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Creating enabling conditions for managing trade-offs between food production and forest conservation in Africa

Case studies from Ethiopia and Zambia

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Food demand in sub-Saharan Africa (SSA) is projected to more than double between 2018 and 2050. Historically, increasing food demand has been met largely through agricultural expansion – but at the expense of forests and biodiversity. To better manage competing land-use objectives for agricultural production and forest conservation, SSA countries need to look beyond technological solutions. They must adopt holistic approaches suitable for their political, economic and social contexts. This working paper aims to inspire and stimulate discussion and research on practical ways forward for SSA countries to better manage competing land-use objectives. It analyses four case studies from Ethiopia and Zambia and identifies common lessons learnt including ten enabling conditions and tried-and-tested approaches for managing trade-offs between increasing food production and forest conservation. It also highlights several important potential future research topics.

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Summary

How can agricultural production increase to meet the rapidly growing food demand in sub-Saharan Africa without reducing its precious forest areas? This is one of the greatest challenges in achieving sustainable land use and the Sustainable Development Goals (SDGs) in the region. Recent land-use change data shows that countries in sub-Saharan Africa (SSA) are struggling to manage these competing land-use demands. The area of land covered by forests (both natural and planted) in SSA declined by nearly four per cent between 1990 and 2015 – the second-highest deforestation rate in the world. Most loss is caused by agricultural expansion into forest areas, largely to serve the rapidly growing domestic food demand. Looking into the future, food demand is projected to more than double in SSA by 2050, placing even more pressure on forest biodiversity and ecosystem services.

Encouragingly, SSA countries are making efforts to better manage these competing land uses. Those efforts are generating useful practical lessons to inspire further research and collective actions to tackle this challenge. The research outlined in this working paper studied four case studies of interventions that have sought to better manage land-use trade-offs between food production and forest conservation: two cases in Zambia and two in Ethiopia. The four case studies operate at very different spatial scales ranging from a 5,000km^2 area around Bale National Park in Ethiopia to 36 game management areas (GMAs) across Zambia covering 22 per cent of the country. In three of the four case-study areas discussed here, government agencies led the implementation. In the fourth, implementation was led by Community Markets for Conservation (COMACO), a non-profit company.

The learning from these four case studies has revealed the importance of ten essential and interlinked enabling conditions for better managing the competing land-use objectives of food production and forest conservation:

1. Understanding and reconciling competing land-use needs
2. Building trust among key stakeholders
3. Engaging multiple stakeholders
4. Clear land rights, responsibilities and accountability
5. Transparent and fair benefits and costs
6. Strengthened stakeholder capacities
7. Participatory and user-friendly monitoring
8. Multiple spatial scales
9. Financial and institutional sustainability, and
10. Continuous learning and adaptive management.

We found that different stakeholders have different land-use objectives and value natural resources, biodiversity and ecosystem services in different ways. To better manage land-use trade-offs, it is important to first understand what the different land-use objectives and competing needs are. But better understanding itself is not enough. Approaches must be taken to alleviate competition between those different land-use needs. Land-use trade-off management must include processes to build trust among key stakeholders, balance those competing stakeholder interests, and engage a diverse range of expertise to deliver solutions that crosscut sectors and value chains. Clear land rights, responsibilities and accountability are fundamental and a basis for stakeholders to negotiate and share benefits and costs associated with land-use management. Farmers, government and private-sector actors require targeted capacity building to better manage land – and to monitor results and learn from experience. Any interventions must work across spatial scales and secure long-term financing and institutional support to affect sustainable change at scale.

Approaches to creating different enabling conditions for better managing trade-offs vary, depending on social and political contexts. But there are some common lessons learnt from the four cases. Incentives should be designed to explicitly reduce the competition between land-use objectives. But incentives alone are not enough. They must be combined with regulatory actions or penalties for those who fail to carry out their responsibilities or undermine sustainable land-use management. Market-based value-chain approaches can be combined with national-level policies to encourage impact at scale and long-term benefits. Diversified farm and forest products linked to the market can help provide balanced incentives to sustainably manage both agricultural and forest land.

Local stakeholders often understand land-use trade-offs better than stakeholders at higher levels as they juggle with these competing demands on a daily basis. Working with existing community and government institutions can be a cost-effective way to mobilise local actions. Multistakeholder engagement is critical for managing land-use trade-offs and should be institutionalised.

All of the four cases studied here have struggled to create and sustain sufficient incentives for conservation, to work across different spatial scales, to ensure financial and institutional sustainability and to carry out continuous learning and adaptative management. This report concludes with priorities for future research to address these and other key challenges. These research topics include:

- How to enable more equitable outcomes in trade-off management
- How does gender equality and youth engagement impact management of land-use trade-offs?
- What types of land and land-user rights are effective in managing land-use trade-offs?
- Why and when is it important to diversify agricultural and forest products for the better management of land-use trade-offs?
- Which business models can enable a diverse range of sustainably produced products? and
- How can we nuance our analytical framework for 'better' management of trade-offs? Better for whom? Better for what?

1

Balancing competing land-use objectives

1.1 Background to the research

The population in sub-Saharan Africa (SSA) is projected to double between 2018 and 2050, the highest rate of increase compared to other regions (World Population Review). The corresponding increasing demand for food – estimated to more than double during this period – is placing enormous pressure on our finite natural resources and productive land.

Society's ability to sustainably manage our natural resources including forests underpins rural livelihoods in SSA, which has the highest extreme poverty rate in the world (FAO 2018a). But how can we increase agricultural production to meet the rapidly growing food demand in SSA without reducing forest areas? This is one of the greatest challenges in achieving sustainable land use and the Sustainable Development Goals (Franks *et al.* 2017; FAO 2018a).

Recent land-use change data shows SSA countries are struggling to manage competing land-use demands. The area of land covered by forests in SSA (both natural and planted) declined by nearly 4 per cent between 1990 and 2015 – the second-highest deforestation rate in the world (FAO 2018a). Most loss is caused by agricultural expansion into forest areas, largely to serve the rapidly growing domestic food demand (Franks *et al.* 2017).

To better manage competing land-use objectives for agricultural production and forest conservation, SSA countries need to look beyond technological solutions. They must adopt holistic approaches that address the social, economic and political factors that perpetuate unsustainable land-use practices. In this working paper, we aim to inspire and stimulate more discussion and research on practical ways forward.

To distil practical lessons relevant to SSA countries' contexts, our research analyses existing practices through four different case studies in two SSA countries: Ethiopia and Zambia. We designed the research based on the recognition that how to better manage competing land-use objectives is dependent on local context and there is no one-size-fits-all approach. Our research does not intend to provide an exhaustive or prescriptive list of best practices. Instead, we aim to identify some common enabling conditions and the tried-and-tested approaches used to create them, as well as barriers encountered.

1.2 Methodology

What are the enabling conditions for better management of trade-offs between food production and forest conservation objectives? What are the tried-and-tested approaches to create those enabling conditions?

We designed our research methodology based on a literature review and discussions with members of the Science for Nature and People Partnership (SNAPP) Working Group on Food Production and Forest Conservation in sub-Saharan Africa during two workshops held in Addis Ababa, Ethiopia in April and Cambridge, UK in September 2018.[1]

[1] See Appendix 1 for a list of SNAPP Working Group members.

1.3 Key definitions and research scope

1.3.1 Definition of enabling conditions

Enabling conditions can be factors created by a project or factors relating to the operating environment of a project. In this working paper, we define 'enabling conditions' as:

> *[F]actors that increase the likelihood of an intended change in the approach, strategy, or management regime. The presence of enabling conditions can facilitate the emergence of a particular environmental policy, whereas the absence of key enabling conditions can present a barrier to management or sustained policy action* (Huber-Stearns *et al.* 2017).

1.3.2 Definition of 'land-use trade-off' in this research

A land-use trade-off exists where an intervention designed to achieve one land-use objective (eg food production) inevitably leads to a negative change in another land-use objective (eg forest conservation). This research only examines the trade-offs between the objective to produce more food to meet increasing food demand and the objective to conserve forests and biodiversity in SSA.

A theoretical production possibility frontier (PPF) can help illustrate the land-use trade-offs within the scope of this research. The theoretical PPF represented by the solid orange line in Figure 1 depicts all maximum output levels for two land-use objectives within the finite available land and current best technology and management practices. In other words, theoretically, when the best technology and management practices have been used to achieve the best possible yield and all available land has been used either for forest or agriculture, all points on the orange line represent the most efficient combination of two land uses. The trade-offs between the land-use objectives are illustrated by the fact that to increase the output for one objective, the output for the other objective will decrease. The theoretical PPF line is curved in Figure 1, which illustrates the fact that agricultural production requires ecosystem services provided by forests (eg water regulation). However, the degree of curvature is not based on any scientific data but is for illustrative purposes only.

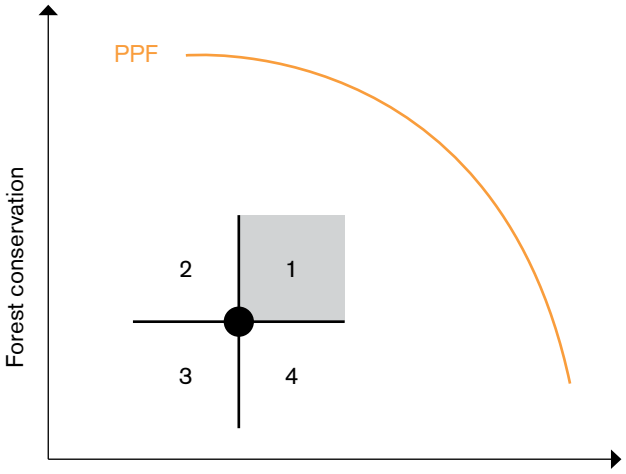
We acknowledge that there are other competing land-use objectives (eg mining) and other types of important trade-offs associated with land use (eg trade-offs between different types of ecosystem services; trade-offs between the well-being of different social groups). Those trade-offs are not within the scope of this research, though some of the enabling conditions and approaches discussed as well as future research questions identified can be relevant for managing those trade-offs.

1.3.3 Definition of 'better management of land-use trade-offs' in this research

In SSA countries, current land-use practices have not used best-possible technologies or management practices. Current practice usually falls well inside the PPF line. In Figure 1, the black dot represents a current land-use status.

A particular intervention or set of interventions may change the balance in performance of the system with respect to the two land-use objectives in four different trajectories represented by the four quadrants in Figure 1. In this research, only those interventions that have shifted land-use status to Quadrant 1 are considered unequivocally 'better management' (ie when performance for both land-use objectives increased). Though the primary objective of this research is not to evaluate whether each case has achieved 'better management', it is important to use this definition to identify suitable case studies that can offer practical lessons on enabling conditions for 'better management' of land-use trade-offs and tried-and-tested approaches to creating those enabling conditions.

Figure 1. Illustration of 'land-use trade-off' and 'better management of land-use trade-off' and a theoretical production possibility frontier (PPF)



In practice, how do we define 'better management' of land-use trade-offs is complex, especially when considering different scales of interventions, baseline and stakeholder preferences?

- **Different scales of intervention:** One set of interventions may move the land-use status into Quadrants 2 and 4 in a certain location (ie increased

performance versus one objective at the expense of the other). But the aggregated outcomes of different interventions that fall into Quadrants 2 and 4 at different locations can still deliver better outcomes in relation to both objectives at a larger scale. For example, protected areas (increased performance for conservation at the expense of agriculture production) combined with agriculture development corridors (increased performance of agricultural production at the expense of conservation) can still deliver better aggregated outcomes against both land-use objectives at the national level. During our research, we observed land-use status changes and examined the approaches used at the scale of each case study's interventions. For example, if a case-study project aimed to effect land-use change at watershed level, our research observed the achieved changes at watershed level and not any lower (eg households within the watershed) or higher (eg national) level. Instead, we aimed to identify practical lessons for creating enabling conditions, which are hard to identify when looking at scattered cases with no clear mechanism for discerning their potential aggregated outcomes unless they are already part of a coherent land-use strategy.

- **Baseline:** There are two ways to determine how land-use status has changed and whether a set of interventions has better managed land-use trade-offs: comparing the current situation or the situation at the end of the case-study interventions with 1) the starting situation or 2) a business-as-usual baseline (ie the possible outcomes in the absence of case-study interventions). Theoretically, the second option is preferable as the context of each intervention is not static and this option can more accurately pinpoint whether interventions have worked or not. But in reality, establishing a business-as-usual baseline is not straightforward and can often be costly. Common approaches to establish a baseline include using historical data to establish a trend or comparing the status of a geographic area where an intervention has happened with an area with no interventions in a given timeline. But these approaches often are highly dependent on availability and quality of data and availability of monitoring resources. Due to budget constraints, this research can only rely on existing published data for baselines. Though some cases have some data available as business-as-usual baselines, most of the case studies only recorded data at the start and end of their interventions, or provided the most recent data if activities were still ongoing.
- **Stakeholder preferences:** Different stakeholders usually have different land-use priorities and attribute different values to different land-use outcomes. While a land-use status change into Quadrant 1 can deliver both agricultural production and forest conservation objectives, it may still involve some sacrifices from certain stakeholder groups (eg those who are only interested in forest conservation may need to compromise by letting some land be used for agricultural production). So even seemingly 'win-win' outcomes may involve sacrifices from key stakeholders. Similarly, changes into Quadrant 2 and 4 may mean some stakeholders' preferences are met at the expenses of others. It is important to understand stakeholder preferences and our research aimed to understand those differences and bring different stakeholders together as part of understanding the enabling conditions for better managing land-use trade-offs. But this research does not evaluate stakeholders' preferences per se nor does it seek to evaluate which stakeholders are better or worse off due to case-study interventions.

