a decade of massive deforestation and forest degradation and mounting criticism by international donors, a moratorium on forest concessions was issued in 2002.

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*A family house knocked down by security guards of a tourism concession in Koh Kong province.*
*Photo: Andreas Neef*

## The Land Law of 2001: Laying the foundation for land titling and land grabs

The Land Law of 2001 introduced new property rights categories, such as state public land (mostly forested areas) and state private land (land that can be converted into various forms of concessions). The law turned hundreds of thousands of rural people living on unregistered state public land into illegal occupants. To date, there is still no clear demarcation between state public and state private land, and there is no verifiable and enforceable procedure for assessing or contesting state claims to land in Cambodia.

Most state private land has been allocated by the government to domestic and foreign investors in the form of Economic Land Concessions (ELCs) without any public scrutiny over the last 15 years, primarily for agro-industrial plantations (see Box on page 21, above). Legally required environmental and social impact assessments and consultations with affected villagers have either not been conducted at all or have been of poor quality. Large-scale tourism development projects, such as the 3.6 billion US dollar tourism complex in a national park in Koh Kong province built by the Chinese Tianjin Union Development Group, have also triggered the forced dis-

placement of hundreds of families (see Photo). The human rights NGO ADHOC estimates that about 770,000 Cambodians are affected by land conflicts and dispossession.

Internationally operating financial institutions, U.S. and European multinational corporations, and both state-owned and private companies in neighbouring Asian countries are involved in either financing or operating ELCs. In one notorious case, two sugar companies (Koh Kong Plantation and Koh Kong Sugar Industry), jointly owned by the Thai company Khon Kaen Sugar Industry, Taiwanese Ve Wong Corporation and Cambodian Senator Ly Yong Phat, have exported sugar to one of the world's largest processors and sellers of cane sugar, Tate & Lyle, from two large ELCs that displaced hundreds of farming families. These sugar exports are facilitated by the Generalized System of Preferences (GSP) trading scheme of the European Union (EU), the so-called "Everything but Arms" policy, which has benefited Cambodia's trade with EU member states since 2001. In the resource-rich north-eastern provinces along the border with Vietnam, London-based NGO Global Witness has accused two large Vietnamese corporations, Hoang Anh Gia Lai (HAGL) and the Vietnam Rubber Group (VRG), of being responsible for the eviction of indigenous people to make way for logging and rubber concessions. Allegedly, their operations were bankrolled by the International Finance Corporation (the private lending arm of the World Bank) and Deutsche Bank. The widespread dispossession of the rural populace has contributed to an increase of rural poverty and a rapid social transformation of former land possessors into a landless and land-poor semi-proletariat that depend on selling their labour force. In several cases in Kratie province, villagers lost access to their swidden fields, pastures, water sources, village cemeteries and community forests and could only secure some of their rice fields after negotiations with the concessionaires. In Koh Kong province, coastal paddy farmers, fisherfolks and cashew-nut growers were forced into slash-and-burn cultivation in a protected forest area after being moved 20 kilometers inland to make way for a large-scale tourism project. Meanwhile, systematic land registration – with technical and financial support from international donors – has been confined to the wet-rice areas of the central lowland plains, where conflicts over land are much less pronounced.

## Fast-track land titling under Order 01

A dramatic change to land registration procedures was introduced by an ad-hoc land titling initiative under the so-called Order 01 – which started in 2012 following a moratorium on the granting of new Economic Land Concessions (ELCs) and a 'comprehensive review' of existing ones. Recognising the potential for widespread social unrest among the rural population, the Prime Minister sent more than 5,000 student volunteers to rural areas in order to measure and excise agricultural plots from selected ELCs and return them to the farming families who had originally occupied them. Order 01 has become synonymous with the Prime Minister's 'leopard skin' policy, under which individually owned agricultural plots – like the dots in a leopard skin – are located in a wide expanse of land concessions or, less frequently, of state public or communally managed land. The implementation of Order 01 was controversial, as many contested sites were not covered by the survey and conflicts involving well-connected and powerful actors – military officials, political cronies and foreign concessionaires – were rarely resolved. Most contentious was the practice in indigenous communities, where potential beneficiaries from individual land titling were told to leave the community and give up their rights to all traditional lands, which created tensions and divisions among community members (see Box below).

## The unfulfilled promises of Social Land Concessions

Relief for Cambodia's landless and land-poor citizens has long been promised through another element of the 2001 Land Law, the so-called Social Land Concessions (SLCs), which

### Types of land concessions in Cambodia

The 2001 Land Law introduced various forms of land concessions. In principle, a land concession is a right to use State land for a clearly defined purpose set out in a legal document. **Economic Land Concessions (ELCs)** allow the beneficiaries to clear the land for agro-industrial exploitation, although in reality other uses are also common, such as clear-logging or tourism development. The maximum size allowed by the law is 10,000 hectares which can be granted for a duration of up to 99 years. **Social Land Concessions (SLCs)**, by contrast, are intended to provide agricultural and residential land for meeting the basic needs of poor families, families displaced as a result of public infrastructure development, repatriated families, families suffering from natural disasters, demobilised soldiers and families of soldiers who were disabled or died while executing their duty. A third category is **Use, Development and Exploitation (UDE)** Concessions, e.g. for mining or for providing a public facility, such as a port or airport.

### Community land titling in rural Cambodia

Articles 23-28 of the 2001 Land Law introduced the concept of 'indigenous community property' as a form of collective ownership. However, the process of acquiring indigenous communal land titles is arduous and involves lengthy negotiations with three different ministries and their respective line agencies. Many indigenous communities in Cambodia lack the resources and the legal expertise to engage successfully in this process. By February 2016, only 11 indigenous communities (out of 166 that have filed an application) have received communal land titles, with help from international donors. The programme was largely by-passed by the fast-track individual titling that started in June 2012 under the so-called Order 01. Since then, no further donor funding has been allocated for this programme, and the community land titling process has stalled.

were formally introduced by the Cambodian government in 2003 as an instrument of 'distributive justice' (see Box on page 21, above). After initial failures, the Land Allocation for Social and Economic Development (LASED) project was instigated in July 2008 under technical, administrative and financial support from the World Bank and German Development Assistance (Deutsche Gesellschaft für Internationale Zusammenarbeit – GIZ). The project was plagued with a number of problems, such as (1) insufficient quantity and quality of land to be distributed, (2) lack of settling-in support, (3) missing health and educational infrastructure, and (4) overly long processes (of up to six years) from land identification to land distribution, which led to an influx of opportunistic settlers and small-scale 'land grabs'. According to a recent NGO report, many families had already given up their plots in the SLC areas, leaving some of the eight sites more than half abandoned. Nevertheless, the project has been branded as an overall success by donors and project implementers who asserted that the original project objectives in terms of number of recipients, allocated land and increase of household income had been exceeded and that a viable framework for future SLC allocations has been provided. Yet, what is left out of most accounts is the fact that landlessness in rural Cambodia is primarily a result of the Cambodian government's own land policies and that over the painfully long duration of the LASED project the government had no difficulties in finding hundreds of thousands of hectares of suitable land for foreign and domestic investors.

## Outlook on the future of the land sector in Cambodia

Have international donors learned any lessons from the mixed outcomes of their involvement in Cambodia's land sector? The World Bank is now preparing a second phase of the LASED project, planning to spend 25 million USD on improving conditions in the existing eight sites, in five other sites which had been set up with Japanese development assistance and adding an entirely new site, which – according to media reports – is already being farmed by indigenous families some of whom may need to be resettled. German development agencies have become increasingly frustrated with the slow progress of land reforms in Cambodia, and GIZ recently withdrew its support of the land administration sector after nearly two decades of engagement with the Ministry of Land Management, Urban Planning and Construction (MLMUPC). Yet they may get involved in LASED's second phase, if the World Bank approves the project. The Cambodian government seems to be keen to go ahead with the further allocation of SLCs. A new minister with a reputation of a strongman who 'gets things done' was appointed to the MLMUPC in a cabinet reshuffle in April 2016. Shortly after his appointment, he established a new Department of Social Land Concessions and set up a committee in charge of handling the high number of petitions and complaints submitted by evictees and victims of land conflicts.

*New settlers on a Social Land Concession in Kratie province.*
*Photo: Andreas Neef*

Yet the Cambodian government will need to demonstrate a genuine and long-term commitment of redressing the massive injustices and human rights violations of its past land policies, if it wants to regain the trust of the international community and its own rural constituency. A necessary first step would be to revoke all unlawful ELCs, particularly those that are larger than the 10,000 hectares permitted by the 2001 Land Law, which would free up sufficient land resources for a serious redistributive land reform rather than simply a window-dressing exercise. On its part, the donor community needs to acknowledge that land allocation projects are not just about getting the technical and legal mechanisms right, but are fundamentally socio-political processes.

**Acknowledgement**

This article draws partly on information from a larger study undertaken by the author on "Land Rights Systems in Southeast Asia: Potential of National and International Legal Frameworks and Guidelines to Reduce Land Grabbing, Dispossession and Displacement". The study is commissioned by Bread for the World and will be published later in 2016. I would like to thank Bread for the World for giving permission to use some of the material for writing this article.

# No food security without land tenure security?

**Secure tenure of farming and forest land is increasingly recognised as an important factor of household food security and nutritional status. This is borne out by a study by the Laotian Land Issues Working Group. It demonstrates mutual impacts, how government land-related policies affect the factors involved, and who the winners and losers are.**

Maintaining access to land and natural resources, such as forests and fisheries, is a critically important dimension of food security for the rural poor of developing countries. The rural poor have few assets apart from land and common resources. Livelihoods tend to be subsistence-based, reliant upon cultivating cereal crops, foraging wild forest products, hunting small game, and fishing in nearby rivers and streams. The little income that they do generate mostly comes from selling the crops they produce or natural forest products they collect – employment and business opportunities in rural areas far from towns and larger villages are mainly land-related. Secure access and control over land and natural resources is a major determinant of rural people's access to food, whether directly through subsistence or indirectly with income used to purchase food items.

The conceptual importance of land tenure security for food security is linked to all four elements of the food security definition. The Figure on the right expands upon the four pillars of food security defined by the World Food Programme (WFP). It conceptually shows how these pillars are in turn supported by the foundation of land tenure security. The Laotian Land Issues Working Group has examined the context in its country.

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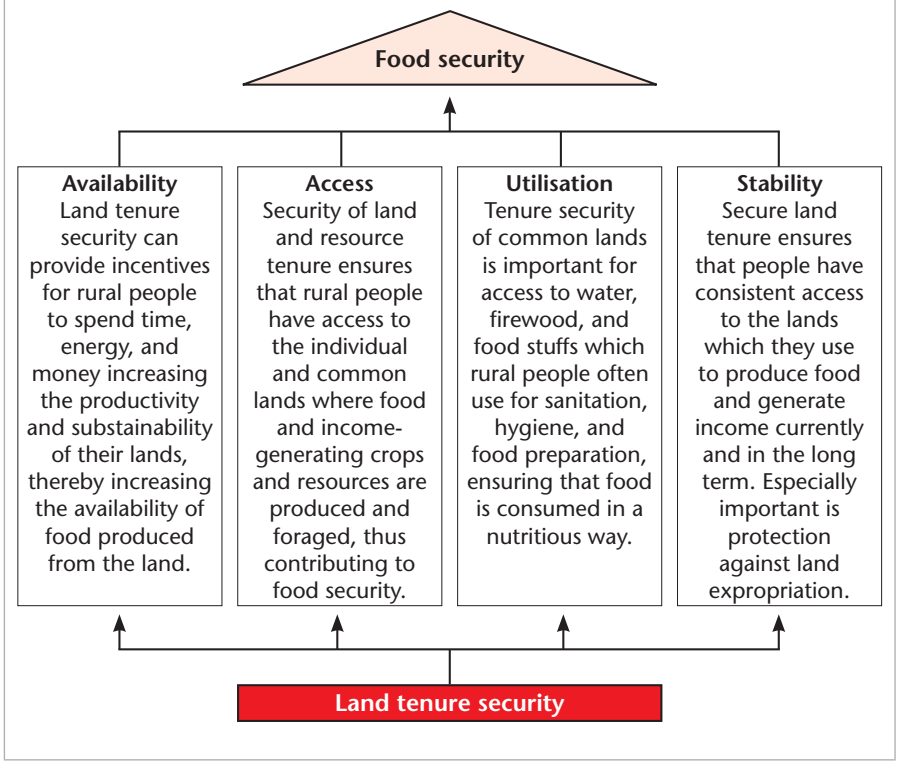
## The situation in Laos

Laos showed mixed results in its efforts to combat hunger and achieving Millennium Development Goal 1 in 2015. As figures from the United Nations Development Programme (UNDP) reveal, while the country reached the target of halving the proportion of hungry people (18.5% in 2015 against 42.8% in 1990), Lao PDR is off track regarding the target of reducing underweight and stunting; in 2012, 44 per cent of the under-five-year-olds were stunted and 27 per cent underweight. Considering the

**Conceptual pathways and linkages between land tenure security and food security**



significant challenges to meet the objectives to alleviate hunger, the government declared nutrition a priority issue and reaffirmed its commitment to fight hunger and undernutrition through the launch of the National Zero Hunger Challenge in May 2015.

In addition, land tenure in Laos is insecure. Formal land registration and titling is not sufficient for strengthening people's tenure security and is mostly limited to urban and peri-urban areas. Communal land titling has been extremely limited, as only two communal land titles have been issued throughout the country so far, while this is recognised as key to the production and collection of food and other resources.

Customary land tenure systems are commonly used by rural people, based upon local, largely village-level, rules of land and resource use. While such systems are appropriate for local land governance, they are not often understood or recognised by outside actors, such as government officials and policy-makers, as representatives of legitimate land rights. Concurrently, Lao people's access to land has declined over the past decades due to a number of social, political, and economic forces. Land and forest policies have been particularly problematic. They were aimed at formalising and securing land tenure and improving agricultural productivity, but often had the effect of reducing farmers' access to agricultural land, resource-rich forest lands, and other lands for raising livestock.

## A clear link

In Laos, there is evidence that populations with lower access to or ownership of land are more likely to be food insecure and face problems of malnutrition. Farmers report that serious and chronic shortages of food result from a lack of land and common resources, in combination with poor and decreasing soil quality all of which is attributed to interrelated problems: increasing population, shortened rotational cycles in upland fields, forced displacement, banning of swidden systems, economic concessions, and cash cropping and associated debt.

**Definitions**

**Food security** exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life (UN Committee on World Food Security, 2014).

**Land tenure** is secure when it is socially and legally protected against the actions of others, particularly forced expropriation or eviction (FAO, 2012).

In 2006, the Asian Development Bank (ADB) and the National Statistics Center carried out a study which captured the perspectives of the rural poor concerning their poverty and its root causes. Villagers throughout the study sites identified limited access to cultivation land, especially for rice cultivation, to be the primary cause of poverty. They additionally reported that they lacked land as a result of attempts by official programmes to re-allocate land use and ownership, to consolidate villages, and to reduce shifting cultivation, which led to population pressure and a scarcity of land resources. The implementation of these policies demonstrates a lack of secure access and tenure to land in the surveyed villages. Another study by Annim and Imai (2014) showed the importance of land size and ownership for nutrition. It demonstrates that the majority of Laotian children under five years of age who are stunted, wasted, and underweight belong to households with less than two hectares of arable land.

*Concentrating on cash cropping often leads to non-sustainable farming in which processes such as soil erosion are exacerbated.*
*Photos: GRET*

## What is the impact of the Government's programmes and policies?

Two major government policies had a large impact upon land, forest, and resource access in Laos: the Land and Allocation Program (LAP) and the resettlement/relocation policies. The LAP was intended to strengthen land tenure security, intensify agricultural production, and conserve forested areas by delineating village boundaries, zoning agricultural and forest lands, restricting swidden cultivation, and issuing temporary land use certificates. Ducourtieux et al. (2005) found that although the programme had strengthened tenure security for wealthier, lowland paddy farmers, it had significantly reduced access to land for upland, swidden farmers, whose fallow lands were zoned as forest lands protected for conservation and who were left with an inadequate amount of fallow land for swidden production.

Government relocation policies have had a significant impact upon food security by relocating villages to areas that offer less land and natural resources than their former villages. The lack of available land is largely due to the concentration of more people in larger settlements – in particular, there is a lack of land left for new arrivals. Relocation can be divided into two broad classes: relocation as a result of government rural development and poverty reduction strategies and relocation due to public and private sector development projects. Generally, research on the former type of relocation has shown that the negative impacts upon liveli-

hoods outweigh the positive ones, especially in the first years after resettlement. While positive impacts include improved access to education and health services, wage labour opportunities and market access, negative impacts comprise disease outbreaks, reduced access to land and resources, lower nutritional levels, reduced social cohesion, and increased vulnerability to human trafficking and new forms of drug addiction.

## Large-scale land investment and expropriation

Large-scale land investments, particularly those that have resulted in the expropriation of farmers' agricultural and forest lands, have had negative impacts upon smallholding farmers. Throughout Laos, land concessions have been granted at a rapid pace over the past 15 years. They jeopardise food security by leading to a loss of agricultural lands and forests that households rely upon for food and income. Lands viewed as high-value by the Government, such as rice paddy, cash crop lands, and primary forest, are in some cases cleared by concessionaires, but the majority of land cleared tends to be swidden fields and fallow lands or secondary forest, which the Government believes are less significant, even if they are critical to local livelihoods and food security. The loss of communal forest lands has a particularly negative impact for women who in many villages do most of the work collecting Non-Timber Forest Products (NTFPs) and as a result of losing such land have to travel further and spend more time searching for NTFPs in other areas. While many projects in Laos provide some form of wage employment for villagers that have lost land, studies have shown that jobs are few, infrequent, inconsistent over the long-term and low-wage. Inadequately planned economic land concessions for mining, hydropower and agriculture (e.g. banana plantations) and industrial tree plantations projects have decreased villagers' access to land and negatively impacted their food security.

### What people say

"We have limited land for production. We do not rotate the fields as before. We keep using it over and over. The land is losing its quality."

*A farmer from Oudomxay*

"We miss the rich soil which was our priceless inheritance."

*A Champassak villager*

Fullbrook (2010) has demonstrated that throughout Laos, a food security paradox has emerged in that the country's development policies have emphasised the extraction and production of resource commodities over rural livelihoods and environments, which has threatened food security, particularly when land tenure security is jeopardised.

Agricultural commercialisation of rural areas has become a central component of the Lao Government and development partners' plans and policies for rural development. It has evolved into and will continue to be an important part of the Lao rural landscape. In Laos, like in many other developing countries, the households that engage mostly in commercial agricultural schemes have more natural, financial and physical assets, and in particular they have access to more land to convert to cash crops (Wright, 2009). Limited land prevents the rural poor from engaging in commercial agriculture, and in cases when they do so, they may become over-dependent upon cash cropping, which is risky should the farmer be unable to sell the crop at a decent price – or sell the crop at all – and be left with little to eat. Besides, it is found that cash croppers have to resort to overuse of pesticide, and that cash-cropping causes other adverse impacts on health, soil quality (e.g. erosion) and water pollution, including the diminution of Non-Timber Forest Products (NTFPs) and other resources.

## What ought to be done?

As the study demonstrates, land tenure security is an inextricably important dimension of food security. Secure access to agriculture and forest lands enables rural, smallholder farming families to produce and collect NTFPs and sufficient amounts of nutritious food. It also becomes clear that food security can be most effectively achieved by integrating land tenure security with other pillars of food security, such as agricultural productivity or improving hygiene and sanitation.

Based upon the findings of the study, LIWG promotes strengthening food security by enhancing and protecting land tenure security. Here, it points to two crucial factors:

- Strengthening land tenure security in rural areas through **legal recognition of customary land tenure** and formal registration of lands (individual and communal) within the National Land Policy (NLP), Land Law and Forestry Law.
- **Protecting citizens' lands from expropriation** without consent, unless for a strictly defined public purpose for which affected parties shall receive full and fair compensation prior to any expropriation. The NLP and Land Law should articulate that citizens are able to decide whether their land, including land held under customary systems, is expropriated for private investment projects.

### Background information

The Land Issues Working Group (LIWG) is a civil society network that has existed in Lao PDR since 2007. The group was established to enable members to inform one another about land matters, especially in view of increasing land-related foreign direct investment (FDI) projects and concerns over their negative impacts on the livelihoods of rural communities, as well as to develop common initiatives to address some of these issues. The article centres on a literature-based study elaborated by the LIWG to provide recommendations for policy-makers.

For more information and a list of references, see: ➤ **www.rural21.com**

# Those in darkness drop from sight

Sierra Leone is one of the least developed countries in the world and is still recovering from a civil war that ended in 2002. Increasingly, the Sierra Leonean government seeks to attract foreign investors through providing opportunities for large-scale land leases for the development of agribusiness. This has triggered a rapid transformation process that poses a considerable threat to food security and social stability. Despite being a pilot country for the implementation of the Voluntary Guidelines on the Responsible Governance of Tenure, there is no real change on the ground as yet.

In February 2011, villagers of Malen Chiefdom in Pujehun District in the South of Sierra Leone were informed by their Paramount Chief that their land was going to be allocated to a foreign company. The investor was Socfin Agriculture Company S.L. Ltd. (SAC), a subsidiary of the Belgian corporation Socfin, registered in Luxembourg. Socfin leased 6,560 hectares of agricultural land in Malen Chiefdom for a period of 50 years, with the option for renewal for an additional 25 years. The land in Malen Chiefdom was leased by the Ministry of Agriculture from the traditional authorities and sub-leased to SAC.

On March 5th, 2011, a chiefdom meeting was held for the signing of the contract. It was guarded by armed security forces; the Paramount Chief, the Sierra Leone Minister of Agriculture and the General Manager of SAC were in attendance. The latter brought along 173 million Leones, about 40,000 US dollars. This was meant to be the landowners' share of a year's rent. The annual rent for an acre of land is five US dollars (USD), which means 12.50 USD a hectare, but 50 per cent of this rent is deducted for the District Council, the Chiefdom Administration and the National Government.


*Alphajor Cham from the Ministry of Agriculture, Wolfgang Wiethoff, German Ambassador, Charles Rogers, Deputy Minister of Fisheries and Abdulai Bun Wai, Action for Large-Scale Land Acquisition Transparency (ALLAT) (from left to right) attended the National Conference on Land Governance.*
*Photo: Maurice A. Boima*

In Sierra Leonean traditional law, the land is owned by families, while land rights are managed and controlled by the family head. The Paramount chief, as the highest custodian, plays a key role in the process, but the decision to lease land is always taken by the family who provides the land. However, in this meeting, the lease agreement was signed by some of the section chiefs that are appointed by the Paramount Chief without consultation of the landowning families. The money was stacked on the table for all to see but directly paid only to those who signed. However, even for those who signed, it was not clear that this was the first payment of the rent and that accepting this money meant that the land lease was sealed. They thought it to be "handshake money", a present that a visitor is usually expected to bring to his host.

## Poorer access to food

Malen Chiefdom has 63 villages. To date, except for the area of eight villages, the whole chiefdom is covered by the plantation. With the conversion of the land into a large-scale palm oil plantation, subsistence food production has stopped. Discussions in affected villages showed that the people had assessed the supply of basic food items in general as "abundant"

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to "satisfactory" in the years prior to the investment. Production was sufficient and surplus could be sold. By May 2012, all interviewees reported that they now had less food available in their households. Stored foods such as dried cassava, groundnuts and oil palm had been exhausted. Wild foods were hardly available any longer, since the bush land had been cleared. In just a year's time, market prices for food in the region have risen by 27 per cent, whereas the national inflation rate varies between 11 and 18.5 per cent.

The agriculture-based subsistence economy was transformed into a labour-based economy. But the employment opportunities created did not suffice as an alternative way of creating access to food. The contract contains no clause about employment that would give those villagers who had lost their land preference for jobs. And work is mainly available on a daily or piece rate basis. Payment per day is 10,000 Leones (2.20 USD). If only one family member is hired, the salary will fall far short of what is required to cover the daily food needs of the family, let alone other expenses like school fees or healthcare. So it does not bring people above the poverty line. The number of jobs created is unclear, as well as the boundaries of the actual investment.