In addition, our research examines enabling conditions and approaches that can sustain improvements in trade-off management in the long term (ie beyond a project timeline) and at scale (ie beyond the scale of an isolated project). Isolated islands of 'success' and short-term fixes will not be able to address the challenges for SSA countries to meet their rapidly growing food demand without reducing forest area.

Although not within the scope of this research, it is also possible to move the PPF itself. For example, a transformation in agricultural technology could increase the best-possible agriculture yield and move the PPF outwards. This may then allow increased performance against both objectives because, for example, part of the potential gain in crop production from the new technology could be sacrificed in the interests of reducing agricultural expansion and conserving forests.

1.4 Selecting the case studies

In selecting the case studies for our research, we first asked SNAPP working group members and their networks to suggest case studies of interventions that have sought to better manage land-use trade-offs between food production and forest conservation. We selected four case studies for an in-depth analysis: two cases in Zambia and two in Ethiopia. Few current interventions in Ethiopia and Zambia explicitly address land-use trade-offs. Some claim to have addressed both food production and forest conservation objectives. But in practice, there is limited evidence to demonstrate 'better management'.

Based on desk research and interviews with key stakeholders, the four case studies were chosen because:

- They have used approaches to address the trade-offs between food production and forest conservation objectives.
- The different approaches used are diverse and have the potential to complement each other.
- Each has sufficient existing information for the research to draw on, given limited funding to collect primary data.

1.5 Case-study countries in context: Zambia and Ethiopia

1.5.1 Zambia

Zambia's population was estimated at 17.8 million in 2018 with an annual growth rate of three per cent (World Population Review). Nearly two-thirds of the population live in rural areas (GRZ 2016) while 54.4 per cent still live under the poverty line with higher poverty rates in rural areas (CSO 2016). Most rural communities depend on agriculture for their food and income. The sector employs 72 per cent of the workforce (USAID Landlinks). Three-quarters of farmers cultivate less than five hectares of land (CSO 2016). Maize is the main crop grown, providing over half of all calories consumed (Ministry of Agriculture 2017).

Zambia is a land-locked country covering an area of 75.26 million ha, 66.4 per cent of which (or 49.97 million ha) are forests (Office of Auditor-General 2015). The estimated annual deforestation rates vary between 167,000ha (0.33 per cent) and 250,000–300,000ha (0.5–0.6 per cent) of total forest cover (FAOSTAT 2018; MLNREP 2014). The main driver of deforestation is agricultural expansion into forest land (Day *et al*. 2014).

Around 94 per cent of all land in Zambia falls under the jurisdiction of traditional authorities (which includes over 250 chiefs and village headpersons) and is governed under customary law. Customary land does not have formal documentation (eg certificates or titles). The remaining six per cent is owned by the state. The state can grant leases for uses of land (leasehold titles) to individuals and companies for both state and customary land. Conversion of customary land to leasehold titles requires consent from both the local traditional authority and the district council. Once converted, the leasehold contract is between the Commissioner of Lands and the lessee and cannot be reverted to customary tenure (Sommerville *et al.* 2016).

Within this context, our research examined two contrasting approaches to address the land-use trade-offs between increasing domestic food demand and forest conservation in Zambia.

- The first case study is Community Markets for Conservation (COMACO), a non-profit company that aims to achieve wildlife and forest conservation through supporting local communities in managing agriculture and forest land and linking smallholder farmers with the market. COMACO uses a value chain-based approach to create incentives for local communities to manage land sustainably in Luangwa Valley in Eastern Zambia.
- The second case study looks at participatory land-use planning processes in game management areas (GMAs) used by the Department of National Parks and Wildlife (DNPW). The DNPW uses a multistakeholder approach to negotiate different land-use objectives and strategically plan land use in GMAs.

1.5.2 Ethiopia

Ethiopia is a large, land-locked country located in the Horn of Africa. Ethiopia extends over an area of 1.1 million square kilometres. With an estimated population of about 105 million in 2017, Ethiopia is the second most populous country in sub-Saharan Africa. Over 80 per cent of the population are rural dwellers, and more than 60 per cent under 25 years of age. Ethiopia is one of the world's poorest countries with a per capita income of US$619 in 2015, but its economic growth rate has averaged at nearly 11 per cent per year since 2004. Its level of extreme poverty (the percentage of people who consume less than US$1.9 a day) fell from 55 per cent in 2000 to 34 per cent in 2011 (World Bank 2018a).

Levels of greenhouse gas (GHG) emissions are still low in Ethiopia – only 141 $MtCO_2e$ per annum in 2011 (USAID 2015). However, given the rapid economic growth of the country and under the business-as-usual scenario, the emissions level is projected to reach 400 $MtCO_2e$ by 2030 (OFWE 2013). Currently, almost 80 per cent of emissions come from the forestry and agriculture sectors (USAID 2015). Due to its agriculture-based economy and population growth, Ethiopia has been experiencing a high level of deforestation: an average of 130,000 hectares of forest loss per year between 1990 and 2005. In 2016, the official figure for forest cover in Ethiopia was 15.5 per cent.

Under its Growth and Transformation Plan I, Ethiopia claims to have achieved national food self-sufficiency with respect to key staple food crops. It plans to maintain this at least in the short to medium term. To do so, the country plans to increase crop yields by as much as a further 50 per cent while at the same time reducing the expansion of agriculture into forest areas.

Within this context, our research examined two different case studies in Ethiopia:

- The government-led Sustainable Land Management Programme (SLMP), which aims to address two of Ethiopia's most significant developmental and environmental problems: agricultural productivity and land degradation in selected watersheds in targeted regions in Ethiopia.
- The Bale Mountains Eco-Region REDD+ Project (BMERP) implemented by the Oromia Forest and Wildlife Enterprise (OFWE) – an autonomous fully government-owned organisation – and NGOs Farm Africa Ethiopia and SOS Sahel Ethiopia. There are four components to the project, the largest of which is integrated watershed and landscape management.

1.6 Analytical framework used to assess the case studies

For all four case studies, our research sought to understand whether each had better managed land-use trade-offs. If not, what were the barriers? And if yes, what were the enabling conditions and approaches used to create them? What were the barriers and opportunities to scale up those approaches?

We structured our research and organised and analysed findings from all four cases around the ten principles for a landscape approach to reconciling agriculture, conservation and other competing land uses developed by Sayer *et al.* (2013) (see Box 1). The ten principles provided a good framework to analyse enabling conditions and approaches used to create them, because they are:

- **Explicitly designed to deal with trade-offs** and deal with competing land uses within a landscape, which includes trade-offs between food production and forest conservation.
- **Developed based on best practices:** The principles were developed based on published literature and a consensus-building process to define good practice and have been validated by a survey of practitioners. Given our research also aims to offer practical insights on how to better manage trade-offs, it is a better fit compared to other more theoretical principles.
- **Widely used:** These principles have been adopted by the Subsidiary Body on Scientific, Technical and Technological Advice of the Convention on Biological Diversity.[2]

BOX 1. TEN PRINCIPLES FOR A LANDSCAPE APPROACH TO RECONCILING AGRICULTURE, CONSERVATION AND OTHER COMPETING LAND USES

1. Continuous learning and adaptative management
2. Common concern entry point
3. Multiple scales
4. Multifunctionality
5. Multiple stakeholders
6. Negotiated and transparent change logic
7. Clarification of rights and responsibilities
8. Participatory and user-friendly monitoring
9. Resilience
10. Strengthened stakeholder capacity

Source: Sayer *et al.* (2013)

- **Supported by other relevant recent research:** The principles are supported by other research and SNAPP Working Group members' suggestions as essential enabling conditions to better understand and manage land-use trade-offs (Campbell *et al.* 2010; Hirsch and Brosius 2013; McShane *et al.* 2011).

Based on the analytical framework, we conducted semi-structured interviews with a diverse set of stakeholders for each case study including non-governmental organisations (NGOs), researchers, government, the private sector (if relevant) and community members. In Ethiopia, we interviewed key stakeholders based in Addis Ababa. In Zambia, interviews were carried out both in Lusaka, Luangwa Valley and areas around Kafue National Park. We also reviewed literature to validate and complement interview results. SNAPP working group members also provided feedback in relation to the research results in workshop settings.

Results from the four case studies, presented in Chapters 2 to 5, revealed ten enabling conditions that are closely aligned with the ten principles, but are rooted in the context of the case studies. See our discussions and conclusions in Chapter 6 and Appendix 2 for a comparison of the ten enabling conditions with the ten principles of Sayer *et al.* (2013).

[2] See www.cbd.int/SBSTTA

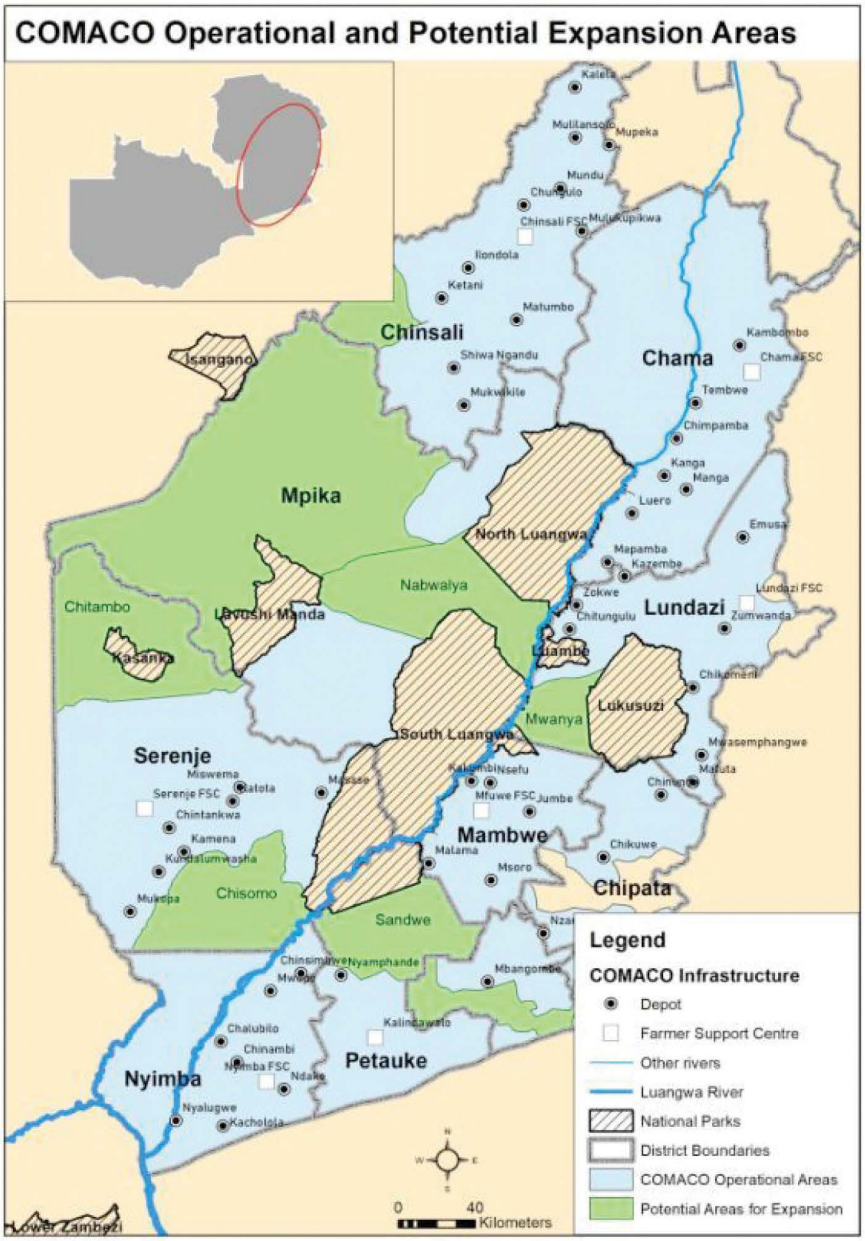
2

Case study: Community Markets for Conservation (COMACO), Zambia

Founded in 2003, Community Markets for Conservation (COMACO) operates in Luangwa Valley in Eastern Zambia, an important watershed ecosystem (COMACO 2018a). Luangwa Valley ecosystem covers an area of 134,300km^2 and is home to 76 chiefdoms living adjacent to six national parks and six national forest (COMACO 2018a). COMACO's operation covers around 70 per cent of the watershed ecosystem (93,400km^2) and 74 chiefdoms (see Figure 2) (COMACO 2018a).

COMACO is working with 177,867 farmers and has established 81 community cooperatives in Luangwa Valley (COMACO 2018a). Its products are mainly sold to the Zambian market. In 2017, it purchased around 5.5 million kilos of crops from farmers including beans, honey, rice, groundnuts, maize, soya beans and mangos (COMACO 2018b). Its current annual turnover is US$3.5 million (COMACO 2018a).