## Intimidation, no consultation, lack of transparency

From the outset, communities denounced the Socfin land agreement as illegitimate. The land owners affected formed a community-based organisation called "Malen Affected Land Owners and Land Users Association" (MALOA). Already in 2011, MALOA members expressed their concerns in letters to the local and national authorities that described the shortcomings of the process: inadequate consultation, lack of transparency, inadequate compensation, high levels of corruption, destruction of livelihoods, appalling working conditions for labourers working in the plantation, lack of proper documentation of financial transaction with landowners, failure of the company to mark the boundaries of family lands before clearing, destruction of the biodiversity of ecosystems and so on. In sum, this included just about everything that goes against the Voluntary Guidelines on the Responsible Governance of Tenure (VGGT). As the human rights network FIAN reports, community protests have sometimes been violently repressed by the local police, even with the use of live bullets, and dozens of people have been put in jail. MALOA members report that they are not allowed to meet and assemble peacefully.

## A pilot country for the implementation of the VGGT

Sierra Leone is a pilot country for the implementation of the VGGT, which provide for processes that ensure "active, free, effective, meaningful and informed participation" of affected landowners (VGGT 3.B 6.), that protect "legitimate tenure rights" which include also customary and informal rights (VGGT 3.A) and in general improve the governance of tenure "with an emphasis on vulnerable and marginalized people, with the goals of food security and progressive realization of the right to adequate food" (VGGT Objectives 1.1). Implementation in Sierra Leone is flanked by a trilateral G7 partnership on land between the governments of Sierra Leone, Germany and the United Nations Food and Agriculture Organization (FAO), and also supported by other donors like the UK and institutions such as the World Bank. A multi-stakeholder platform for the implementation of the VGGT was established including five ministries and civil society.

One achievement is the integration of the VGGT into the new National Land Policy, which received Cabinet approval in November 2015. Other tenure-related laws and governance systems were assessed to identify gaps. An action plan was formulated by the multi-stakeholder platform to identify responsibilities and implement the recommendations. Other activities include trainings by FAO on the VGGT at community level and to increase transparency by disclosing government contracts for land acquisitions. However, it remains to be seen whether improved co-ordination and transparency will ultimately translate into political will to implement the reforms needed and to disclose the leases the government has entered into with private companies.

So far, there is no sign of the government and the investor's seriously reviewing the process in light of the VGGT. Supporters of the Socfin investment argue that NGOs and CSOs should not interfere and that investments like these are urgently needed for a poor country like Sierra Leone. And indeed, the investment does have positive effects, like the construction of an oil mill, infrastructure or social and capacity building projects. Nevertheless, if it is creating a gulf between "winners" and "losers", social cohesion will be in danger.

## The way forward

Sierra Leone is still well set to make use of its pole position in implementing the VGGT for an inclusive development of the country and especially the agricultural sector. One important first step forward was a National Conference on Land Governance, held in Sierra Leone's capital Freetown in July 2016, organised by national CSOs with the support of German NGOs, attended by government officials and at least one investor (not Socfin). There must be serious ongoing dialogue, giving a voice and power to those directly affected by land grabbing. The German poet Bertolt Brecht, in his famous "Threepenny Opera", wrote the lyrics: "And you see the ones in brightness. Those in darkness drop from sight." So special attention should be given to those in the darkness.

If there are no peaceful solutions that restore justice, this could be a source of violent conflict, and everybody will lose.

*Opening of land in Gambela, Ethiopia.*
*Photo: Philipp Baumgartner*

# Net impacts of large-scale land acquisitions

**The buying up of farmland by international investors is viewed highly critically. However, sweeping judgements could be inappropriate, as our author demonstrates with survey results from Ethiopia and Uganda.**

Increased farmland transaction in Ethiopia and Uganda following the globally rising interest in acquiring farmland in 2008/2009 received considerable media attention. While not all media reports about foreign acquisitions were confirmed, and in both cases domestic investors accounted for the biggest number of deals, significant amounts of farmland have been rented by international investors for agricultural production. These international acquisitions, often coined as "land grabs", were criticised for violating local communities' legitimate land use and ownership rights, causing environmental degradation and contributing to elite-capture and corruption. Yet, in-depth studies about socio-economic impacts confirm positive outcomes for a significant share of the local population (Väth 2013, Herrmann & Grote 2015, Baumgartner et al. 2015). In my analysis of two large investments producing rice for domestic and export markets in the western lowlands of Ethiopia (Gambela, Saudi Star) and in the east of Uganda (Bugiri, Tilda Rice), I examined the impacts of an early-stage investment as well as a more mature one. The case in Ethiopia was only three years old when I collected the data. In Uganda, although under changing management, the investment had existed for over 40 years, giving an opportunity to look at long-term impacts on the local rural economy. While crop specifics and case-study approach limit a general application of these findings, some interesting conclusions can be drawn.

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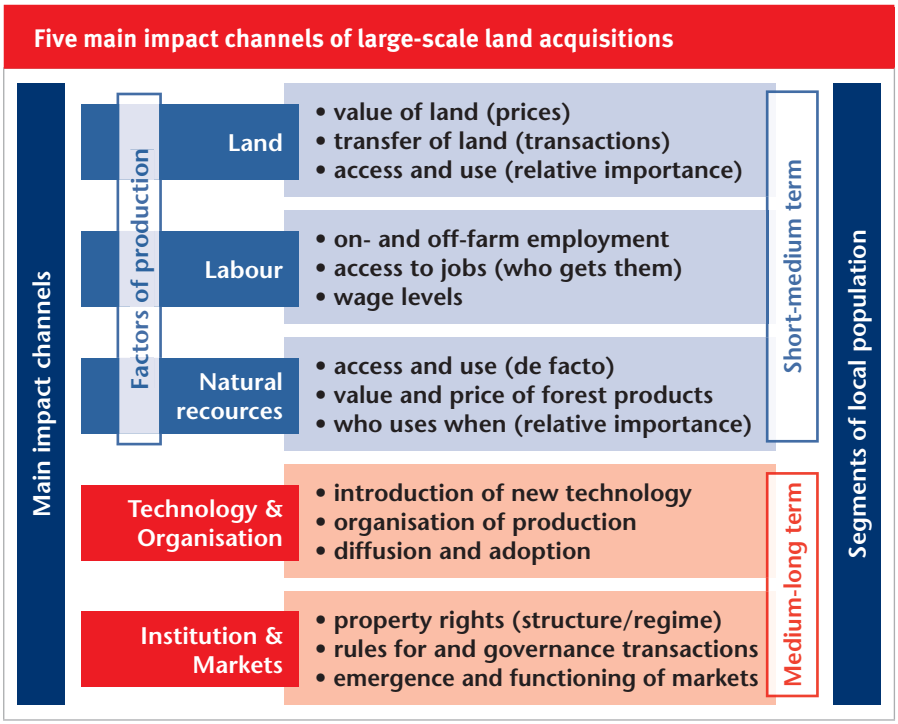
## Large-scale investments impact via various channels

These large-scale land acquisitions and subsequent investments affect the local population and rural economy through a number of channels (see Figure). An analysis of the range of these channels gives an idea of what could be referred to as the "net impact". The cases studied in Ethiopia and Uganda revealed the following results (Baumgartner 2016):

**1)** Access to, use and value of land is the direct and yet complex channel that affects the local economy. In the Ethiopian lowland of Gambela, population density is very low, making land a relatively abundant resource, and hence the investment did not lead to conflicts over land. On the contrary, it triggered an increase in the value of labour. In Uganda, land values rose, but traditional rights were maintained and cultivation was intensified.
**2)** In both cases, the arrival of large-scale investors created an off-farm labour market that led to an increase in wages. This is probably the single most important positive impact, boosting the local non-farm rural economy, offering employment and business opportunities, and introducing cash into a hamstringed local economy.
**3)** However, acquisitions also affect the broader natural resource context. Often investors are given land that was not directly cultivated by local communities, but is still used on a seasonal basis or for less intensive livelihood strategies such as gathering, hunting or grazing. Losing access to these resources hence threatens their livelihood, which might be further aggravated by deteriorated water quality and availability. In the case of Ethiopia, the loss of hunting grounds accounted for an income loss of some four per cent for one community.
**4)** In the medium and long-term, larger scale production units are likely to change the technology and organisation of production within the surrounding economy. In both cases, the initial investor introduced a new crop: rice. Agronomists tested existing varieties and bred adapted ones. In Uganda, it took one generation of smallholders to fully venture into rice production on their own plots, but now, 30 years after the investment started, the district is referred to as Uganda's rice basket, and a vibrant rice value chain has emerged providing additional income from cash crop and off-farm employment at local level. While the introduction of the crop was intended, the further spread of rice millers and traders was not.




**5)** Finally, these investments can lead to institutional change and hence affect how the local economy is governed. Part of this institutional change occurs "bottom-up" as smallholders organise themselves and shape their institutional environment. Examples of this can be seen in Bugiri, where, during the 1990s out-growers operated a major share of former company land, also using its machinery. These out-growers later formed other groups which today trade the grains, run savings groups and partly still engage with the company, while others have become independent and sell their rice to local markets. Secondly, a land rental market has emerged around the investment in Uganda. The introduction of rice led to the conversion of wetlands into rice fields. Customary law was able to govern the land titling, where farmers with adjacent farmland gained ownership rights over the wetlands. By the mid-1990s, all of the wetlands had been converted. Since then, a land-rental market has efficiently made land available to smallholders who want to cultivate more rice. A second way that institutions change is through "top-down" creation and enforcement of new rules of transacting. In both cases, the local authorities were supposed to supervise the investors' development of leased land. Both authorities stated that they did not have sufficient information to judge this and hence relied on documentation provided by the investor. While in Ethiopia, central government has strongly committed to enforce compliance with national law, and started to cancel non-performing contracts in 2013, it remains to be seen how often well-connected investors actually have to face consequence of bridging their contracts (which are often not well defined).

## Gains might outweigh losses, yet inequality is likely to rise

In both cases analysed in depth, I would conclude that positive socio-economic impacts outweighed losses. Inequality has increased and is likely to do so further in the Gambela case, bearing a huge risk for re-starting violent conflict. Simulations of the impact showed a growing divide between the two local ethnic groups, with the already better off faster in seizing opportunities opening up. Yet on average, both groups gained significantly from the increasing employment and off-farm activities linked to the emergence of the investment. Their per-capita incomes are estimated to rise by 53 per cent and 58 per cent respectively over the coming 8–12 years. On average, rice-growers in Uganda are richer than non-rice growers today, and households stated that occasional employment created by the investment helped to build start-up capital, acquire (more) farmland, or endure hardship. However, there were unequal levels of participation in the opportunities, and some groups lost out relatively more, causing social tension and even local conflict.

Large-scale investments can have significant poverty-reducing impacts for big shares of the local population. However, the real threat remains that they violate legitimate, although not always legally formalised, user and ownership rights, as well as contributing to social and economic inequality among local communities. Hence, governments and donors are encouraged to invest time and resources in the early stage of negotiation and clarification of roles, responsibilities and mitigation mechanisms in case of conflicts. Compensating 'losers' and supporting exit options out of agriculture are key. Assisting community members, e.g. through capacitating them with skills required by the investor (e.g. tractor driving), can be small in cost yet create big income gains. Similarly, participatory supervision of compliance with contract details, through stronger local-level government capacity, but also involvement of communities and NGOs, remain necessary, since not all foreign and domestic investors act in the best sense for the communities that are most affected. Leadership at the farm management and community level plays a key role in navigating through these transformations. Strengthening leadership and supporting mechanisms of accountability and regular communication matters in this regard. Finally, our simulations showed that integrated models, which link smallholder and large-scale production, can have similar poverty impacts, with less risk of shocks and lower inequality. Hence innovation around operational models for large-scale agricultural production linking it with existing smallholders, rather than seeing the two as a contradiction, should be a priority.

# Securing pastoralists' land tenure rights

Formal land titles are rare in pastoral communities around the world. In the past, this presented hardly any problems, since pastoral land was seen as of little use by most outsiders. But with growing competition for areas legal uncertainty is becoming an increasing threat to the livelihoods of pastoralists.

*Pastoralists exploit land which is often too marginal for other agricultural uses.*
*Photo: VSF Spain*

Pastoralism is a livelihood system based on free-grazing animals that is used by communities in marginal areas. The land may be marginal for various reasons, including poor water supply or soil quality, extreme temperatures, steep slopes and remoteness. Pastoralism enables communities to manage their resources in a sustainable, independent and flexible way. It is marked by rights to common resources, customary values and ecosystem services.

It is estimated that today nearly 200 million mobile pastoralists around the world generate food and incomes for their communities, and contribute to biodiversity conservation and to climate change mitigation. If the extensive agro-pastoralists are added to these nomadic and transhumant pastoralists, the number rises to up to 600 million people. Pastoral systems are sustainable low-input systems that are extremely adaptable to the respective environment and to the specific socioeconomic conditions. Yet, pastoral communities are often marginalised, lacking political recognition and proper political and institutional support. As a result, they are frequently confronted with difficult access to natural resources and with insecure land and water tenure rights, which in some cases can cause conflicts. In addition, people in pastoral areas often lack proper infrastructure, they have limited access to markets, and basic services generally remain scant and distant.

Vétérinaires Sans Frontières (VSF) International and its member organisations are implementing a project that aims at identifying the key factors to promote sustainable pastoralism, to produce recommendations for effective policies and programmes and to strengthen the advocacy potential of local community based organisations and their networks. For this, we conducted a study on pastoralism in 26 countries in Africa, Asia and Latin America, including a survey in six "hotspot regions" where pastoralism is a major form of livelihood, and five regional stakeholder gatherings in which, among other items, priorities for investment in pastoral development were established (see Box). Here, it was also revealed that protecting customary land-tenure rights has to be put right at the top of the agenda.

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## Access to land is crucial

Pastoralism is often associated with grasslands, rangelands or drylands (these terms are overlapping but not synonymous). But the match is far from perfect: pastoralists also herd their animals in the tundra, mountains, forests, desert and bushlands, and some grasslands are ranched or used for intensive livestock raising. Estimates of the area of pastureland vary hugely, between 18 and 80 per cent of the world's land surface. This vagueness is partly because (unlike for forests, for example) no organisation is responsible for keeping track of such types of land.

Access to grazing land is vital for the pastoral mode of production. Pastoralists use few or no external inputs, and they exploit land which often is too marginal for other agricultural uses. For many areas, pastoralism is the only viable land-use type. It uses land, water and vegetation in a sustainable way. It has shaped and helps maintain landscapes, and conserves biodiversity.

## Land acquisitions put livelihoods at risk and fuel conflicts

Pastoralists rely on livestock mobility and communal land for their livelihoods. Land tenure is one of the main challenges pastoralists face and is the root of many conflicts. Rules on land tenure vary widely among countries, but most formal legal systems do not recognise or guarantee customary tenure rights. In our survey, 42 per cent of the pastoralists said they owned land individually, while another 15 per cent said their community owned it. But formal titles are rare: only 15 per cent of the individual owners and six per cent of the community owners had formal titles. Customary ownership is far more common.

In the past, this lack of formal rights did not matter: outsiders regarded pastoral land as of little use. But this has changed: the discovery of oil and minerals, the expansion of intensive cropping, urbanisation and the designation of nature reserves and wildlife parks have boosted interest in pastoralist areas. Such uses often occupy the best-watered land, cutting off herders' access to pastures and water sources they rely on in the dry season. Often, governments promote outside investments, but ignore the rights of pastoralists, who are branded as criminals and forced into ever-drier and more remote areas, or induced to opt for sedentarisation.

In the Afar region of Ethiopia, for example, pastoralists and livestock keepers have already lost over 75 per cent of their fertile wet grazing areas to the Ethiopian government and foreign investors who pursue huge investments such as the transnational road to Djibouti, sugar plantations or resettlement schemes. Also in Latin America, land issues are of major concern for both indigenous and peasant movements, who struggle to protect their land rights against land grabbing from mining and agribusiness expansion.

Access to water is intrinsically linked to access to land as well. Encroachment on pastoral lands may often entail overuse of water sources, e.g. for agricultural or mining purposes, further aggravating the situation. And the declining land base for pastoralists may fuel conflicts between different user groups, competing for the scarce resources.

Results of our survey reflect that pastoralist societies have their traditional rules and rangeland management norms that also include entrusting land to pastoralist groups and individuals. In the eight surveyed pastoralist territories, the largest part of land is linked to customary rules governing both individual and community ownership and use of land. In order to guarantee access and user rights to land and water governments have to recognise and protect customary land-tenure rights, traditional rules and rangeland management norms. Communities should be able to formalise their customary tenure.

Also, governments should ensure effective application of international instruments and mechanisms that protect the rights of pastoralist communities, as the UN Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests stipulate (see also articles on page 34 and 36).

## A territorial approach is needed

Since pastoralism is by definition mobile and occupies vast territories, agreements and policy harmonisation between neighbouring countries deserve special attention when dealing with land issues in cross-border areas. Cross-border co-operation is crucial for a variety of reasons: to promote trade, facilitate movement, control transboundary diseases, mitigate conflict, etc. Cross-border issues are often best dealt with through contacts between customary authorities, pastoralist representatives and local authorities on either side. In order to enable a sustainable development of pastoralism, it is important to recognise a territorial approach in rangeland and dryland management. Regional planning should be approached from a territorial point of view in which all stakeholders learn from each other and find together adapted solutions. One example of this is the setting up of Pastoral Units (PU) for planning and managing pastoral territories and resources, which have been promoted in Senegal by several organisations, including AVSF. The PU works as a dialogue framework involving all the stakeholders: village representatives, transhumant livestock keepers, local farmers and livestock keepers, management committees of each of the local common infrastructures and equipment (water, forage stocks and shops, vaccination parks, etc.) and local authorities. The creation of Pastoral Units, based on transparency and equity, allows for a better appropriation of the territory by all stakeholders (including transhumants and autochthons) who directly engage in local development. They allow for a better regulation of access to and use of natural resources – mainly pastures and water – and contribute to reducing conflicts.

### Background of the study

The study is part of the project on the promotion of sustainable pastoralism, which is co-financed by the International Fund for Agricultural Development (IFAD). It was based both on inputs from surveys on the enabling environment and policies related to pastoralism in 26 countries and a survey of pastoralist practices in eight "hotspots" where pastoralism is a major form of livelihood: the Arkhangai in Mongolia; the Altiplano and Chaco in South America; Wagadou and Gourma in the Sahel; Tiris Zemmour in the Sahara and the Afar and Chalbi areas in the Horn of Africa. In addition, five participatory regional stakeholder gatherings were held in Bamako (Mali), Nairobi (Kenya), Hammamet (Tunisia), Hustai (Mongolia) and La Paz (Bolivia) in January 2016. Each of these meetings produced a statement on priorities for investment in pastoral development, along with recommendations for policy dialogue and partnership with development organisations. In all, experience gathered by 122 pastoralist organisations from 38 countries was contributed.

For more information on the surveys and a list of references, see: ➤ **www.rural21.com**

# Negotiating fair settlements

Marked power imbalances often result in communities losing out in use conflicts over their territories and resources. This applies in particular to extractive industries and infrastructure projects. Community protocols can help bring the negotiating parties together at eye level and create a balance of interests.

*Community meetings are part of the community protocol process.*
*Photo: Mela Chiponda*

Community protocols are above all a legal empowerment tool. They aim to secure a seat at the table for marginalised voices in decisions that may impact their lives, the territories on which they live and the resources on which they depend. Community protocols were applied for the first time in the context of the United Nations Convention on Biological Diversity (CBD) – in order to reach stronger benefit-sharing arrangements between communities and business or research entities. But they may be developed for a wide range of issues and interests. For example, in India, a pastoral community drew up a protocol to claim recognition over their traditional knowledge of buffalo and camel breeding; whereas in South Africa, traditional healers from different ethnic backgrounds came together to seek access to plants that they had been denied access to by a protected area. Community protocols are also increasingly playing a role in resource extraction and infrastructure planning, e.g. in Zimbabwe, where a community is using the process to address the social and environmental impacts of mining.

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## In what way are community protocols useful?

The history of companies and governments engaging with communities, especially in the context of extractive industries, is full of conflict. Generally, marked power imbalances become barriers to meaningful engagement between the community and external parties. Protocols can help to provide communities with access to information about the project and ensure that an internal position is formed, based on which negotiations take place. Also, communities often lay down their governance structure and customary rules, but also procedures that regulate internal conduct as well as interactions between themselves and outsiders in the protocols. Such information can help prevent conflicts down the line. In Zimbabwe, for example, the community used the process of a community protocol to engage with three mining companies, as a result of which it designated certain "no-go" areas like graveyards of its Chiefs. In other cases, even knowing who legitimately represents the community is already a great asset.

The development of community protocols can also make communities better informed about their rights and thus be in a better position to understand and use the law more effectively. 'Access to Justice' is one of the Sustainable Development Goals (SDGs) adopted by the United Nations, but here, local communities face several barriers, including poorly accessible redress mechanisms, corruption, difficult procedural systems and laws unfavourable to the rights of communities. Legal empowerment of the community is therefore important in ensuring that communities are able to understand and articulate their rights within relevant national and international legal frameworks.

The community protocol process also creates a platform for reflection and collective action within the community. It provides a space for community members to jointly discuss the frequently new challenges they are facing and come to an internal position for their engagement with external parties. Through appropriate procedures, this will lead to the inclusion of marginalised groups within the community while creating a space for empowerment and self-mobilisation. In Zimbabwe, for instance, the community consultations that were part of the protocol process contributed to the formation of two unions – the Mining Communities Coalition and the Zimbabwe Diamond and Allied Workers Union.

## Salt extraction in Argentina

The remote salt desert in Northern Argentina, Bolivia and Chile is called the "lithium-triangle", holding between 60 and 80 per cent of the world's lithium reserves. The 'community' that developed the protocol in fact consisted of 33 smaller communities with roughly 6,500 people in all. They share the same language, ethnicity, and similar livelihoods involving the traditional extraction of salt from the salt plains, cloth spinning and small-scale agriculture and livestock-keeping. Each of them has an elected representative, although most decisions are made collectively by the community. The concept of community protocols was introduced to the community by the NGO *Fundación Ambiente y Recursos Naturales* (FARN), which had been working with the community for many years. At that point in time, the communities were demanding their right to free, prior and informed consent (FPIC) in the context of lithium mining that was to be started in their territory, possibly undermining traditional salt extraction. The process began in March 2014. In December 2015, the communities finalised and made public their protocol called "Kachi Yupi" (tracks in the salt). The document describes the communities' identity, history and rights, and also lays down the process of FPIC that must be followed by any project affecting their territory. What gave the protocol additional strength was its formal recognition by the National Ombudsman in Argentina, who passed a resolution requiring that the FPIC process be recognised and respected. The protocol has already served as a platform for additional consultation processes, including one with the Tourism Department for the 'Dakar Rally' that as of recently passes through the territory.

## Mega-port in Kenya

Lamu County in the northern coastline of Kenya has been chosen as the site for the development of a mega-port as part of a 23-billion-US-dollar multi-sector infrastructure project – the Lamu Port South Sudan Ethiopia Transport Corridor (LAPPSET). All groups affected by the port were included in the protocol's development, including various communities who differ not only in their ethnic identities but also in their livelihoods, which range from fishing, pastoralism and forest dependency to trade and farming. And they hold different opinions on the port project, with some welcoming potential employment opportunities and infrastructure and others decrying it for the negative impacts on the communities' existing livelihoods and environment. The protocol process began in 2010, members of the affected communities having approached civil society working in the region for assistance in gaining information about the project and involvement in the decision-making process. These community members then mobilised themselves under the banner of 'Save Lamu', which was registered as a community based organisation in 2011. 72 meetings were held across 46 villages. While the protocol initially focused on the port, impacts from a coal power plant planned in the region are also now included. The protocol was drafted by community members and strengthened by resource mapping, participatory video and legal empowerment projects. It sets out the community's desires and concerns in relation to the port and the coal power plant. It is being used to support a legal petition in the High Court of Kenya to seek information and consultation in the project.