Figure 2. COMACO's operational and potential expansion area



Source: COMACO (2018a)

2.1 Key land-use trade-offs addressed

Wildlife poaching and slash-and-burn agriculture has been practised for generations in the Luangwa Valley (Lewis *et al.* 2011). Farmers have also grown cotton and tobacco through participation in large-scale out-grower schemes. This resulted in an increased deforestation rate and made local farmers vulnerable to global commodity market fluctuations (Lewis *et al.* 2011). In 2004, when COMACO began operations, most local communities were poor and did not have enough food to feed their families: the average annual household income was below US$100 and 34–63 per cent of the population in the valley were food insecure (UNDP 2012). Yields were low due to rainfall inconsistency and suboptimal farming practices (Lewis *et al.* 2011). Poverty and food insecurity were compounded by population growth, which resulted in increased pressure on wildlife and forests in the valley. Farmers cleared forests to access fertile land, and killed wildlife for meat or cash in times of food and economic insecurity (Lewis *et al.* 2018a).

2.2 Evidence of better management of trade-offs

2.2.1 Increased food security and reduced poverty

Among COMACO farmers, the yield of the main staple food maize has tripled. Income has risen from below US$100 per year to over US$400 (COMACO; COMACO 2018a, 2018b). Between 2012 and 2018, COMACO farmers' rice yield was on average 46 per cent higher than the national average rice yield (Lewis *et al.* 2018a) and 87 per cent of farmer households registered as food secure in 2017 compared to 43 per cent in 2003 (COMACO 2018b).

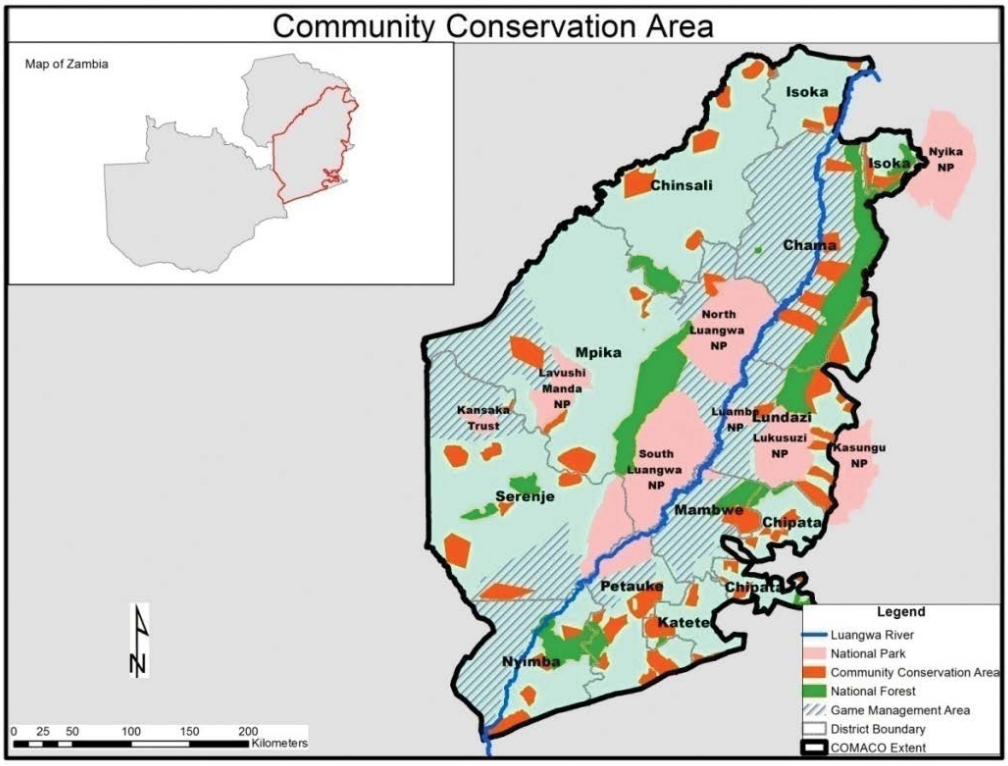
In the 1990s, cotton, tobacco and maize dominated the farming landscape in Luangwa Valley (Lewis *et al.* 2018a). Through COMACO's interventions, farmers are returning to a more diverse farming system that is better for food security and the environment. Crops which COMACO provides extension services for and purchases include maize, rice, soybeans, groundnuts, beans, chillis, tomatoes, mangos, moringa, honey and wild mushroom (Lewis *et al.* 2018a). In 2017, more than 40 per cent of COMACO farmer households produced three or more food crops per year (COMACO 2018b).

2.2.2 Better conservation outcomes

Through COMACO's interventions, some examples of better conservation outcomes include:

- Over 1,600 poachers have been trained to be farmers. Local communities have surrendered over 2,300 firearms and 100,000 snares (COMACO 2018b).
- Around 120,000ha of agricultural land have been cultivated using conservation-friendly agricultural practices (COMACO 2018b).
- Over 1 million hectares of land have been set aside as community conservation areas (CCAs) and some of these areas provide important corridors for wildlife to move between protected areas (Lewis *et al.* 2018b; see also Figure 3 for a map of these CCAs).
- 20 million gliricidia trees have been planted each year on farmland which alleviates nitrogen deficiency in the soil (COMACO 2018b).
- More than 60,000 fuel-efficient cookstoves are now used by COMACO households, reducing the need for charcoal (COMACO 2018b).
- CO_2 emissions have been reduced by 214,495 tonnes (COMACO 2018a).

Figure 3. CCAs established in the Luangwa Valley ecosystem with COMACO support



Source: Lewis *et al.* (2018b)

2.3 Creating the right enabling conditions

2.3.1 Understanding and reconciling competing land-use needs

To better manage land-use trade-offs, it is important to understand the underlying drivers that create and exacerbate them and seek ways to reconcile different stakeholders' land-use needs. In COMACO's case, poverty and food insecurity are two of the underlying drivers for illegal hunting and deforestation. COMACO developed a business model that reduces the trade-offs in these competing land-use needs.

Approaches used to create the enabling condition:

- **Designing approaches based on understanding of land-use trade-offs:** Zambia has a decade's experience of implementing community-based natural resource management (CBNRM). CBNRM has always been strongly rooted in local people's interests and perspectives where competing land-use needs have long been recognised. Building on those experiences, COMACO's approach was designed to draw on extensive surveys and years of field experience led by the Wildlife Conservation Society to understand and better manage local land-use trade-offs and underlying drivers exacerbating those trade-offs (UNDP 2012).
- **COMACO recognises that conservation objectives can only be effectively, equitably and sustainably achieved if communities' food security and livelihoods are also improved:** Based on field surveys and engagement with local communities, COMACO prioritises its value-chain support for crops that can increase food security for the local population (local households can consume what they produce and sell the surplus), can be grown organically in the local context, and which are resilient to climate variation and have good market values (Lewis *et al.* 2011). COMACO also ensures that it can offer market and extension services for a wide range of crops so the model can attract culturally diverse communities in three different agroecology zones and encourage farmers to diversify production (Lewis *et al.* 2011).
- **Reducing competition between different land-use objectives by making increases in farmer income contingent on better land-use practices:** COMACO offers a 10–20 per cent premium price to its farmers. In addition, to incentivise conservation at scale, COMACO monitors conservation efforts and outcomes at chiefdom level. It provides a conservation dividend annually to reward those chiefdom communities compliant with COMACO's conservation standards. The amount of conservation dividend varies each year based on COMACO's annual net income. For example, in 2017, 18 chiefdoms each received US$2,000 (COMACO 2018b). The dividend is usually disbursed just before the beginning of the rainy season when household food and cash flow are typically low and planting just about to begin (UNDP 2012). COMACO organises community-wide ceremonies to reward the dividends annually. Government representatives are invited to attend and award compliant chiefdoms. The ceremonies help to instil a sense of pride in the traditional authorities and communities, which in turn encourages compliance.

2.3.2 Building trust among key stakeholders

COMACO's success heavily relies on building trust with the communities, cooperatives and traditional rulers they work with so communities are willing to make the conservation pledge and actively engage with COMACO to implement and monitor their land-use activities based on the pledge.

Approaches used to create the enabling condition:

- **Working through traditional community institutions:** COMACO actively engages traditional leaders to mobilise support and increase compliance with conservation pledges. For example, chiefs take an active role in identifying and persuading poachers to work with COMACO. Traditional leaders convene village meetings to address non-compliance and/or facilitate village decisions to ensure compliance (for example, to reject investments by large tobacco farms or ban commercial sales of charcoal) (UNDP 2012).
- **Locally placed extension staff:** COMACO has skilled and passionate staff who are experienced in community engagement and are often from the communities. They work closely with them and live locally to better provide technical support (such as supporting conservation agriculture practices, monitoring and cooperative governance). COMACO staff have built strong connections and trust with the local communities they work with.
- **Transparent revenue sharing:** Information about the prices COMACO offers to farmers is publicly available. Communities collectively decide how the dividends are spent (for example, purchasing farming tools, bicycles, seedlings and seeds).

2.3.3 Engaging multiple stakeholders

COMACO's value chain-based approach to deliver both development and conservation objectives requires a wide range of expertise in business development, farming and food processing techniques, conservation activities and community engagement. COMACO has

actively sought complementary partnerships and has engaged with a wide range of stakeholders to develop the diverse expertise needed to better manage land-use trade-offs.

Approaches used to create the enabling condition:

- **An open policy in stakeholder engagement:** COMACO has an institutional-wide 'open policy' that encourages staff to share COMACO's approach with any stakeholders who are interested in it. This open policy has allowed diverse stakeholders not only to learn from COMACO but also to share their expertise with COMACO.
- **Strategically seeking complementary partnerships:** COMACO has actively sought advice and built partnerships with government, the private sector, researchers and NGOs to complement its core staff expertise. For example, it has a strong collaborative partnership with the American food company General Mills. The company offers technical expertise to promote food safety, inventory management and product development (UNDP 2012). COMACO also works with universities and other research institutes in Zambia and overseas to help improve its business models, rural development techniques and to monitor project outcomes. It engages local government authorities through steering committees, provincial round tables and consultation meetings to ensure local policy support for its model and to collaboratively monitor conservation outcomes (Changemakers).

2.3.4 Clarifying land rights, responsibilities and accountability

COMACO implements its activities on customary land, where traditional authorities and customary laws govern land uses. It is important for COMACO to enable traditional authorities and communities to plan and manage their land responsibly.

Approaches used to create the enabling condition:

- **Establish rights, responsibility and accountability through the 'COMACO deal':** To benefit from COMACO's conservation dividends and to receive the various services it provides, farmers must make a conservation pledge, agreeing to protect their soils, forests and wildlife (COMACO 2018b). At end of each year, COMACO conducts a conservation audit based on a transparent scoring system at community level (see Section 2.3.7 on participatory and user-friendly monitoring for more details). If non-compliance is found, communities are given opportunities to take corrective action (such as community meetings to discuss reasons for and develop plans to halt non-compliance or to identify those responsible so they can attend COMACO capacity-building activities). If non-compliance persists, COMACO will cease trading, dividend payments and extension services in the chiefdom (UNDP 2012).
- **Safeguarding forests and wildlife through voluntary community conservation area schemes:** Communities can also work with COMACO on a voluntary basis as part of the community's conservation pledge. COMACO provides support in spatial mapping and trains community members to identify important biodiversity features or areas such as important wildlife corridors that connect fragmented forests. Communities are responsible for carrying out conservation activities in CCAs while COMACO provides training in sustainable forest management and conservation law enforcement (eg forest guards) (COMACO 2018b). COMACO also provides training and markets for non-timber forest products (NTFPs) such as honey and fruits. Currently, there are 38 CCAs covering around 1 million hectares of land (COMACO 2018b).

2.3.5 Transparent and fair benefits and costs

What motivates farmers to participate in COMACO deals are the transparent costs and benefits. The costs involved are related to efforts associated with adapting land-use practices and upholding conservation pledges. As a reward for those costs incurred, COMACO provides a wide range of benefits including premium prices, conservation dividends and other services. Farmers can compare the benefits and costs involved in becoming COMACO farmers with other market alternatives and decide whether they want to sell to COMACO.

Approaches used to create the enabling condition:

- **Business model built to maximise profit margins for farmers who uphold the conservation pledge:** Unlike for-profit companies, COMACO's business model is built to maximise the incentives for communities to adopt better land-use management practices while being competitive in the market and financially independent. Revenues are invested back into the business and shared with communities through the premium prices offered and the conservation dividend. These benefits are shared fairly as COMACO offers the premium price exclusively to farmers who take the conservation pledge and only rewards conservation dividends to communities which pass the annual conservation audit.
- **COMACO farmers have the option to sell to other buyers:** COMACO farmers have the freedom and flexibility to compare the costs and benefits associated with the COMACO deal with other market options on offer and make their own decisions. Many

farmers and communities prefer to sell to COMACO mainly because of the price premiums offered and the other additional services provided (such as cheaper seeds, capacity building activities and transporting products to processing centres, the costs of which can be as high as 12 per cent of the crop value) and trust built through long-term partnerships.