*Traditional salt extraction in Northern Argentina.* *Photo: Communities from Salinas Grandes and Laguna de Guayatayoc*

## Strengths and weaknesses

Protocols are highly context-specific, making a thorough grasp of local context and dynamics crucial. They are designed to be a process and outcome that builds consensus and dialogue. Natural Justice advocates and supports an inclusive process that provides space for marginalised groups like women, sub-tribes, elders, youth and disabled. Creating this space can often mean breaking internal community dynamics, and the facilitators must find ways to make the process inclusive without being disruptive to community cohesion. In Zimbabwe, separate meetings were held with women to ensure their views were taken into account.

Community protocols can be a powerful tool for community empowerment and meaningful community engagement. They have considerable potential in creating spaces for indigenous and local communities to exercise greater control over policy and decision-making processes affecting their life. However, they are not meant to be a stand-alone tool and must go hand-in-hand with other methodologies and tools for community empowerment. For instance, legal empowerment of communities is an important part of the engagement with communities seeking to develop a community protocol. The ability of a community protocol, process and outcome to be moulded to the specific requirements of the context is perhaps its greatest strength.

Natural Justice has been working with community protocols since 2007 in a number of different contexts and regions. In 2013, in collaboration with the Heinrich Böll Foundation, the organisation designed a project to examine the particular usefulness of community protocols in the context of extractive industries, with pilot case studies in Argentina, Kenya, Zimbabwe and India, including those mentioned in this article.

For further information on these see: ➤ **http://naturaljustice.org/representative-work/community-engagement-extractive-industries/**

# Making the SDGs count for land rights

Does the inclusion of land rights in the global development agenda bear the potential to promote the secure and fair distribution of land rights? Yes, our author believes – provided that the land-rights community does not rest on its laurels and really addresses the crucial aspects.

When world leaders adopted the Sustainable Development Goals in September 2015, they took a bold step in recognising the reality that 'sustainable development' is complex and multifaceted. While many criticised the explosion of targets and indicators compared to the slimmed-down Millennium Development Goals, supporters pointed to a common agenda whose breadth does a better job at encompassing the reality of what it will take to positively transform human well-being and environmental sustainability.

Land rights are emblematic of this shift. While land – and indeed agricultural production – were absent in the MDGs, land rights feature in the SDGs under goals 1, 2 and 5 (see Box on the right). And rightly so; land rights are absolutely critical for a transformational sustainable development agenda. For local land users, having secure tenure over the land that provides food and shelter – the root and giver of life in many facets – is fundamental to progress being achieved in virtually all SDGs.

So, a great step forward in terms of recognition, but the land-rights community that banded together in the lead-up to the SDGs to promote this shift cannot rest on its laurels. The challenge that lies ahead is enormous.

The Global Call to Action, a campaign currently backed by 450 organisations from around the world, estimates that 2.5 billion people live on and use land on which they have no secure legal rights. Much of this land is used by communities and claimed through customary means. In fact, such claims by local communities and Indigenous Peoples cover 65 per cent of the surface of the Earth. Yet, only 10 per cent of these claims are actually recognised by their governments. This massive gap is an illustration both of the scale of precariousness and vulnerability that exists due to insecure land rights, but also of the extent to which transformation is possible if the SDGs are taken up by governments.

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**Land rights in the SDGs**

Goal 1 End poverty in all its forms everywhere, Sub-goal 1.4: By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance.

Goal 2 End hunger, achieve food security and improved nutrition, and promote sustainable agriculture, Sub-goal 2.3: By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment.

Goal 5: Achieve gender equality and empower all women and girls, Sub-goal 5.a: Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws.

How optimistic can we be? As a start – and not to be underestimated – is the potential normative change that these targets signal. If *all men and women, in particular the poor and the vulnerable, have … access to ownership and control over land* becomes a standard and accepted assertion across different countries, this would already mean a strong paradigmatic shift. However, the shift from aspiration to reality cannot be underestimated. Equity in ownership and control over land and its natural resources strikes to the heart of political and economic power in many societies, not least agrarian ones. Achieving this target would in many countries and regions imply tackling the powerful individuals and corporations that have created – and benefit from – inequality in the first place. This is, of course, no easy task, while some would go as far to say outright impossible.

So, we have an aspiration that is gaining momentum, but we face the gritty reality that the odds are stacked against us in achieving it on a grand scale. Yet, if we take the optimism that has characterised the SDGs, and the same optimism that brings together 206 organisations with a transformative vision in the International Land Coalition, I believe there is scope that the SDGs can spark a shift on land rights.

How will we do it? A key success factor will be in our ability to give substance to what the targets actually mean in practice. Perhaps the only bigger risk than maintaining the status quo on land rights, is doing something wrong, in a way that concretises dispossession and inequality. Succinct targets give space for both the yay- and nay-sayers to fill in the details, and so the ball is in our court to start setting clear directions on how to get what we want.

ILC members have taken the broad concept of 'responsible land governance' as covered by the internationally-agreed Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests, and defined key aspects that need focused attention if land governance is going to serve the needs of those who live on the land (see Box below). These commitments give a focus for efforts where change is difficult, and a framework for measuring the extent to which the desired change is actually brought about.

Different actors will appeal to different frameworks, but it's in the details that the potential for transformation lies. For example, under Sub-goal 1.4, commitments 3 and 5 would emphasise that 'men and women' refers not just to individuals, or even households, but also to 'communities', recognising the collective aspect of land ownership, access, use and management of various kinds of land and natural resources for a large proportion of the world. It also emphasises that 'ownership and control' may be important forms of tenure, but not the only ones, and formal titling programmes can result in entrenching inequality as much as reducing it. Commitment 4 emphasises that the task is not just about gender disaggregation, but about ensuring genuine gender justice in land governance. You get the picture.

Even more so, tracking progress towards the goals will have a considerable impact on where efforts will be concentrated. Due to the lack of data on land governance in general, the risk is that priorities – as expressed in indicators – are framed by the availability of data rather than the reality or looking to what will make the difference. For those of us working in the land sector, this presents an opportunity to clearly define the change we would like to measure, and then push the data and evidence base forward – most particularly through efforts to collect citizen-led data, on which a number of organisations are already starting very interesting work.

**Ten commitments for people-centred land governance**

- Secure tenure rights
- Strong small-scale farming systems
- Diverse tenure systems
- Equal land rights for women
- Secure territorial rights for Indigenous Peoples
- Locally-managed ecosystems
- Inclusive decision-making
- Transparent information for accountability
- Effective actions against land grabbing
- Protected land rights defenders

*An estimated 2.5 billion people live on and use land on which they have no secure rights. Indigenous Peoples are particularly affected.*
*Photo: FAO/Simon Maina*

There is no doubt that the historic inclusion of land rights into the global development agenda marks a new era for those working towards more secure land rights. The signal of shifting norms is itself a significant hook that grants legitimacy to the voices calling for change, especially those of land users themselves. An immediate challenge in moving from aspiration to genuine transformation is how effectively and persuasively we fill in that next layer of information, elaborating on what we actually need to do to reach the targets. As an optimist, I see that their current ambiguity opens up more of a democratic space for actors in the land sector to be part of making their case for how this should be defined, while continuing to demonstrate it in our daily work.

The International Land Coalition (ILC) was founded in 1995. It is a global alliance of 206 civil society and intergovernmental organisations working together "to put people at the centre of land governance". The ILC Secretariat is hosted by the International Fund for Agricultural Development (IFAD) in Rome. For more information on the International Land Coalition, see: ➤ **www.landcoalition.org**; for information on the Global Call to Action, see: ➤ **www.landrightsnow.org**

# "We can't be satisfied yet"

On the 11th May 2012, the Committee on World Food Security of the United Nations adopted the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests (VGGT). Rural 21 asked Roman Herre of the human rights organisation FIAN about his views on the implementation of the Guidelines so far.

Roman Herre is Policy Adviser, Land & Agriculture at FIAN Deutschland e.V. Photo: Private

*Rural 21: Mr Herre, looking back on four years of Voluntary Guidelines, what have they achieved up to now?*

**Roman Herre:** What may sound a little simple, but often falls by the wayside in discussions, is that with the land guidelines, a legitimate, international frame of reference has at last been created that applies to all states and all contexts. For example, the World Bank standards, adopted in undemocratic committees and largely ignoring internationally binding rights, namely human rights, share neither the outreach nor the legitimacy of these guidelines. So now we have a document that everyone can refer to when land issues are debated. FIAN, for instance, is using it to document the violation of human rights in Cambodia or in condemning the G7 countries' land policy concerning African countries.

Furthermore, the land guidelines have demonstrated what an inclusive policy process needs to look like. The development and negotiating process in the Committee on World Food Security (CFS) has become a new standard on how human rights principles of participation and inclusion are currently being implemented in concrete terms in political processes. Reference to this process has been made in many political debates and has had an influence. In numerous countries and local contexts, application and implementation has been concretely initiated. For example, civil society in Myanmar has made use of the guidelines as a detailed frame of reference for its demands and recommendations in the national consultations on land legislation. This has both given its demands a high degree of legitimacy and attracted the attention of the government. Here in Germany, a process has got underway that is to assess the implementation of the land guidelines. This comprehensive discussion of land policy is new and merits attention.

*Are you satisfied with the results so far? Where do corrections need to be made?*

We can't be satisfied yet. Let's take German development policy, for instance. Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) responded to the guidelines by maintaining that the principles enshrined in it are nothing new and that it therefore does not need to make any changes to its activities. And the KfW development bank referred to the World Bank standards, which it claims have been tailored to its activities, and therefore sees no reason for changes either. Some embassies respond uncomprehendingly when asked whether German investors comply with the land guidelines.

We can still perceive this resistance today. Early this year, GIZ and the German Federal Ministry for Economic Cooperation and Development (BMZ) issued a manual titled "Land in German Development Cooperation: Guiding Principles, Challenges and Prospects for the Future". There, the land guidelines are reduced to a tool for assessing "investment in land". Under the heading 'Core Principles of Land Governance', for example, no reference is made to the principles and objectives established in the land guidelines. Or let's take the chapter on administration, which completely ignores the relevant comprehensive elaborations given in the land guidelines. The positive initiative on the part of the BMZ to draw up a comparison between the World Bank standards and the land guidelines for the KfW and Deutsche Entwicklungsgesellschaft DEG and derive instructions from this exercise has met with considerable opposition. We are also concerned over attempts by some initiatives involving the private sector to reinterpret the land guidelines to make them meet their business interests.

In our view, significant corrections would above all have to be made at two levels, starting with creating a clear focus on marginalised and vulnerable groups, as is stipulated in the overall objective of the land guidelines. Second, what we require in Germany is a more systematic approach formulating long-term goals and developing steps towards such goals. We very much hope that the process referred to above is going to contribute to this.

*What is the role of civil society in implementing the VGGT?*

On the one hand, we and local rural organisations have to urge governments to comply with the guidelines and implement them. This is a tough endeavour that requires stamina. On the other hand, we have to keep on applying them in our work again and again. In doing so, we must assess whether and how countries are fulfilling their commitments and we must strengthen local communities in making use of these guidelines in their daily struggles to claim their rights.

In Germany and particularly at international level, civil society is a driving force in establishing a monitoring process. For us, it is important here that information provided by rural groups flows directly into the process and that this monitoring is in exchange with existing monitoring systems which it is closely linked to: those in the human rights system.

*Roadside sale of charcoal in Madagascar.*
*Photo: Authors*

# At the wooden cross-road

**Fuelwood and charcoal continue to be indispensable in cooking the daily meal for most people in sub-Saharan Africa; in addition, wood as a fuel represents an important source of income. Pressure on forest resources as well as health hazards through indoor air pollution have resulted in more calls for switching to alternative energy sources. Our authors suggest another alternative: improving the existing supply chains.**

Cooking food adequately is a prerequisite for a healthy life and makes up an overwhelming share of people's energy requirements in developing countries. Particularly in sub-Saharan Africa (SSA), the majority of the population in most countries still rely on so-called traditional bioenergy – mainly fuelwood and charcoal – for cooking. The sector accounts for up to three per cent of GDP in several countries, also making it an important economic activity on the continent. Charcoal production in particular substantially contributes to livelihood security in many rural areas of SSA, often in times of financial stress. However, several challenges are commonly claimed to be associated with this energy use pattern that are exacerbated by factors such as population growth, urbanisation and the impact of climate change.