2.3.6 Strengthening stakeholder capacities

Limited knowledge on better land-use practices, limited capacity for value addition and the lack of access to markets are key barriers for farmers when considering whether to invest in sustainable land management. This can reduce land-use trade-offs. COMACO has strengthened communities' capacity to better manage their land at scale through a cost-effective extension service model that is built based on local needs. COMACO also invested in value-addition capacity and improved communities' access to markets for their environmentally friendly products.

Approaches used to create the enabling condition:

- **Tiered extension service model to enable cost-effective capacity building at scale:** Based on years of experience working with farmers, COMACO has organised and trained farmers through a tiered extension model. All COMCACO farmers are organised into producer groups (PGs) which have 15–20 members. These then form a group of 3–4 neighbouring PGs to collectively select a lead farmer. Groups of 3–4 lead farmers then report to an elected senior lead farmer. In turn, groups of 4–5 senior lead farmers are led by a principal lead farmer (COMACO 2018b). In 2017, COMACO had 176,000 member farmers, 8,850 PGs, 2,667 lead farmers, 235 senior farmers and 50 principle lead farmers. The tiered extension service model has allowed COMACO to cut capacity-building costs while delivering targeted capacity building by encouraging peer-to-peer learning among farmers:
  - The PGs act as peer forums for members to share learning and build capacity on better land-use management practices but also other issues (such as health or family planning).
  - Lead farmers receive training on better land-use management from salaried COMACO extension staff. They then train the PGs they are responsible for (UNPD 2012). Lead farmers also organise PGs and other community members (including those who are not COMACO farmers) to listen to and discuss learning from COMACO's regular radio programme Farm Talks about sustainable land-use practices and the challenges and successes in implementing them (COMACO 2018b).
  - Senior lead farmers are trained and tasked to coordinate village area commodity groups. These serve as a platform for neighbouring PGs to bulk store commodities at fixed locations and meet regularly to share learning (COMACO 2018a).
  - Principle lead farmers are trained and tasked to oversee progress of capacity-building and other extension service delivery at chiefdom level and coordinate between all senior farmers and cooperative leaders (COMACO 2018b).
  - Lead farmers, senior lead farmers and principle lead farmers receive training on community-based monitoring (COMACO 2018b).
  - In its strategic plan for 2019–2023, to make capacity-building activities even more cost effective, COMACO plans to strengthen cooperatives' ability to self-sustain this tiered training approach, ensuring that all trainers are local residents and can use more cost-effective capacity-building tools like smart-phones and radios (COMACO 2018a).
- **Comprehensive capacity building along the value chain:** COMACO has invested in building capacity along the value chains of its products:
  - Capacity building for producers to increase productivity and better manage their land (for example, government-certified seed production, agroforestry practices, minimum tillage, usage of fuel-efficient cook stoves and sustainable forest management).
  - Capacity building for governance and business development for producers to engage with the market (for example, communities receive training on cooperative governance and community-elected cooperative leaders receive business-management and leadership-skills training).
  - Capacity building for value addition: COMACO invested in 93 bulking points and collects farmers' produce there as a free service (UNDP 2012; COMACO 2018a). COMACO has invested in warehouse facilities with 7,050 tonnes of storage capacity and in processing capacities. It also has three regional processing centres that can maintain high processing standards. This provides critical control points and allows COMACO to conduct hazard analysis (HACCP) certification, which in turn has secured large-volume contracts to supply to the World Food Programme, Catholic Relief Services, regional hospitals, schools and major supermarkets in Zambia (UNDP 2012).
- **Targeted capacity building to meet local needs:** COMACO tries to prioritise capacity building for those with the greatest need (eg women and youth) and those who have the biggest impact on natural

resources (eg professional poachers or charcoal makers). Targeted stakeholders are identified through information provided by village headmen and survey results (UNDP 2012). COMACO also uses different types of training tailored to local needs. For example, it uses demonstration farms, produces illustrated training materials (called 'better life books'), distributes solar-powered radios to all its PGs to enable them to listen to its Farm Talks three times per week, and uses MP3 players to record Farm Talks so members can also listen to the programme in their own time. All training materials are translated into local languages.

2.3.7 Participatory and user-friendly monitoring

Monitoring compliance is vitally important for COMACO's performance-based approach to work. In addition, monitoring its environmental and socioeconomic impacts is crucial for COMACO to maintain its brand reputation. But monitoring communities' land-use activities and impacts at scale can often be resource intensive. Working closely with partners, COMACO has developed a cost-effective user-friendly participatory monitoring system that monitors both conservation and socioeconomic outcomes to ensure it is delivering against both land-use objectives (ie conservation and improved food security).

Approaches used to create the enabling condition:

- **User-friendly compliance-scoring system:** Conservation compliance scoring is done annually on four key variables at chiefdom level: sustainable agriculture, leadership and governance, forestry, and wildlife. Key indicators for forestry and wildlife vary between communities depending on local ecological contexts. For example, some communities are not required to monitor elephant populations if elephant habitats do not overlap with community land. Communities which have CCAs will need to report on forest cover in those areas. Communities develop annual action plans to deliver against indicators. Senior lead farmers will coordinate with lead farmers and PGs to report progress against annual action plans (eg on-farm gliricidia tree planting, using fuel-efficient cook stoves, distributing rechargeable radios to allow people to listen to the Farm Talks broadcasts) and key indictors (eg poaching incidences, slash-and-burn practices, illegal deforestation).
- **Dedicated monitoring and evaluation staff and computerised system:** COMACO has 10 dedicated M&E staff who coordinate and manage the annual collection and analysis of data on its social, economic and environmental impacts. Each COMACO farmer is registered in COMACO's computer system with a Smart ID. Using that identification, COMACO documents their contact information, GPS coordinates of their farm, their associated PG/cooperative and any activities that they have participated in. COMACO also provides smart phones equipped with COMACO monitoring software to senior farmers so they can report as activities are carried out or make relevant observations against key indicators. COMACO's monitoring staff can verify the accuracy of the data submitted by senior farmers through randomised sampling during their monthly visits to the cooperatives (COMACO 2018a).
- **Third-party compliance monitoring to ensure transparency:** In addition to the participatory monitoring system, COMACO also invites independent researchers from universities and NGOs to conduct compliance surveys. On an annual basis, COMACO also conducts its own spatial analysis and invites local government officials and conservation NGOs to complete a questionnaire on key indicators for COMACO communities (eg incidence of poaching or deforestation rates) to complement the annual compliance survey.

2.3.8 Multiple spatial scales

To deliver conservation impacts, better land-use management practices must be taken up at scale. Through organising smallholder farmers, engaging with traditional chiefs and government, COMACO operates in an area of 93,400km^2 and aims to effect positive socioeconomic and environmental impacts in the entire watershed ecosystem.

Approaches used to create the enabling condition:

- **Engaging non-COMACO farmers through traditional authorities and open-access capacity-building activities:** COMACO monitors conservation outcomes and provides conservation dividends and other benefits at chiefdom level rather than at individual level. COMACO farmers who sell to COMACO may only constitute 40–60 per cent of the total population in a chiefdom. The chiefdom and COMACO farmers are incentivised to also engage and monitor the activities of non-COMACO farmers because COMACO will cease trading, technical and logistical support and payment of conservation dividends if conservation outcomes are not achieved at chiefdom level. Non-COMACO farmers are welcome to join capacity-building activities on better land-use management run by COMACO lead farmers, for example by listening to and participating in discussions during Farm Talks broadcasts.
- **Organising small-scale farmers through cooperatives to reach impacts at scale:** COMACO has supported 81 community-run cooperatives to form and to become independent and financially self-sufficient (COMACO 2018a).

All PGs belongs to a cooperative and each chiefdom has one to two cooperatives depending on its size. PGs collectively elect a cooperative executive committee. The committees work closely with chiefs to get community-wide support for their activities. Sub-committees oversee four key areas of operation: farmer extension, conservation, business and finance (COMACO 2018a). Each cooperative has a salaried business manager and bookkeeper and employs principle lead farmers and senior lead farmers to support management, monitoring, capacity building and coordination among cooperative members (COMACO 2018a, 2018b). The cooperatives provide vital farm support services and organise farmers to reach impacts at scale. Cooperatives run community seed banks and distribute high-quality seeds at the beginning of each planting season on loan. They then collect new seeds at the end of the subsequent harvest through lead farmers. Each cooperative runs a community depot, which serves as a central hub for farmers and allows individuals to store their seeds, crops and equipment safely. Cooperative staff are responsible for crop-purchasing events and distributing payments to farmers (COMACO 2018b).

- **Close collaboration with district, provincial and national governments to share learning and influence policies:** Each year, COMACO organises four district and two provincial round tables, bringing together district and provincial government representatives, COMACO representatives and community representatives to share learning on sustainable land-use management and to discuss policy issues. COMACO also actively participates and supports community participation in other ongoing district, provincial and national policy discussions and forums. These engagements allow COMACO to gather key stakeholders' feedback, while also enabling COMACO and community representatives to lobby for government support and promote better land-use policies.

2.3.9 Financial and institutional sustainability

Transforming land-use practices at scale requires long-term commitment and investment. While it initially relied on donor support, COMACO has been able to increase its sales revenue and reduce its reliance on donor funding significantly. Currently, COMACO only needs donor funding for the extension services it offers to its farmers and has developed business plans to eventually become financially independent in the long term. Over the last 15 years, this has allowed COMACO to provide an increasing number of farmers with consistent incentives to adopt better land-management practices, which in turn has allowed farmers to experience the long-term benefits of sustainable land-use management (eg improved productivity and income) which provides an incentive for longer-term and wider community adoption of better land-use practices.

Approaches used to create the enabling condition:

- **Value-chain approach:** COMACO secures 'payment for nature' by operating across the entire value chain. It provides support to farmers to produce food and transports food from farms to regional trading centres to be further processed and sold (Lewis *et al.* 2011). COMACO's high-quality, environmentally friendly and socially responsible products have enabled it to secure large long-term contracts from institutional buyers like hospitals and schools. It has also built secure market shares through its own 'Its Wild!' brand, which is sold in all major supermarkets in Zambia. Operating across the entire value chain also allows COMACO to reduce transaction costs and to operate and trade at scale – all of which contributes to a secure funding source for supporting farmers and enabling 'payment for nature' at scale.

2.3.10 Continuous learning and adaptive management

COMACO has institutionalised mechanisms for farmers to learn from each other and adapts its management plans regularly to learn from doing.

Approaches used to create the enabling condition:

- **Peer-to-peer learning among community members:** COMACO farmers share learning from each other through the PGs. This learning is also communicated and shared more widely through exchanges among lead, senior and principle farmers and Farm Talks radio programmes.
- **Periodic strategic planning and annual performance review:** COMACO's core staff and board of directors collectively develop a business plan every five years. Based on data generated through its M&E processes, COMACO produces an annual performance report which evaluates its progress in implementing its five-year strategy. COMACO can analyse the effectiveness of its approaches and adapt its practices accordingly, such as evolving its tiered extension services towards a more cooperative-led capacity-building model. COMACO's board of directors and staff, including the field staff who interactive regularly with communities, meet annually to learn and reflect on emerging opportunities and challenges.

2.4 Discussion: opportunities and barriers to scaling up

COMACO has also experienced some challenges in scaling up its approach and those challenges will be important to consider for anyone planning to adapt and use COMACO's approach elsewhere.

2.4.1 Transparent and fair benefits and costs

As COMACO's business grows, it faces new challenges in balancing economic success with its social and environmental goals. There are two main challenges:

- **Providing sufficient benefits to cover and minimise costs related to increasing human-wildlife conflicts:** Higher wildlife densities have increased the frequency of human-wildlife conflicts including wildlife destroying farm fields in COMACO operating areas (Lewis *et al.* 2011).
- **Managing increasing opportunity costs for conservation activities:** Increased agricultural income and productivity for farmers coupled with population growth may lead to more agricultural expansion into forests and higher opportunity costs for forest conservation. COMACO has secured additional carbon revenues to support the management of CCAs to address this challenge. The World Bank has purchased a total of 214,659 tCO_2 sequestered at a total price of nearly US$814,500. Sixty per cent of the total income or nearly US$490,000 was distributed to nine chiefdoms to reward their good management of CCAs (COMACO 2018b). However, the volume and total value of forestry and land-use carbon offsets has continued to decrease in the global voluntary market in recent years (Forest Trends 2017). It is unclear whether there will be enough and consistent carbon revenue available to provide the additional incentives for forest conservation.

2.4.2 Multiple spatial scales

COMACO faces challenges in engaging with non-COMACO chiefdoms and dealing with migration in the watershed. Though COMACO aims to work at watershed level, high transportation costs and the lack of infrastructure has restricted COMACO's operations in some remote areas of high conservation value (UNDP 2012). Non-COMACO chiefdoms (including former COMACO members who left the initiative due to non-compliance with conservation pledges) may experience higher rates of deforestation as the increasing population seeks other areas for agricultural expansion and charcoal production for short-term gains.

COMACO chiefdoms also face challenges with poachers and farmers from outside the chiefdom conducting illegal hunting and illegal charcoal production in their territory. Traditional authorities and community members lack the means to identify and engage with those migrants or to take action to rectify non-compliance.

There need to be mechanisms for neighbouring chiefdoms to work together and government regulatory support to address migration issues and ensure conservation outcomes at a watershed ecosystem scale.

2.4.3 Financial and institutional sustainability

There are also working capital constraints to expanding and operating across the value chain. The costs are sizeable. For example, in 2010 the capital expenditure by COMACO totalled US$740,000. This investment was made possible for COMACO largely through donor grants (eg Royal Norwegian Embassy) (Lewis *et al.* 2011). This type of investment may not be available to other similar micro and small enterprise models and is one of the main barriers for similar enterprises to scale up in developing countries (Nhantumbo *et al.* 2016).

2.4.4 Continuous learning and adaptative management

Increasing climate variabilities and risks related to climate change are also key issues. COMACO farmers and staff all identified more frequent and prolonged droughts as a key challenge affecting COMACO's approach. For example, poor rainfall in 2016–2017 in several chiefdoms in Luangwa Valley has resulted in poor crop yields and acute food shortages. Conservation agriculture as well as diversified crop production and income streams introduced by COMACO are alleviating communities' vulnerability to these extreme weather events. But communities' incomes and total production are still negatively impacted. This may lead to more agricultural expansion in search of fertile land or to other unsustainable land-use practices (eg poaching, charcoal production) to recover the loss in agricultural income in the short term.

2.4.5 Opportunities for scaling up

Despite these challenges, COMACO is the only case study found in this research that has successfully demonstrated both conservation and food-security benefits at scale. It shows that a value chain-driven approach backed by cost-effective monitoring and

capacity-building systems can both create long-term financial benefits and improve crop yields, while providing incentives for and empowering local communities to be good stewards of their land and natural resources.

To replicate COMACO's success elsewhere, it is important to note the following important points:

- **Work across all enabling conditions to achieve impacts at scale:** all enabling conditions are interdependent. For example, to reconcile competing land use, build trust and deliver benefits promised to compliant farmers, COMACO must ensure the financial sustainability of its activities so that it can deliver conservation dividends, price premiums, capacity building and other services to its farmers. Only by having a cost-effective and comprehensive capacity-building approach and by engaging with multiple stakeholders can COMACO ensure its businesses and activities are efficiently run to be financially sustainable.
- **All COMACO's activities are designed to deliver against both land-use objectives** of conservation and reduced poverty and food insecurity. COMACO engages stakeholders in both the conservation and agriculture sectors and has built the company's and communities' capacities and monitors both conservation and socioeconomic outcomes. COMACO's conservation deal and business model provide communities with multiple benefits that reward sustainable land-use practices while giving them a sense of pride as communities learn to value nature and its ecosystem services.

3

Case study: Department of National Parks and Wildlife (DNPW), Zambia

3.1 Developing participatory land-use plans in GMAs

The 1971 National Parks and Wildlife Act established two types of protected areas in Zambia: national parks and game management areas (GMAs) (see also Figure 4). GMAs are buffer zones around national parks where communities can co-exist with wildlife and communities can generate benefits from sustainable use of natural resources (Subakanya *et al.* 2018). Zambia has 36 GMAs covering 167,000km^2 or 22 per cent of its total land (USAID Landlinks). All GMAs are on customary land. The Wildlife Act of 1998 established the Zambia Wildlife Authority (ZAWA) to promote and facilitate participatory land-use planning in GMAs (ibid). In 2016, ZAWA was replaced by the Department of National Parks and Wildlife (DNPW).

The Wildlife Act recommends and sets guidance for establishing general management plans (GMPs) for GMAs through a participatory land-use planning process. This aims to better manage the competing land-use objectives in GMAs and seek ways to best meet the needs of the people while meeting conservation objectives (Subakanya *et al.* 2018). However, most GMAs have not developed GMPs (Sichilongo *et al.* 2012).

This case study examines both the GMA land-use planning processes and the implementation of those land-use plans. It mainly distils lessons from activities carried out in the Lunga-Luswishi Game Management

Area (LLGMA) near Kafue National Park. LLGMA developed its first GMP for the 2013–2023 period and revised the GMP in 2017. The case study also references literature and interviews with communities and government officials on participatory land-use planning processes in other GMAs.

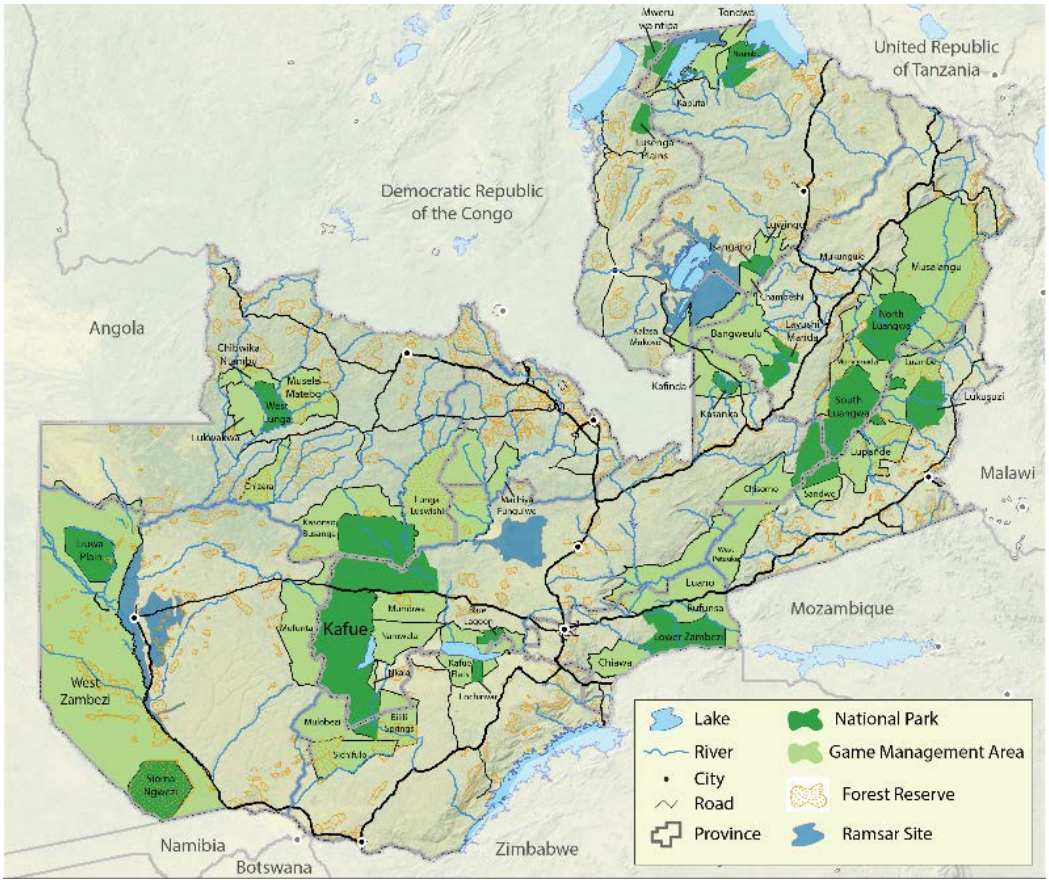
The LLGMA covers an area of 13,340km^2 and is Zambia's third largest GMA. It is located in the north eastern part of Kafue National Park and acts as a buffer zone. It spreads across three provinces including the North Western, Copperbelt and Central provinces (ZAWA 2012). It is an important water catchment area for the Kafue National Park and is rich in biodiversity including well-preserved miombo woodland which covers 45 per cent of the GMA (ZAWA 2012). Three chiefdoms administer the land in the GMA. The estimated population in LLGMA was around 16,800 in 2012 and the population is spatially disbursed mainly along major roads (ZAWA 2012).

3.2 Key land-use trade-offs addressed

Communities living in GMAs are usually poor and food insecure (Sichilongo *et al.* 2012). Most depend on crop cultivation and livestock production for their income. Crops grown in LLGMA include maize, sorghum, cassava, sweet potatoes, beans, groundnuts and vegetables (ZAWA 2012). Over 90 per cent of the farmers are small-scale farmers, cultivating less than 5 hectares of land. The remaining 10 per cent cultivates 5–20 hectares (ZAWA 2012).

Though the LLGMA is one of the least populated GMAs in Zambia, the population within and around the GMA continues to grow. There is an ever-increasing demand for land to produce food, fuel and minerals. These increasing land-use demands are putting pressure on the conservation of wildlife and their habitats in the GMA (Lindsey *et al.* 2014; Subakanya *et al.* 2018).

Figure 4. National parks and game management areas of Zambia



Source: TNC

3.3 Evidence of better management of trade-offs

There is no documented evidence on how the participatory land-use planning process in GMAs has contributed or not to better management of land-use trade-offs. In the LLGMA, there is some documented evidence on better conservation outcomes. For example, based on an aerial survey of 13 out of 16 large herbivore species observed in Kafue ecosystems (including LLGMA), a positive population trend was recorded between 2006–2013 (ZAWA 2015). A satellite-based land-use change analysis led by The Nature Conservancy (TNC) between 2002–2017[3] also shows that:

- Much less land has been cleared in the LLGMA (1–3 per cent) compared to outside, where the Central and Copperbelt provinces have experienced a 10–25 per cent land conversion rate (mainly into agricultural land).
- Within the LLGMA, land conversion was most severe in areas where both development and conversion are allowed, while little conversion has happened in areas set aside for conservation purposes.

Despite these positive trends, there is no evidence of improved food security or poverty reduction for local communities. However, there have still been some useful lessons learnt through the participatory land-use planning processes used in GMAs.

3.4 Creating the right enabling conditions

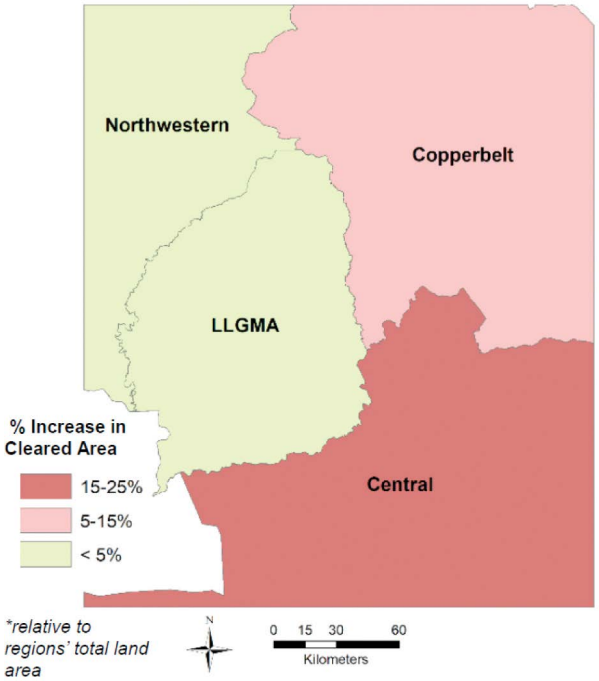
3.4.1 Understanding and reconciling competing land-use needs

Participatory land-use planning (PLUP) brings together key stakeholders with different land-use interests to discuss their land-use needs and develop a shared land-use strategy. Through the process, participants develop a better understanding of competing land-use demands from other stakeholders and are given opportunities to negotiate how these competing land uses can be reconciled.