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## Traditional bioenergy demand and its consequences

Today, approximately 2.5 to 3.0 billion people strongly rely on these energy carriers, mainly for cooking purposes. Projections predict that this status will remain in the decades to come. The hotspots are SSA, India, and Indonesia, with dependency rates ranging between 60 and 90 per cent. While substantial parts of the rural population rely on collected fuelwood, charcoal takes the lead in urban areas. The reasons are transportability, reduced smoke emissions and more convenience in the cooking process. In urban areas, institutional and commercial users of wood energy, such as cafeterias and restaurants, are also increasing in numbers. A recent publication even outlines 3.7 million tons of woodfuel demand per day for 2009, which equals approximately ten per cent of global primary energy consumption. Effects commonly associated with this high dependency on traditional biomass are forest degradation and even deforestation, negative effects on climate change as well as indoor air pollution with negative impacts on human health.

**Forest degradation and deforestation.** The combustion of traditional biofuels is not per se harmful for the environment as they are in principle a source of renewable energy. However, there is concern that the constantly high and often increasing demand for biomass energy, particularly in developing countries, could cause wood extraction rates to exceed regrowth rates. The effects and magnitude of specific energy carriers on the deple-

tion of forest resources are under discussion, with some sources claiming that traditional bioenergy demand is a major driver of deforestation and forest degradation and others arguing that extension of agricultural areas is the chief factor in this respect, while charcoal production is a mere by-product. The role of trees outside of forests, e.g. in agroforestry systems, as contributors to overall supply remains another open question. One core challenge in this discussion is the lack of data on both the supply and the demand situation.

In general, the collection of fuelwood in rural areas does not seem to harm forested areas substantially as the collection of dead and dry branches is preferred. The production of charcoal is more controversially discussed as it is often commercially driven and whole trees are used. Furthermore, applied charcoaling techniques are characterised by low transformation efficiencies so that far too much wood is processed in relation to energy output. In sum, the discussion whether and to what extent biomass use for energy in developing countries is causing deforestation or (temporary) forest degradation "only" is not conclusive, and impacts depend on site conditions, harvesting technologies and forest management.

**Climate change.** While the contribution of forest degradation and deforestation is said to contribute approximately 20 per cent of global greenhouse gas (GHG) emissions, the consumption of traditional biomass energy is claimed to be responsible for 1.9 to 2.3 per cent of global warming. The majority of traditional bioenergy consumers use either three-stone fires – mainly for fuelwood combustion – or traditional charcoal stoves, both being equally inefficient. Whether the introduction of improved cooking stoves (ICS) affects the emission of $CO_2$ in particular is under discussion and very likely depends on the design of a specific stove and its capacity to reduce consumption. On the other hand, while replacing bioenergy through other sources of cooking fuel may decrease indoor air pollution, it will in most cases worsen the GHG balance, since most alternative fuels are fossil-based (e.g. kerosene). Electricity is very rarely used for cooking in SSA.

**Indoor air pollution.** As woodfuel and charcoal are often applied indoors, a disproportionately high share of women and their children inhale particle emissions equalling smoking two packs of cigarettes a day. Indoor air pollution also has significant harmful effects on unborn children. Moreover, it ranks fourth in the global burden of disease and causes up to 1.6 million deaths annually on a global scale. Particularly in developing countries, only malnutrition, unsafe sex as well as lack of clean water and adequate sanitation systems constitute more devastating health risks. Compared to fuelwood, charcoal is a relatively clean alternative, which is a major reason for its urban use.

Two principle options could remedy this situation: switching to alternative cooking energy sources or improving the existing supply chains. We argue that the second option – improving traditional bioenergy supply chains – has been unduly neglected and ought to receive more support.

## Improving the fuelwood chain towards sustainability

To modify the currently prevailing system of extractive, often destructive and unhealthy traditional bioenergy use, changes along the supply chain are required. These include measures both on the production and on the consumption side.

**Fuelwood production.** To reduce, mitigate or even reverse the negative effects of exploitation of wood for energy, various measures are possible. One is the extension of selective tree cutting. Regrowth, re-sprouting or seed dissemination could also be fostered by leaving patches of old forest intact, applying certain tree-cutting measures to allow regrowth, ensuring soil cover to prevent erosion and of course replanting activities. Likewise important is the protection of regrowing areas from livestock. Forests are often common pool resources, and their management is subjected to formal, and more often, informal institutions, to user rights, free-rider behaviour, ethnic and power relations. Encouraging appropriate management systems to foster sustainable forest use requires flexible national legislation allowing adaptation to local conditions. The incentives to initiate such processes could be community income or perception of land and natural degradation as a threat to local livelihoods.

Another line of more sustainable wood production is tree planting by small-scale farmers in wood lots or agroforestry systems. In Uganda for instance, an area of between 0.02 and 0.06 ha tree plantation per person was found to be sufficient for sustainable production of traditional biomass for cooking and heating purposes. That area is affordable even for smallholders and can be achieved as mini-woodlots, hedges, tree groups or individual trees. Time reduction for fuelwood collection by women and children is another expected effect.

If trees can also provide other benefits such as fodder, fruits, construction material or timber, this can greatly increase but also differentiate the incentive to plant trees. Obviously, not all uses are compatible, and tree species differ in their appropriateness for different uses. Higher value uses will often override the energetic ones, but the latter can still constitute important positive side-effects.

Tree planting systems also require availability of saplings and thus a functioning supply chain based on appropriate (multi-purpose) species, long-term commitment, sound understanding and adequate management capacities. Depending on the spatial planting system, the quantity of biomass produced and the design of harvest rotations, such systems can be used for charcoal production, although they are better suited for fuelwood extraction. Such factors will also decide whether market production

*The right positioning of the logs can improve the efficiency of charcoal production (left photo). The sale of charcoal (right) is an important source of income for many people in SSA; however, the sector is a thorn in the side of many governments.* *Photos: Authors*

and/or subsistence of fuelwood are key targets for participating farmers.

In sum, sustainable tree-based bioenergy systems have a high potential to provide incentives for green growth. However, a holistic understanding of bioenergy value chains, tree production systems and their interaction with crop farming as well as the farm-household systems is needed to develop and expand sustainable solutions. This requires participatory, long-term, practical research and substantial development efforts.

**Carbonisation.** Processing wood into charcoal currently offers substantial opportunities for improvement. While in advanced technological stages conversion efficiencies of up to 50 per cent are reached, low-tech options usually applied in SSA (earth mound-kilns) achieve only between 8 and 15 per cent. Efficiency can be optimised by applying improved kiln designs. These entail optimised heat and air circulation by a preferential arrangement of the logs and the use of a chimney. However, such improvements require investment and sound knowledge for operation, which is currently lacking. In addition, corresponding policy regulations are often unclear or even contradictory – e.g. in forestry legislation (regarding the use of wood from government-owned forests) or in energy legislation, and in some regions, charcoal production is even criminalised, which hinders knowledge dissemination regarding more efficient production techniques and the establishment of producer networks. Politicians aim to overcome charcoal consumption to the advantage of more "modern" fuels rather than implementing strategies for sustainable charcoal production and consumption.

**Optimised consumption efficiency.** Efficiency improvements on the consumption side are important to reduce the overall pressure on woodfuel use and gain time to implement more sustainable solutions. Here, the provision and utilisation of improved cooking stoves is gaining momentum, as these alleviate degradation of forests and indoor air pollution simultaneously. For the users, the reduction of woodfuel consumption, and thereby living costs, is an important benefit. Even though the provision of improved stoves has been part of development co-operation since the early 1980s, monitoring data on long-term performances including reasons for adaptation and non-adaptation is rare. One major reason for non-adaptation is that stoves tend to be designed in laboratories, without real involvement of final users – according to the UNHCR deputy high commissioner for refugees, T.A. Aleinikoff, designers often fail to understand the cultural complexity of cooking or specific cooking conditions.

In recent years, the diffusion of improved cooking stoves became particularly important in the context of the Clean Development Mechanism. However, it was believed that these carbon offset projects were probably overstating the climate benefits of the stoves. Furthermore, the few existing long-term monitoring studies indicate that assumed utilisation rates might be too high. In addition, the overall negative image of wood and charcoal currently hinders widespread implementation. However, if high-quality stoves are carefully designed to respond directly to existing users' needs, and if their application is optimised, particularly in terms of ownership and affordability also for poorer households, they can be a promising option for combating overexploitation of forest resources and indoor air pollution, as has been demonstrated in Kenya.

## The way forward

There are several entry points for improvements in the prevailing unsustainable situation in production, processing and consumption of traditional bioenergy. These include forestry management practices, enhanced property and use rights, technology development and adaptation, effective and enforced regulation, and awareness-raising campaigns. Increasing sustainability is of particular importance as side-effects are often associated with it, including substantial pro-poor development opportunities especially in rural production areas.

A modernised governance framework should be a key area of reform, with the objective to increase costs of environmentally unfriendly practices and create advantages for improved practices and investments. As there is no panacea for any intervention, these general recommendations need to be tailored to fit specific local or regional conditions. Improving the availability of sector-specific data will help to significantly enhance policy and investment decisions.

# Strengthening family farms: a path to follow in combatting poverty in Africa

A project in Burkina Faso has given a clear demonstration of what supporting family farms can achieve in terms of poverty alleviation and rural development. One important success factor was the transfer of land to farmers, accompanied by a secure land-tenure policy adapted to their needs.

Burkina Faso is a landlocked country in West Africa with a surface area of 274,200 km². Its economy is primarily based on the extractive industries, commerce and, above all, agriculture, which employs more than 80 per cent of the population. The combination of the predominance of agriculture in the economy and the prevailing poverty of rural populations poses a problem in choosing an efficient agricultural policy. Should we favour agro-investment, or small family farms? Burkina Faso has chosen to let the two models coexist, in either the same or different projects. This choice is criticised by civil society organisations which would prefer the country to refocus its efforts on developing family farming, thereby guaranteeing food security with good nutritional quality and stimulating the local economy. This argument seems to be confirmed by the results already emerging in the *Projet Développement de l'Agriculture* – PDA (agricultural development project) of the Millennium Challenge Account – Burkina Faso (MCA-BF), dedicated entirely to supporting small farmers at Di in Burkina Faso's Sourou valley. The PDA is one of four projects in the agreement signed in July 2008 by the Burkina Faso Government and the Millennium Challenge Corporation (MCC). It was designed to use family farming as a motor for economic growth in the region of the Sourou Valley (north-west of the country), and included improving access to the market, boosting productivity and animal production, reducing post-harvest losses and better access to agricultural production inputs, entrepreneurial services and access to credit. Resulting from co-operation between the USA and the Burkina Faso Government, the PDA was implemented in three villages in the commune of Di (Qué, Bouona, Di) between July 2009 and July 2014.

*Women from the project helping to build the quaternary canal for their lots.*
*Photo: Sâabèsèlè Jean Augustin Somda*

Within the PDA framework, the Burkina Faso authorities and the Millennium Challenge Account chose a participative approach, bringing together grassroots groups throughout the course of the project. The beneficiaries were classified in a series of concentric circles. The first beneficiaries were the people affected by the project (PAP) who owned or worked the land directly affected by the land-use activities. The second group were the women and young people of the households affected who were not directly affected themselves. These individuals were organised into 114 groups of 20 women each and 20 groups of young people. The third group of beneficiaries were the farms in the project zone's three riparian villages which were not affected. The final group were the inhabitants of the Boucle du Mouhoun region, which covers six provinces and is the region where the project was implemented. Unlike the PAP, who had a right to a plot of land in the new area, the other beneficiaries could request a plot. It should be noted that local populations were involved in and given responsibilities throughout the project's implementation. Village representatives have had a say in all the decisions which could affect the populations' interests.