Approaches used to create the enabling condition:

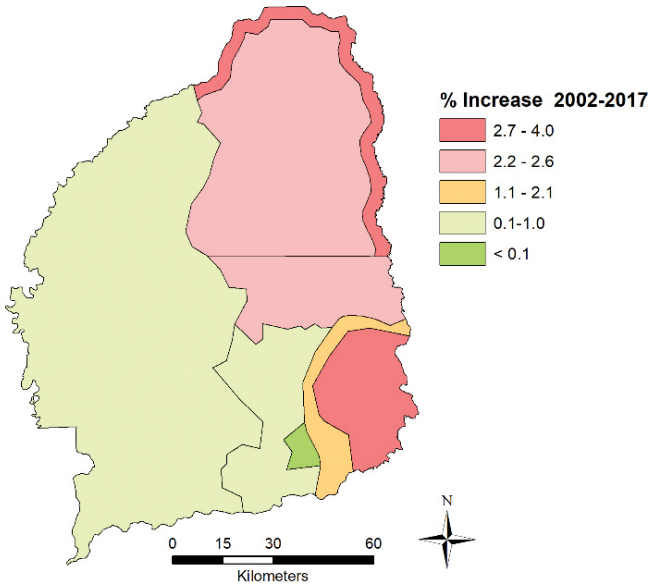
- **Multistakeholder planning workshops informed by spatial information on land use and land-use change:** The GMP development process involves participatory consultation with various stakeholders

Figure 5. Land-use changes 2002–2017: LLGMA and surrounding areas



Source: Mayes (2018)

Figure 6. Land-use changes 2002–2017 in LLGMA management zones



Source: Mayes (2018)

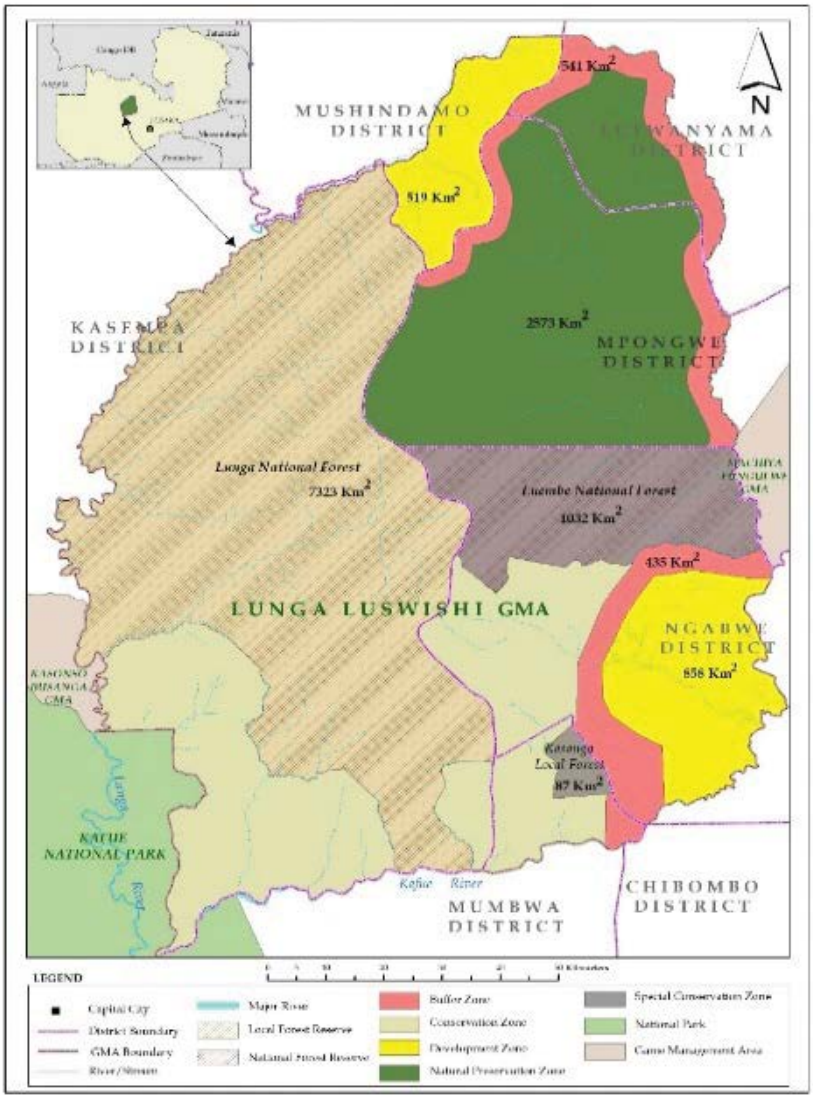
[3] Mayes (2018). See also Figures 5 and 6.

in and around GMAs including communities, the private sector, NGOs and government agencies. The participatory process is usually informed by spatial mapping of areas that have high conservation values, physical and ecological limitations for land uses (eg slopes, soil suitability) and important resources for community livelihoods (ZAWA 2012). For example, in the 2017 GMP revision for LLGMA, TNC supported the development of satellite-based land-cover change analysis. The spatial analysis then informed the participatory revision process by illustrating the current land use in GMA, historical land-use change patterns (see figures 5 and 6), and areas of high conservation value. The critical first step in the spatial mapping analysis was to identify areas of high conservation value to assess potential impacts of future development projects on natural resources and identify areas suitable for economic development which contain relatively low ecological value. The results from the spatial analysis provided the foundation for key stakeholders in the GMP to discuss key land-use change drivers and whether existing land-use zoning is addressing those drivers effectively (TNC 2018).

- **Land-use zoning with clear land-use objectives for each zone:** There are many competing land-use demands in GMAs including conservation, wildlife hunting, agricultural expansion, mining and charcoal production. Land-use zoning is the first step towards trying to coordinate and strategically plan those competing land uses to meet both communities' needs and sustainably manage the natural resources that underpin the productivity of any land-use activities. GMAs usually have five land-use zones which have distinct purposes and permissible land uses which are agreed through the participatory land-use planning process (see Figure 7 for an example from LLGMA). The five zones typically include (ZAWA 2012):
  - Development zones with the primary objective to provide for human settlements and associated activities.
  - Buffer zones to secure the boundary between development zones and other zones with stronger conservation objectives.
  - Game reserve zones where the primary objective is conservation but allows research and tourism activities (including safari hunting, residential hunting and controlled harvesting of timber and NTFPs).
  - Natural preservation zones where the primary objective is conservation and only allows tourism activities including safari hunting.
  - Special conservation zones where the objective is to conserve special natural resources (for example in LLGMA, special conservation zones are set aside for forest reserves, although some tourism activities and collecting of NTFPs is allowed).

  Rules governing the land-use zoning adopted in GMPs become bylaws. Traditional authorities, district councils and other government agencies can use them to regulate and guide development in GMAs. In recent years the DNPW, in collaboration with traditional authorities, has used land-use zoning in GMPs to settle land-use disputes in court, control fragmented new settlements and relocate new settlers into development zones (GEF 2013). In addition, all development projects proposed in GMAs are subject to either an Environmental Impact Assessment or an Environmental Project Brief to ensure that they are aligned with the land-use zoning in GMPs (ZAWA 2012).
- **Sharing hunting revenues as an incentive for conservation activities:** As part of the participatory land-use planning process, DNPW and communities collectively decide hunting quotas in GMAs. For each hunting quota, an 'animal fee' will be levied. In addition, if private tour operators wish to obtain hunting rights in GMAs, they must also pay for a hunting concession fee. Chiefs receive 5 per cent of both the animal fee and concession fee. Communities receive 45 per cent of the animal fee and 15 per cent of the concession fee via community funds. These revenues are often used to fund meetings, community scouts and community development projects such as roads, schools and clinic. The DNPW receives 50 per cent of the animal fee and 80 per cent of the concession fee to fund its operation costs in managing GMAs and national parks (Nyirenda 2011; Subakanya *et al.* 2018). The share of hunting revenue that goes to communities is meant to provide an incentive for local communities to support conservation. However, the income from hunting revenues alone is often not enough to compete with the income from other alternative land uses or compensate for human-wildlife conflicts in GMAs (see also Section 3.4.4).

Figure 7. LLGMA zoning in GMP 2018–2028



Source: DNPW

3.4.2 Engaging multiple stakeholders

The PLUP process involves all key stakeholders who have an interest in using natural resources in GMAs. Local communities are crucially important in the process given that GMAs are on customary land administered by traditional authorities. Local communities are heavily dependent on the natural resources in GMAs for their livelihoods and they understand best the local and socioecological dynamics.

Approaches used to create the enabling condition:

- **Multistakeholder planning workshops and field work:** Local communities, private-sector investors, NGOs and different government agencies from agriculture, mining, forestry and tourism sectors in and around the GMAs are all invited to join the land-use planning workshops. In some cases, local stakeholders including communities are invited to join technicians to conduct field studies to identify areas of high conservation value and land suitable for development (eg agriculture) to inform the planning processes.
- **Organising community representation and participation through village action groups (VAGs) and community resource boards (CRBs):** The Wildlife Act of 1998 created CRBs to allows communities to co-develop and co-manage GMAs and distribute revenue from the

management of wildlife within them (Lindsey *et al.* 2014). Communities can choose to establish CRBs on a voluntary basis. Within each chiefdom, there are one or two CRBs depending on the chiefdom's total population. Under each CRB, communities are organised into a maximum of 10 village action groups (VAGs). DNPW, the district council and communities collectively identify the geographic boundaries of those VAGs (Chemonics International Inc 2011). Communities elect around 10 representatives for their VAG. CRBs are composed of one representative from each of its VAGs and one representative from the local government authority and the traditional chief in the area (Nyirenda 2011). CRB members usually represent community members to participate in developing the plans and communicate the results back to CRB members. In line with the land-use plan developed at GMA level, VAGs can further develop their own land-use plans. However, due to the lack of capacity building and revenue-generating mechanisms for CRBs and VAGs, they are often ineffective in mobilising and representing community members. For example, poorer community members, even if elected to be VAG and CRB members, often lack the means to travel to meetings. VAG representatives may also lack the resources or transport required to reach out to and engage with members living in remote areas.

3.4.3 Strengthening stakeholder capacities

To implement land-use plans, key stakeholders must have the capacity to improve land-use practices, monitor land-use changes and resolve conflicts. But capacity building for stakeholders living in rural and remote areas like GMAs are resource intensive. The land-use zoning can help prioritise and tailor capacity-building efforts.

Approaches used to create the enabling condition:

- **Targeted capacity building based on land-use zoning:** Land-use zoning not only provides a regulatory framework to manage land use but can also guide targeted capacity building to support achieving differentiated objectives for each zone. For example, in development zones, government agencies can provide targeted support for infrastructure, schools and clinics. NGOs can provide targeted support for livelihood activities including conservation agriculture. In buffer zones, government and NGOs can work with communities to establish community-based game ranches and other ecotourism activities. The theory is that better facilities, infrastructure and support in those development zones can then attract the current uncontrolled expansion of human settlements into those zones.

3.4.4 Participatory and user-friendly monitoring

Monitoring and evaluation of the implementation of land-use plans is important to ensure effective implementation, identify challenges and remedy responses.

Approaches used to create the enabling condition:

- **Joint monitoring of land uses through CRBs and VAGs:** CRBs and VAGs employ village scouts to assist DNPW in protecting and monitoring wildlife in GMAs. These scouts also monitor and manage human-wildlife conflicts (eg crop damage). CRBs and VAGs also are supposed to assist the district council and DNPW in implementing land-use plans, monitoring violations and resolving land-use conflicts. However, the lack of capacity, incentives and resources to carry out these roles remains a key issue (USAID 2010; Lindsey *et al.* 2014).

3.4.5 Multiple spatial scales

Land-use plans detailed in GMPs are in line with the national-level mandated vision for GMAs and provide further guidance for communities living in and around GMAs to develop their own land-use plans. This nested land-use zoning approach, if implemented effectively, can provide a broader national-level land-use vision while allowing some flexibility for local communities to plan their own land uses based on local context.

Approaches used to create the enabling condition:

- **Nested zoning and plans to link national vision with local actions:** At national level, the government has set aside 20 national parks and 36 GMAs for conservation. Together, those areas cover almost 30 per cent of the country's total area. Zoning national parks and GMAs at the national level helps create broad differentiated land-use objectives for different areas at country level: national parks and GMAs are areas of high conservation value and conservation objectives should be prioritised. However, the effectiveness of management and the status of biodiversity and ecosystems vary substantially among those protected areas (Lindsey *et al.* 2014).
- In line with the overarching land-use objective set for GMAs at national level, different chiefdoms work together with other stakeholders to develop more detailed land-use plans that further differentiate land-use objectives spatially and give more detailed regulatory guidance on what types of land-use activities are allowed in each zone.
- Where there is a large population and high number of VAGs in GMAs, VAGs can also further develop their own land-use plans and strategic actions to meet development needs while contributing to conservation

objectives detailed in the GMP. Village-level plans can further identify local land-use challenges and opportunities and engage more community members in the planning and implementation process. For example, Kalunzyu VAG in Mumbwa GMA developed its own integrated land-use plan in 2017 and the plan details specific income-generating and monitoring activities the VAG can undertake that are aligned with the Mumbwa GMP.

3.4.6 Continuous learning and adaptive management

Population increases, migration and climate change are creating uncertainty and adding mounting pressure on GMAs. Any land-use plans will need to be adaptive to respond to these land-use drivers and learn from best practice to ensure effective implementation.

Approaches used to create the enabling condition:

- **Periodically reviewing land-use plans and GMPs:** GMPs are created for a ten-year period and are reviewed every five years. This allows key stakeholders to adapt GMPs based on challenges and opportunities experienced and new land-use needs. For example, through the PLUP process, key LLGMP stakeholders have agreed to add a 519km2 new development zone in the north of the GMA to accommodate new development needs. They have simultaneously expanded conservation zones in the south to better protect areas of high conservation value (TNC 2018).
- **Learning through VAGs and CRBs:** CRB members usually meet on quarterly basis while VAG members meet more regularly based on community needs. VAG meetings offer a good platform for communities to share learning while CRB meetings offer opportunities for VAGs to learn from each other. However, in practice this potential is limited by the lack of capacity, support and resources available.

3.5 Discussion: opportunities and barriers to scaling up

Participatory land-use planning processes and the implementation of those plans in GMAs offer useful lessons on how to link national land-use priorities with local aspirations and actions. But there are still many barriers to making land-use plans effective at scale. Understanding these barriers also offers useful insights on the enabling conditions for better management of land-use trade-offs. It also highlights the importance of working across different enabling conditions.

3.5.1 Building trust among key stakeholders

There are currently only two chiefdoms and a relatively small population living within the LLGMA. In other GMAs with larger populations and many more chiefdoms, mistrust exists between community members and traditional authorities, among neighbouring villages or chiefdoms and between communities and government. This is due to historical territory or land allocation disputes and non-transparent land-allocation processes. Consequently, communities can be reluctant to participate in participatory land-use planning process or to endorse and uphold land-use plans.

3.5.2 Engaging multiple stakeholders

Representatives from government authorities across different land-use sectors are all invited to join the development of GMPs which provides zoning for all types of land use including mining, forestry and agriculture. But there is no clear mechanism to engage those authorities in implementing the agreed land-use plans or to provide support to CRBs and VAGs. For example, there are no extension officers from the fisheries nor forestry departments in GMAs to support communities to better manage those resources (Chemonics International Inc 2011).

Effective representation of communities also remains challenging. CRBs are supposed to have a balanced representation of democratically elected community representatives. But due to the lack of funding, capacity building and governance checks and balances, elections for CRB members are often not held. Information exchanges among CRB members, VAG members and the communities they represent remain weak (Chemonics International Inc 2011).

3.5.3 Clarifying land rights, responsibilities and accountability

There are government authorities with overlapping jurisdictions over the use of different resources in GMAs. For example, the forest department manages forest resources, the Ministry of Mines and Mineral Development manages mineral resources, and local district councils manage the use of natural resources at district level (Sichilongo *et al.* 2012; Lindsey *et al.* 2014). As a result, different government authorities still issue conflicting land-use permits, which undermines the effectiveness of participatory land-use plans.

Though GMAs are on customary land, communities in GMAs still have limited legal rights to use and benefit from natural resources on their land. This often becomes a disincentive for them to sustainably manage those resources (USAID Landlinks).

3.5.4 Transparent and fair benefits and costs

Land-use plans developed for GMAs do not consider who bears the costs or enjoys the benefits from well-implemented land-use plans. Benefits from GMAs are not shared based on whether land has been better managed.

Communities who adopt sustainable land-use practices often do not see any additional benefits and many farmers still lack access to markets to generate enough income from conservation agriculture practices. For example, hunting revenues in GMAs are shared equally among all communities and are not based on performance. Communities which have not adopted sustainable natural resource-use practices still get a share of hunting revenues in GMAs. In the long term, unsustainable management of wildlife could lead to diminishing revenues from hunting. But the long-term costs are often overlooked for short-term gains. In addition, a community's share of hunting revenue is pre-set and non-negotiable and some stakeholders argue that DNPW's share of hunting revenues is disproportionately high, given that communities and other stakeholders bear the main costs for managing GMAs for wildlife conservation (Lindsey *et al.* 2014).

Apart from hunting revenues, communities do not receive any benefits from sustainable management of natural resources. For example, no monetary benefits are derived from fishery or forestry licenses issued in GMAs by the forestry and fishery departments (Chemonics International Inc 2011). Crop losses due to wildlife conflicts further erode net benefits enjoyed by communities in GMAs (Fernandez *et al.* 2009; Subakanya *et al.* 2018). Hunting revenues also fluctuate annually and some GMAs have very limited and declining revenues (ibid). Where hunting revenues are relatively high, income is prone to late payment, elite capture and misuse if the CRB does not have sufficient capacity to manage those funds (Nyirenda 2011; Lindsey *et al.* 2014).

3.5.5 Strengthening stakeholder capacities

Even when land-use plans are agreed, there is very little capacity to implement, monitor or adapt them. CRBs and VAGs receive inadequate support and training in building their governance structures, conducting monitoring activities or improving land-use practises (Chemonics International Inc 2011). Communities are still highly dependent on their own agricultural activities for income and food but there is often no capacity building for them to increase food production or ensure access to food while reducing the need to expand agriculture into GMAs (Fernandez *et al.* 2009). The DNPW itself is largely underfunded and lacks capacity in community engagement and integrated land-use planning and management beyond wildlife (Lindsey *et al.* 2014). The lack of capacity at CRB level is also exacerbated by the three-year rotation of CRB members with no process built in to transfer skills or support members to learn from each other (Sichilongo *et al.* 2012). NGOs carry out most of the capacity-building activities for communities in GMAs but trainings are often not coordinated and are inconsistent, depending on project funding.

3.5.6 Participatory and user-friendly monitoring

Though the DNPW share responsibilities with CRBs in monitoring the implementation of GMPs, neither stakeholders have enough funding nor capacity to carry out monitoring responsibilities. For example, village scouts who were hired through CRBs are poorly and irregularly paid and have inadequate training and no transport or equipment to carry out monitoring activities (Lindsey *et al.* 2014). The lack of monitoring of and incentives for conservation have resulted in a lack of enforcement and accountability. For example, some traditional authorities allocated land in conservation zones to private investors without consulting CRBs and in contravention of the GMP (Chemonics International Inc 2011). Populations outside of GMAs can also easily migrate into GMA areas without respecting the existing GMP (Lindsey *et al.* 2014).

3.5.7 Financial and institutional sustainability

The participatory land-use planning process itself is costly. It involves spatial mapping and iterative engagement with multiple stakeholders to understand different land-use objectives and facilitate negotiations. The Zambian government relies on donor and partner support for those processes. For example, the Norwegian government, the Global Environment Facility (GEF) and the International Development Association (IDA) funded the development of the first GMP for LLGMA and the recent revision was supported by TNC (ZAWA 2012). However, in many other GMAs, resources are not available nor is there enough to support the development or revisions of GMPs.

Even when land-use plans are developed, substantial funding is needed to ensure effective implementation including capacity building, monitoring and providing incentives for better land-use practices. For example,

implementing LLGMA's GMP for five years requires around US$8.6 million to cover both capital and running costs (ZAWA 2012). But there is no mechanism to secure the funding needed. Hunting revenues from GMAs are usually the sole income for CRBs and constitute most of the funding for DNPW. But those revenues are simply not enough to cover operational costs. In some GMAs, insufficient funding leads to more conversion of natural habitats into explorative land uses (eg agriculture and mining) and the loss of wildlife further decreases the revenue generated through hunting, forming a vicious cycle (Chemonics International Inc 2011).

3.5.8 Continuous learning and adaptive management

VAG members have expressed a desire to learn from other communities on best land-use practices (eg conservation farming, sustainable forest management) and how to develop and implement integrated land-use plans. But there is often no funding to support VAGs members to meet let alone learn from other VAGs. There is also no mechanism in place for CRBs and local government officials managing GMAs to learn from each other on how to develop and implement integrated and participatory land-use plans. In addition, due to lack of monitoring, there is little understanding among DNPW staff, CRBs and other key stakeholders on the effectiveness of their activities (Chemonics International Inc 2011).

3.5.9 Opportunities for scaling up

There are ways to overcome some of the barriers discussed above as illustrated by other case studies. For example, communities could be given more secure natural resource-user rights and support to generate diversified incomes from a variety of sustainably produced natural products. A multisectoral and multistakeholder task force could also be established to support the implementation of GMPs.

Nested land-use zoning can potentially be a good approach to achieving positive conservation and food-production outcomes at a national scale and link national land-use priorities with local visions and actions. However, many of the current national parks and GMAs remain ineffectively managed and given the rapidly increasing population, there is a need to reconsider whether having 30 per cent of the country set aside as protected areas is a realistic goal (Sichilongo *et al.* 2012). At national level, different stakeholders across different sectors should engage in participatory land-use planning to critically examine land-use trade-offs, prioritise where to invest limited resources and set achievable and realistic conservation goals. Based on the broad national land-use vision, more detailed land-use plans could then be developed to accommodate local contexts and priorities. Monitoring the effectiveness of implementation at local level could help inform national-level planning and ambitions, and ensure that those land-use plans are periodically reviewed and revised to link local priorities and practices with national visions.

4

Case study: Sustainable Land Management Programme, Ethiopia

The Sustainable Land Management Programme (SLMP) was launched in 2008 to address two of Ethiopia's most significant developmental and environmental problems: agricultural productivity and land degradation. The objective of the current phase of the SLMP is to reduce land degradation and improve land productivity in selected watersheds in targeted regions in Ethiopia. There are four components to the project, the first and by far the largest being integrated watershed and landscape management (World Bank 2018b).

The objective of this first component is to support scaling up and adoption of appropriate sustainable land and water-management technologies and practices by smallholder farmers and communities in the selected watersheds and woredas (districts). By September 2018, SLMP was working in 135 watersheds, supporting 430,000 households to implement sustainable land-management and income-generating activities over an area of 8,554km^2 including 952km^2 of forest restoration/afforestation (ibid).

The second component is institutional strengthening, capacity development and knowledge generation and management. The objective is to complement on-the-ground activities implemented under the first component by strengthening and enhancing capacity at the institutional level, and building relevant skills and knowledge of key stakeholders. These include government agencies, research organisations and academia involved in the sustainable management of natural resources, as well as the private sector, community leaders and smallholder farmers.

The third component is rural land administration. The objective is to enhance the tenure security of smallholder farmers in the project area and to provide incentives for them to adopt sustainable land and water-management practices on communal and individual land. By September 2018, SLMP had supported over 1.5 million farmers to gain first-level land certification – the first stage in the process of gaining secure land tenure. Finally, the fourth component is SLMP's overall project management.

SLMP adopted an integrated landscape management (ILM) approach at watershed level. Here, 'watershed' refers to micro-watersheds in the upper catchment area of a larger watershed. ILM builds on participatory land-use planning at kebele (neighbourhood) level. In terms of land management interventions, ILM combines pastoralism, crop production (in particular climate-

Table 1. SPLM project periods and costs (phases I, II and III)

PROJECT PHASE	PROJECT PERIOD	PROJECT COST (AND FUNDER)	WATERSHEDS BENEFITTED
SPLM I	2008–2013	US$28.79 million (IDA and GEF)	45 added
SPLM II	2013–2019	US$107.61 million (IDA, GEF, LDCF[4] and the Government of Norway)	90 added, 135 in total
RLLP (SPLM III)	2019–2023	US$129 million (IDA, IBRD)[5]	17 to be added, 152 in total

smart agriculture), forestry, natural regeneration of degraded land, and physical measures for soil and water conservation. The approach also considers socioeconomic activities and institutions as an integral part of the system. It recognises that better managing the underlying drivers of land-use changes requires a multistakeholder approach (FAO 2018b).

SLMP has been guided by the Ethiopian Strategic Investment Framework – a national-level, long-term strategic framework that maps out all domestic and foreign support for sustainable land management across the country (MoARD 2010). The Ministry of Agriculture and Natural Resources (MoANR) is a leading institution coordinating SLMP from the federal level down to the regional, woreda (district) and kebele (neighbourhood) levels where the programme is implemented by regional bureaus of agriculture. So far, SLMP has had two different phases with the third one starting in 2019, which has been renamed as the Resilient Landscapes and Livelihoods Project (RLLP) (see Table 1 above).

4.1 Key land-use trade-offs addressed

There are remnants of forest, woodland and scrubland on agricultural lands and the project supports restoration of these degraded areas through land-use planning and through capacity building on land and forest restoration practices (reforestation), and establishing new areas of forest (afforestation). A total of more than 100,000ha will have been restored by the end of this current phase in 2019.

While many of these areas have little agricultural potential (eg steep slopes) some areas do, and the project has had to address the competing objectives of restoring land to its natural state versus allocating land to landless people – in particular youth. The strategy of the project has been to empower local communities to decide how to manage the trade-off. Most appear to have chosen restoration to the natural state except in areas where demand by youth for land – and adult support for this – have been particularly strong. However, several respondents noted that areas restored to natural habitat are now coming under increasing pressure from communities. They are raising concerns about the apparently small benefits gained from these areas and the fact that these benefits accrue to relatively few people (relative to other land-use options).

The SLMP falls under the Ministry of Agriculture and Natural Resources. Therefore, it is not directly involved in the management and conservation of the 15.5 per cent of Ethiopia's land area that is classified as forest lands, nor by implication in the trade-off between forest-sector or agricultural-sector land use. That said, the land-use planning process helps to demarcate boundaries with forest protected areas and reserves, and sustainable land-management practices and related income-generating activities are expected to deliver increases in crop production and farm income. In turn, these are expected to reduce the conversion of forests to farmland by smallholder farmers (MoANR 2017). This is not explicit in the project documentation but is a widely held view in Ethiopia and enshrined in national agricultural policy.

However, a recent study of the impact of the project on crop production was unable to identify any significant impact (see next section) (Schmidt and Tadesse 2017). This is because for landscape management, longer-term maintenance (a minimum of 7 to 12 years) of the project is necessary to reap significant benefits in the value of production. Among the hundreds of thousands of farmers supported by the project there must, however, be some who have seen increased crop production even if this is not yet evident in the aggregated data.

[4] Least Developed Countries Fund (LCDF).
[5] International Bank for Reconstruction and Development (IBRD).

BOX 2. MEMBERSHIP OF KEBELE-LEVEL LAND-USE PLANNING COMMITTEE

Kebele manager

Religious heads of the kebele

One male and one female representative from each micro-watershed

One youth representative

Chairperson of the land administration committee

Chairperson of the kebele-level cooperative

Chairperson of water-management/users committee

Chairperson of forest-management committee

Chairperson of women's association

One community elder

School principal

Head of health post

Rural road representative

DA coordinator

4.2 Evidence of better management of trade-offs

In terms of the better management of trade-offs, it is clear that participatory land-use planning (PLUP) is a powerful tool. It attempts to ensure the most appropriate land use for a given piece of land and SLMP has supported more than 500 villages to develop such plans. Interviewees reported that the process is genuinely driven by community members themselves but informed by technical experts in terms of what crops (and trees) might perform better. However, a review of the latest PLUP manual (MoANR 2017) makes it clear that the term 'participatory' may convey the wrong impression.