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## A different vision of support for rural populations

The PDA has a set-up based on an innovative vision of supporting population groups via agricultural measures in Burkina Faso. Firstly, it has complied with the legislative provisions and national and international policies regarding the use of agricultural land, specifically the World Bank's Operational Policy 4.12 on involuntary resettlement, Burkina Faso's strategy for accelerated growth and sustainable development, environmental regulations, regulations on investment, etc. In this way, the groups affected by the project have, on the one hand, benefited from financial compensation for loss of harvests on the area covered by the project. This compensation took into account the area lost by the household, the resulting speculation and the time the project took to develop and redistribute the land. On the other hand, they received compensation in the form of land for land (a natural plot taken, a cultivated plot returned) at the end of the work.

Secondly, and for the first time in this type of project in Burkina Faso, the PDA established an office dedicated to support, follow up and inform persons affected by the project. A consultant was recruited and assigned to Di (in the project area) as the representative of the project and its actors vis à vis the affected groups. He participates in all the project activities and has access to all the actors involved in the project. This approach made it easier to gather and process complaints by the beneficiaries. It gave the target group a permanent point-of-contact for their concerns and allowed them to be quickly resolved. The consultant's function in promoting social cohesion was one of the keys to the project's success, as he succeeded in containing and resolving various conflicts, with the aid of the project.

The third benefit obtained through this type of project support was the valorisation and development of the farmland. The project provided target groups with several training courses on various issues of agricultural production, conservation and product marketing. Subsequently, their complete needs for ploughing, fertiliser and seeds were covered for two farming seasons (one dry, one wet). This solution allowed each producer to set up a revolving fund based on the profits gained from the two previous farming seasons, which largely freed them from the need to take out bank loans to develop their plots. Finally, the PDA built three modern markets in the three villages in the Boucle du Mouhoun region where the farming produce could be marketed.

## One example of secure land tenure in Burkina Faso

The PDA has developed 2,240 hectares, and all of this land has been returned entirely to small farmers; none of it went to agro-investors. The land was primarily allotted to the PAP, with 1,445 individuals, and subsequently groups of women and young people. In a third stage, land was allotted to households in the three riparian villages in the project zone (464 households), and finally it was opened to residents in the Boucle du Mouhoun region (500 households). The transfer of lands to farmers was accompanied by a secure land tenure policy adapted to ensure lasting protection of small family farmers. These rights accordingly provide differentiated types of protection. Every PAP obtained a land title without charge, and each non-PAP beneficiary household was delivered with a 50-year lease.

Before transferring the developed land to farmers, it was registered in the name of the state, then divided into plots, and marked out. This process is necessary to ensure that, by paying compensation to owners and farmers previously settled in the project zone, all the traditional rights in the land are discharged and to establish a *Declaration d'utilité publique* proclaiming that this is of public interest and in accordance with Law 034-2009 on the rural land regime in Burkina Faso and World Bank Operational Policy 4.12. Before project implementation, the developed land was not covered by any land title, and the landowners did not hold any documented legal right to land they had inherited from their parents or received as a gift.

## Greater positive impacts on the target groups' lives

A study commissioned by Welthungerhilfe in February 2016 compared the PDA with another agricultural development project in Burkina Faso operating with a different methodology and goals (Bagrépole) and showed that the agricultural development project PDA had a positive impact on the life of the target groups in the project region. Agricultural production increased, e.g. production of maize rose from less than two tons a hectare to almost four tons. The substantial production of tomatoes, onions and other vegetables in dry seasons generated income for households and is raising food and nutritional security. The project generates activities for young people and combats their exodus to Côte d'Ivoire or Mali. And it contributes to raising school enrolment rates of children from the affected households, and is also resulting in more frequent visits to health centres.

The three modern markets set up by the project in the region have made commerce a keynote activity. There is, however, still serious concern about the quality of the roads needed to open up a region which is so rich for the country.

## Conclusion

The agricultural development project PDA is a first for Burkina in both its concept and its implementation. Support to target groups has been well-judged, and their rights have been sustainably protected by a secure land-tenure regime adapted to their needs. However, this type of project should also include a component to better integrate and open up the region, enabling products to be more conveniently transported to local, national and international markets.

*A member of the Irula tribe holding a cobra. The tribe members catch snakes to extract and sell the snake venom.*
*Photo: Yves Soulabaille/LookatSciences/Iaif*

# Snakebite brings social and financial burden among Indian farmers

**Snakebites are a crucial, yet underreported issue in many South Asian countries. In India, they kill some 50,000 people every year. However, the government has neglected the issue. Now, it's time to seriously address this all but forgotten public health problem, our author maintains.**

TN Muthusamy sits on a stack of rice sacks at his home in Thayirpalayam, a village near Erode town in the Indian state of Tamil Nadu. The sacks that he is sitting on are, however, not produced from his own farm. "I was growing paddy, corn and sesame on my farm for 15-20 years, until I was bitten by a poisonous snake in 2012. After the bite, I could no longer work in the fields," Muthusamy says.

According to the Million Deaths Study (MDS), headed by the Registrar General and the Centre for Global Health Research, snakebites claim the lives of 45,000–50,000 people in India every year. However, this figure is debatable as most snakebites are unreported, with no official records. Sakthivel Vaiyapuri, a scientist at the Institute for Cardiovascular and Metabolic Research, University of Reading, United Kingdom, who published a paper titled 'Snakebite and its Socio-Economic Impact on the Rural Population of Tamil Nadu, India', believes that these numbers could be higher. "No one knows the actual data," Vaiyapuri maintains. "The MDS is a representative study, and that will not work in India because snakebites range across states, which is not considered here."

Vaiyapuri's study estimates 10,000 deaths and 100,000 bites from snakes yearly just in the state of Tamil Nadu. "If we use these as indicative numbers, total deaths from snakebites in India would be 200,000, and total bites would be two million. Further, these numbers double in the monsoon, when there is higher bite incidence," he says. "The primary healthcare centres need to send snakebite records to medical and rural health services departments." Many fishermen lacking access to treatment also die from poisonous sea snakes in Tamil Nadu and Kerala.

Snakebite is a critical issue across South Asia, and India is considered to have the highest incidence of bites and associated deaths in the world. The most vulnerable people are the poor farmers. Living in remote villages, they are cut off from access to medical facilities. "The snakebite happened at about eight in the evening," Muthusamy recalls. "I became unconscious, and was rushed to the government hospital. I was given antivenom and sent to a private hospital for dialysis (kidney treatment)." Muthusamy was bitten by a Russell's viper. This snake's venom affects the kidneys directly. Although antivenom is given

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for free at the government hospital, the victims are often left with no choice but to visit private hospitals to save their vital organs, as there is no facility for dialysis at public hospitals.

## Heavy social and financial burden

Muthusamy spent a month in a private hospital, with two weeks in the intensive care unit. Not only did he lose his livelihood as a farmer, but he spent almost Rs 400,000 on healthcare in the hospital. "I sold jewellery, and my relatives loaned me some money. I am still paying my dues and interest," the farmer explains. "Additionally, I had to pay labourers working on my farm and spend money to hire tractors."

Since snakebites are unforeseen incidents, the affected farmers face sudden financial pressures. Vaiyapuri's paper reveals that over 40 per cent of victims took out loans to pay for treatment, and to repay the same, they were forced to sell their land. The nationalised banks do not provide medical loans for snakebites. "This is largely an agricultural problem. There is no medical insurance, and farmers sell everything to survive, which turns their life upside down," Vaiyapuri states. Almost 18 per cent of victims surveyed sold their stored crops (valued from Rs 1,000 to 20,000), 14 per cent sold valuable items (valued from Rs 10,000 to 100,000), more than 9 per cent sold cattle (valued from Rs 5,000 to Rs 30,000) and over 5 per cent sold vehicles such as bicycles (valued from Rs 1,000 to 2,000) and motorcycles (valued from Rs 5,000 to 20,000). Some farmers also sold family land or property (valued from Rs 50,000 to 400,000), while others were forced to stop sending their children to school.

Selvaraj Palanisamy is one among them. He recalls: "It's been over three years since I was bitten by a cobra. I am still paying my loans, after spending almost Rs 1,000,000 on treatment in a private hospital. I have three children, and I am unable to pay their school fees. I cannot practice agriculture either." If a farmer dies from snakebite, there is compensation of Rs 20,000-25,000 by the state for his family. For, injury, there is no compensation.

Robin Bernard, a snakebite survivor, founded the National Snakebite Initiative in 2011 at Erode in Tamil Nadu, with an aim to protect the lives of both the farmers and the snakes. "Snakebite is a neglected issue, a poor man's disease, and not many people are willing to work on it. The local people here even hesitate to speak or do anything about it," Bernard says. The NGO uses flashcards to raise awareness among villagers on snakebites and safety measures. "The first thing we tell them is not to kill snakes as they play an important role in agriculture," he explains. Snakes are natural rodent controllers in farms, protecting crops and harvests and preventing serious diseases from being spread e.g. by rats.

Bernard says, "We culturally and environmentally linked the importance of snakes, and slowly expanded the outreach programme." In 2013, the NGO won UN recognition for its rural snake safety campaign. It ran an epidemiological survey which gives details on bite, and also on what victims do when they return home from hospital. "Sometimes, superstition causes victims to change homes, names and phone numbers after the bite due to superstition. Following a victim in the village is a challenge," Bernhard says. The NGO also ran activities on rural snake safety for the villagers. In the youth and development programmes, they worked on a historical envenomation survey, where details on snakebite were collected from the victims. A snake safety and skill development training programme was organised for the fire service, the forest department and the police.

*Selvaraj Palanisamy was bitten by a cobra.*
*Photo: Sharada Balasubramanian*

Relocation of snakes and record keeping are issues the NGO faces even today. Equipment such as safety gear like tongs and hooks was designed and promoted at lower cost, and the forest officers were trained to use them. Now the forest department officials are able to identify the snakes.

## Raising awareness – easier said than done

Awareness of the snakebite problem among farmers in India is minimal. "The farmers don't know that they should not lie down when the leg gets bitten. They immediately tie the wound tightly. When they reach the hospital and the tied wound is opened, the venom spreads fast and impacts vital organs," says Shyamala Robin of the National Snakebite Initiative. Bernard recalls an incident when a victim consumed alcohol on his way to the hospital. He could not be given antivenom and died within three hours. Another patient sat in front of the television after the bite instead of rushing to the hospital. "In the past, the farmers were more aware of the problem. For example, they knew that snakes always move in corners. So they painted broad white lines on the corners of the houses, which made it easier for them to spot the snakes," Bernard explains. "Also, people wore rubber slippers that were noisy and used to carry sticks, tapping them while going to the field. This would alert the snakes, and they moved away." "The farmers can wear shoes, or at least carry a torch to minimise the impact," says Vaiyapuri. Farmers have to be taught to distinguish poisonous from non-poisonous snakes, and know where medicine will be available.

## Lacking medical treatment

"According to government rules, every primary health care centre must

have antivenom. None of the centres I visited in Tamil Nadu during my study stocked antivenom. We are using polyvalent venom which can be applied to all bites," says Vaiyapuri. This antivenom works against bites of the "Big Four" – the cobra, the saw-scaled viper, the common krait and Russell's viper. But it may not be effective against bites from snakes such as the hump-nosed pit viper and the Levantine viper. Antivenom given after a non-venomous bite could trigger potentially dangerous reactions. So it is vital to improve diagnosis of snakebite and develop new treatment methods with reduced side effects that are also effective against snakes other than the Big Four.

"There are about 20 to 25 proteins in snake venom. We are working on a universal antidote, a mixture of chemical compounds that can block or neutralise venom proteins to prevent them from spreading in the victim's body," Vaiyapuri explains. The medicine in the form of tablet, injection or nasal spray will have 10 to 15 chemicals. The nasal spray will go to the lungs and spread faster.

This medicine will cost less as these chemicals are already available. "They have no expiry date, do not need cold storage and farmers can carry them to fields," Vaiyapuri says. "Further, patients need not visit hospital, and the medicine can be used for any snakebite. These chemical compounds can be altered to neutralise the impact of bite. In vipers, 80 per cent of the neurotoxin can be neutralised."

Vaiyapuri has also screened 30 plants which were used by traditional healers to cure snakebites. "We found that twelve plants show an effect on bite," he explains. "We are doing a parallel study on how chemical compounds from plants can be used."

## What needs to be done

WHO's guidelines on snakebite management in South East Asia recognise that community education is the most effective preventive measure. The clinical staff in the primary health care centres and local people should be trained in first aid measures. This first aid kit and antivenom should be available in the centre to take immediate action. If it is not available in health centres, there should be vehicle services to take victims to hospitals in time. Both Bernard and Vaiyapuri stress the need for envenomation experts in India. "Who tells the doctor that the kidney failure is due to snakebites? They treat patients like any other poison victim," says Bernard. There should be a separate envenomation unit in hospitals. The village leaders should take the initiative in training local people. The victims and the scientists believe that the treatment should be made free even in private hospitals.

*TN Muthusamy (left) chatting with Robin Bernard of the National Snakebite Initiative. Bernard advises farmers to have tongs in the house to catch snakes.*
*Photo: Sharada Balasubramanian*

The impact of the bite depends on the health of the individual, how fast the victim reaches the hospital, and how much venom has been injected into the body. For villagers living far away from city hospitals, an emergency ambulance service could be of help. The local government should play an important role in spreading awareness. Short videos could be produced on snake safety. Further, awareness and training programmes could be run in rural health centres. Here, both farmers and health staff could learn the most important practices in handling snakebites – that the patient should not walk after a bite on the leg, that first aid should be given in 2 to 3 hours – which is indeed a challenge in rural areas – and that, if bandage is tied half a foot away from the bite area, 70 per cent of venom mixing will be blocked. Using a pressure bandage will slow down the venom spread, giving the victim more time to reach hospital. Vaiyapuri stresses that medical staff at health centres have to grasp how important swift action is and stop sending victims to city hospitals without doing anything themselves.

Research funding for snakebites is very poor globally. No medical advancement has happened in the last 125 years. "The Indian government could fund this research because it will benefit Indians, who are after all the most affected people," says Vaiyapuri. "The Indian government has banned sending snakes to other countries. Hence, it is difficult to research in our labs. The central government should take steps to promote research in this field."

Vaiyapuri's team is now working on a diagnostic kit. "There is a strong need for this in India because this kit will confirm if there is a snakebite, which snake has bitten, and the quantity of venom circulating in the blood," he explains. Further, there is a need to get information on snakebite incidents, especially in the rural areas where snakebites are most common. It is important that the public, researchers and the clinical community come together to work on this issue.

# Organic equals conventional

In a long-term project in Kenya, the Swiss-based Research Institute of Organic Agriculture has examined the potential of organic and conventional agriculture regarding soil fertility, the occurrence of pests and diseases, and profitability. Initial results make a strong case to implement policy measures necessary for supporting the adoption of organic management practices on a large scale.

About 80 per cent of Africa's population depend on agriculture as their primary source of livelihood, and it provides employment to around 70 per cent of the continent's poorest people. The main form of farming in sub-Saharan Africa (SSA) is simultaneous multispecies mixed farming. In East and Southern Africa, maize-based mixed farming is the most important food production system, but productivity is very low and is considered one of the reasons for the persistence of rural poverty in the region. The low crop productivity has been attributed to a number of factors that include low soil fertility and long-term soil degradation caused by deforestation, overgrazing, continuous and intensified cropping with inadequate replenishing of soil nutrients and a low take up of sustainable resource management strategies. There is a clear need to reverse the decline in soil fertility and the degradation of the natural resources.

The positive impacts of organic agriculture on soil fertility and biodiversity, but also on productivity and profitability, plant health, resource use efficiency and climate change mitigation, have already been established in temperate environments. However, these facts are yet to be proven under tropical conditions. This is what the Farming Systems Comparison (SysCom) was launched for. It aims to fill the present knowledge gap by evaluating the performance of different farming systems over a long term. Following six years of trial crops, the first results are now on hand.

*Members of the project team measuring the length of the maize cobs in the SysCom field trial at Chuka, Kenya.*
*Photo: FiBL*

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## The field trials

In the context of the study, in 2007, permanent field sites were established at two locations in the Central Highlands of Kenya with a sub-humid environment – Thika and Chuka. These field trials feature a 6-season-3-year crop rotation with maize and different vegetables and are set up in a way that both organic and conventional farming systems are comparable at high and low input levels, representing commercial scale irrigated and subsistence scale rainfed farming respectively. In principle, the level of inputs in the low-input treatments reflects the availability of farm-owned resources as a determining factor, whereas in the case of the high-input treatments the crop requirements and profitability are the main driving factors, necessitating the use of market-purchased inputs (e.g. biopesticides for organic) and irrigation water. Thereby, both the field experiments are designed to compare four treatments: Conventional High Input (Conv-High), Organic High Input (Org-High), Conventional Low Input (Conv-Low) and Organic Low Input (Org-Low).

## Project achievements and findings till date

The first six-years results of the long-term study show the potential of organic farming to improve the soil fertility and economic profitability compared to the conventional approach (see diagrams on page 46). Here are the examined factors in detail:

### Productivity and profitability

- In high-input systems, yields of organic are equal to those in the conventional approach. The yields of grain maize and baby corn are similar at both sites in all years except in year one at Thika.
- Low-input organic systems showed that the yields of maize intercropped with beans in organic were similar to those of the conventional one, while under maize sole cropping at Thika, yields were 1.7 to 3.2 times lower in organic compared to conventional.
- The high input organic system turns out to be more profitable than the high input conventional system after the first four years. Considering the premium price of organic certified products, the gross margin was higher in organic, beginning from the fourth year on.

### Soil fertility

- High-input organic farming enhanced soil fertility by improving soil pH, potassium, calcium and magnesium compared to high-input conventional farming.
- High- or low-input organic and conventional farming systems have similar effects on soil organic carbon content.

### Pests and diseases

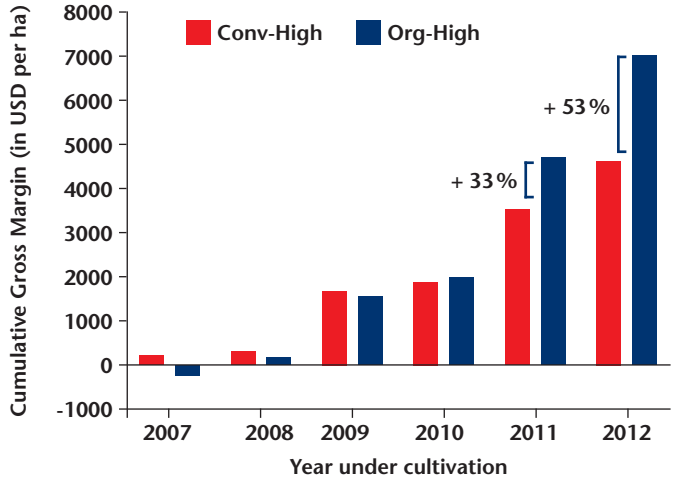
- No significant differences were found between organic and conventional systems regarding diseases (maize streak disease, turcicum leaf blight and downey mildew).
- No significant differences were found between organic and conventional systems regarding pests (aphids and stemborer), except at Chuka in 2010, where stemborer damage was higher in the conventional system compared to the organic system, and in 2011 and 2012, where the reverse was observed.
- However, termites are constantly, and significantly more, abundant in organic systems compared to the conventional ones. Out of the total population, beneficial termites were more in organic systems whilst plant destructive termites were more in conventional systems. There was however similar damage caused by termites in both systems.

## Summing up

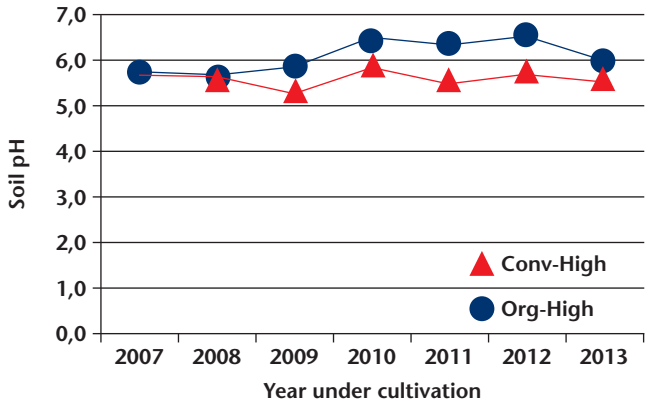
These first results from the long-term study in Kenya show the potential of organic agriculture to improve soil fertility and farmer incomes in sub-Saharan Africa. At the same time, the yields of organic fields level off conventional fields. This shows that organic systems start to deliver substantial economic advantage over conventional systems as soon as the initial conversion phase is over.

Now it is important to observe the performance in the mid and long term. This is why it is planned to continue the SysCom programme with further studies focusing on these aspects over the next few years.

**Economic returns in the farming systems at Chuka**




**Effect of the farming systems on soil pH at Chuka**




**About "SysCom"**

The long-term study called "SysCom" compares organic and conventional farming systems under identical conditions. The study, led by the Research Institute of Organic Agriculture (FiBL) Switzerland, is implemented in co-operation with local partners in Kenya: the International Centre of Insect Physiology & Ecology (icipe), Kenya Agricultural & Livestock Research Organization (KALRO), Kenyatta University (KU), Kenya Organic Agriculture Network (KOAN), Kenya Institute of Organic Farming (KIOF) and the Tropical Soil Biology and Fertility Institute of CIAT (TSBF-CIAT). The study is funded by Biovision, Swiss Agency for Development and Cooperation, Liechtenstein Development Service and the Coop Sustainability Fund.

For further information, see: ➤ **www.systems-comparison.fibl.org**

# Combating malaria with odour-baited traps for mosquitoes

A newly-developed mosquito trap outsmarts malaria-transmitting mosquitoes. It attracts the insects by emitting a natural lure – namely human odour – composed of lactic acid and other substances transpired by the human skin. The mosquitoes approach the trap and are sucked in by a fan running on solar energy.

A study by a team of researchers from the University of Wageningen in The Netherlands, the Kenyan International Centre of Insect Physiology and Ecology (ICIPE) and the Swiss Tropical and Public Health Institute (Swiss TPH) showed that the trap resulted in a 70 per cent decline in the *Anopheles* populations on the Kenyan island of Rusinga in Lake Victoria. The number of malaria infections decreased by 30 per cent, the researchers say. It is the first study to demonstrate a positive health effect of mosquito traps. The trap could therefore become a decisive tool to eradicate the disease. According to Wageningen's Willem Takken, the trap kills the insects without relying on insecticides. There is no negative impact on the environment, and it is very unlikely that the mosquitoes will become resistant, says Takken. The success of the new approach lies in the combination of the odour-baited trap with mosquito nets, anti-malaria drugs and a solid social strategy, the researcher notes. As the traps need electricity to operate but there is no central electricity supply on Rusinga, solar panels were installed on the roofs of homes. These not only provided electricity for the mosquito traps but also supplied the homes with power for light and to charge a mobile phone. Overall, 4,500 traps have been installed.

The odour-baited trap may also offer a solution to diseases like Dengue fever and the Zika virus, says Tom Smith from Swiss TPH, and adds that *Aedes aegypti*, the vector transmitting the Zika-virus and Dengue fever, is attracted by human scent and could possibly be contained by such a trap. The study was published in the scientific journal „The Lancet" in July 2016. *(wi)*

# Potential of agricultural land as carbon sink underestimated

If carbon from trees grown on agricultural land was well accounted for, total carbon estimates for agricultural land would be more than four times higher than they currently are, a new study reveals. "This is good news, and it is getting better," says Deborah Bossio, Director of Soil Research at CIAT, the International Center for Tropical Agriculture, and co-author of the study. Between 2000 and 2010, tree cover on agricultural land increased by three per cent, resulting in a 4.6 per cent increase in biomass carbon globally. Yet while the importance of carbon stored by forests is widely recognised, carbon stored by trees on agricultural land has largely been ignored.

According to the authors of the study, the soil organic carbon pool is enormous, and is estimated to be two to three times larger than the amount of carbon in the atmosphere. The additional carbon that can be stored as soil organic matter is also huge – up to 1.2 Gigatons per year in top soils on agricultural lands alone. So this is another unexploited, under-appreciated carbon sink. But until recently, with the launch of the "4 per 1,000" initiative by the French government to promote carbon sequestration in soils for food security and climate, the mitigation potential of sequestering carbon in soils was rarely discussed in policy circles. *(wi)*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