In reality, the process is conducted by a planning team and at various points community members are consulted. The final output is a map that indicates the land use (eg seasonal crops) and land-management prescription (eg climate-smart agriculture practices) for each land unit. A land unit is an area that is broadly uniform in its characteristics (ie to which the same prescription can apply) and will normally comprise plots of many farmers. In terms of how farmers react to the prescription for their plot the manual (MoANR 2017) advises:

When a land-use change is not accepted by the community or land users, the following points need to be considered:

- *First know the reason why it is not accepted;*
- *Then if the reason is an economic or financial one, do different simple scenarios of economic/financial analyses referring to socio-economic data collected to show them that the land use change is economically/financially feasible; or if the resistance is attitudinal give time and negotiate;*
- *Later give the community the chance to decide;*
- *If the resistance continues, keep the existing land use with improved management but continue educating communities.*

From the above and other elements of the manual it appears that the trade-off analysis lies primarily with the technical team. It is only if/when a farmer objects to the prescription for his/her plot that his/her views may be taken into account. This is certainly an improvement over the top-down approaches of the past but quite far from the notion of participatory trade-off analysis.

Although more of a local expert-led/consultative process than truly participatory, it is reasonable to assume that this planning process has some potential to improve the efficiency of land use and alleviate trade-offs between different forms of land use (including community forestry and agriculture).

The extent to which PLUP has actually delivered better management of land-use trade-offs will depend on whether farmers comply with the land-use plans. While there are data on the number of plans developed – more than 500 – we could not find any data on implementation. Interviewees reported that there is at least some degree of compliance – encouraged by the prospect of subsidised inputs and further technical support – but the lack of any legal instruments necessary to enforce compliance appears to be a constraint.

Another contribution of SLMP to better management of land-use trade-offs related to forest/woodland/shrubland conservation should be the impact of land rehabilitation and improved farming practices on more than 850,000ha by September 2018 (World Bank 2018a). This is expected to increase the efficiency of land use without exacerbating any trade-offs, and may even have created synergies that partly offset the remaining trade-offs (if the assumption is valid that increased land productivity reduces the pressure to convert remaining areas of forest/woodland/shrubland). However, as noted earlier, SLMP farmers have not yet experienced a significant increase in the value of crop production (Schmidt and Tadesse 2017). This is because for landscape management, longer-term maintenance of the project is necessary to experience

significant benefits. Farmers must maintain sustainable land-management practices for 7 to 12 years to reap benefits in value of production.

SLMP II has also supported the second stage of the land certification programme. It aims to improve land tenure security of smallholder farmers in rural Ethiopia. More than 10,000 communal land certificates and 378,000 individual households were certificated by September 2018 (World Bank 2018b). In the last two years, the household certificates have been granted jointly to husbands and wives, which is increasing the influence of women on land-related decision-making and by implication trade-off management.

This land certification programme gives farmers in general, and now women in particular, much more security of tenure. There is plenty of evidence from Ethiopia and many other countries that this affects land-use/management decisions, in particular regarding management practices that may be highly beneficial but have a longer payback period. Therefore, the key stakeholders assume that land certification will deliver increased land-use efficiency. But whether it leads to better management of food production/forest conservation trade-offs is unclear. It may also depend on the specific context. While it may lead to better trade-off management in most parts of Ethiopia, it has been reported that in areas with remaining forest, land certification may act as an incentive for farmers to clear the forests, to clarify its status as agricultural land.

4.3 Creating the right enabling conditions

SLMP was not explicitly designed to address the competition of agricultural production and forest/woodland/shrubland conservation. But it does this to a significant extent and the aim of this case study is to identify the conditions – created by the project or in the external context – that have enabled SLMP to achieve some degree of success in terms of trade-offs management.

4.3.1 Understanding and reconciling competing land-use needs

Ethiopia's previous land-management approaches between the 1980s and 2000s largely failed because of their technocratic and top-down characteristics (Mitiku *et al.* 2006). Government focused on promoting and at times enforcing soil conservation measures but failed to identify local land users' needs or increase awareness of land-use trade-offs among smallholder farmers (GIZ 2015). SLMP's more participatory approach to land-use planning enables smallholder farmers to understand the local land-use trade-offs and identify feasible long-term solutions through adopting cost-effective and replicable technologies (GIZ 2015).

Approaches used to create the enabling condition:

- **Participatory bottom-up land-use planning** at kebele (village) level has clearly contributed to an improved understanding of trade-offs at community level and reconciling competing objectives, although the extent to which this extends beyond community leaders must be in question. However, given the top-down approaches of the past this can still be seen as positive progress. Farmers do not live in sectoral silos and are regularly faced with cross-sectoral trade-off decisions. Trade-offs seem to become more of an issue the higher up you go in government, so a process that is inherently grounded in farmer realities may well be more successful**.**
- **Progressive local leadership:** In Tigray, traditional community leaders have played an important role in land-use planning, encouraging community participation and empowering marginalised groups to influence outcomes. One example is the need for land for youth to grow crops/trees for an income which was in competition with the option favoured by older people to restore the land to natural habit.

4.3.2 Building trust among key stakeholders

Approaches used to create the enabling condition:

- **Awareness and understanding of land-use planning:** Prior to the start of a village land-use planning process there was a substantial investment made in explaining the purpose and process of land-use planning to community members. This has helped to allay fears that land-use planning would lead to land grabbing and displacement.

4.3.3 Engaging multiple stakeholders

The Ministry of Agriculture and Natural Resources (MoANR) is responsible for the overall coordination and implementation of SLMP, working in close collaboration with the Ministry of Finance and Economic Development (MoFED), the Ministry of Environment, Forest and Climate Change (MEFCC), the Ministry of Water, Irrigation and Energy (MoWIE) and international development partners.

Approaches used to create the enabling condition:

- **Building on existing governance structures that engage different sectors:** Rather than create new institutional arrangements for SLMP, MoANR has used existing governance structures and institutions established for the coordination and decentralisation of all land-management projects in the country. This mechanism uses two main multistakeholder platforms

– the National Technical Committee (NTC) and the National Steering Committee (NSC) – and their regional and woreda delegations. Comprised of senior representatives of key ministries, the NSC establishes policy guidelines for SLMP and annually reviews the performance of the project. The NTC provides technical advice on quality, synergies and strategies and is comprised of technical staff from the relevant ministries and relevant research organisations. By definition, these intersectoral structures promote stakeholder engagement although whether this leads to better trade-off management is unclear.

- **Multistakeholder platforms at lower levels** promote intersectoral discussion and can resolve competing objectives, although the extent to which this actually happens is not clear. NSC and NTC are replicated at regional and woreda levels and so even though SLMP is a project of the agricultural sector there is strong engagement with other sectors at each level. The success of SLMP depends on how to define, establish and strengthen the relationship between these government institutions and community-based organisations (CBOs). At the community level the multistakeholder platform – the Kebele Watershed Team (KWT) – also includes community representatives in addition to local government staff.

4.3.4 Clarifying land rights, responsibilities and accountability

Ethiopia has a massive ongoing programme of work on land tenure security. Although all land remains under state ownership, land tenure certificates formalise and legalise long-term usufruct rights.

The mapping of boundaries that takes place in the first phase of land certification helps to resolve boundary disputes with protected areas. Several sources interviewed for our research have reported that this contributes to better management of trade-offs related to agricultural production and forest/woodland/shrubland conservation. Another area where the contribution of land tenure security to trade-off management is clear is the certification of communal lands for community forests and communal grazing areas. Secure communal tenure is well known to be a prerequisite for effective management and governance of natural resources in situations where it is intrinsically difficult to exclude people that do not have a use right, such as common pool resources (Ostrom 2009). In some areas this is enabling the reestablishment of traditional systems of rangeland management.

More broadly, tenure security has been an important enabling condition for the success of many SLMP project interventions. These include soil and water conservation, climate-smart agriculture and land-use planning. The new legal requirement for certificates to be jointly held by men and their wives is increasing the engagement and influence of women in many aspects of project work including land-use planning – and women's participation often exceeds men's.

However, while tenure security does seem positive in most parts of Ethiopia, land certification may act as an incentive for farmers to clear forests to clarify its status as agricultural land. This 'perverse incentive'[6] is a well-known problem in many countries in Africa where – under customary land tenure – a person's right to own land is established by first clearing the natural vegetation and then farming the land. It is important to note that in Ethiopia, the key is to secure rights to use the land. Ownership remains with the state and, while this may be far from ideal from a rights perspective, this is not considered a major constraint to SLMP interventions. That said, the new land-use planning process can impose restrictions on how the land is used (ie management practices). Steep slopes that may have been used for crop production will be zoned and deemed only suitable for trees or natural vegetation. The intention is to stop unsustainable land-management practices and this should support the better management of trade-offs. But if some farmers do not accept the outcome of land-use planning processes because they consider it unfair, this may undermine the benefits of land certification.

Approaches used to create the enabling condition:

- **Building on existing administrative arrangements and political will:** The SLMP land certification programme is part of a large national programme that is a central pillar of the government's national Growth and Transformation Plan (GTP). The ongoing second phase of the GTP aims to extend household land certificates to a total of 28.6 million hectares. At federal level, the programme is implemented by MoANR's Directorate of Rural Land Administration and Use. Offices of land administration and use extend down from the local government structure to kebele level, where there are land administration and use committees. At every level, government staff support the programme. As with agricultural extension, land administration in Ethiopia has a high level of human resources at community level – rare in Africa. This predates the project.

[6] 'Perverse incentives' are those which act against achieving desired objectives by creating an unnecessary distortion in the balance of incentives.

- **Building on customary arrangements:** In the south of Ethiopia, the land certification programme has built on existing customary land tenure arrangements that remain strong rather than imposing the standard approach to land certification.
- **Gender equality:** Since 2016, the law has demanded that land certificates are jointly held by both husbands and wives. This is empowering women as land users and has also increased their influence over their sons (as women can influence how land is passed down to their children). This is changing power dynamics at household level and has major implications for trade-off management at household level. Women very often have different priorities to men in terms of land use and forest conservation (Agarwal 2009). Exactly what the differences are and the extent to which this affects trade-off management will vary greatly according to the context. As well as affecting decisions in any one year, the empowerment of women may also affect trade-off decisions over time where women take a longer-term view of household livelihood security – for example, how much time/effort to invest in soil conservation measures and tree planting. There seems to be a clear need for research on this issue to determine the extent to which gender equality in land tenure affects trade-off management and more broadly the uptake of sustainable land-management practices.

4.3.5 Transparent and fair benefits and costs

Land use and management (and associated governance arrangements) can be individual or communal. But they will only be sustainable if users receive adequate incentives to justify their investment of land, labour and capital in the effort. The level of incentive at communal or individual level is – in crude terms – benefits minus costs, where both benefits and costs may be material and/or non-material (Díaz *et al.* 2015). Although material benefits (including income) are usually a key element it is important to recognise the importance of non-material benefits in many situations. 'Costs' (negative impacts on human well-being) must also be understood in broad terms as potentially including both material and non-material costs. An example of a non-material cost would be the loss of an old forest that has major cultural significance for a community. Loss of agrobiodiversity (eg traditional varieties) has both material and non-material aspects.

Approaches used to create the enabling condition:

- **Participatory land-use planning** at village/kebele level clearly provides a good platform for transparent negotiation of benefits and costs associated with land use in broad terms (crops, pastures, forests) and specific land-management practices that should and should not be used on particular areas of land. It remains to be seen to what extent there is actually broad participation and transparency in the process and to what extent this does indeed deliver an equitable outcome (distribution of benefits and costs), particularly from the perspective of social groups that are frequently marginalised in village-level decision-making (women, youth, ethnic and/or religious minorities).
- **New land-management practices that increase benefits:** SLMP has invested heavily in technical and management practices designed to increase benefits to local people related to agriculture and natural resource management, and the sustainability of these benefits in the face of climate change. By September 2018, over 419,000 households had adopted at least three technical packages and more than 430,000 people were participating in income-generating activities supported by the project. To some extent, the type of support a farmer receives has been linked to land-use planning, which our interviewees said provided an incentive for local people to accept the outcome of the land-use planning process. This is an example of incentives (rewards for better land management and/or compensation for costs) being directly linked to trade-off decision-making which, in principle, enables improvements in both the effectiveness and equity of trade-off management. However, we have not found any evaluation of the extent to which this has been achieved in practice. In addition, community forest management on communal land supports farmers to produce and sell timber to rapidly growing urban markets. This makes forestry on communal land a more competitive land use compared to forestry in state forest reserves, where communities are not allowed to grow trees to sell for timber (and are increasingly raising concerns over the lack of benefits and high opportunity costs).
- **Land tenure security as a benefit:** In some other countries in Africa where a farmer has secure land tenure, they can often rent all or part of their land to generate income if they cannot farm it themselves. They can also use the land as collateral for a loan to invest in farming or another enterprise. However, in Ethiopia farmers with certificates cannot rent more than half their land holding and not for more than two years, and cannot at present use the land as collateral – at least, not formally. These restrictions may be relaxed in the near future as it is increasingly appreciated that they can be counterproductive to goals of sustainable land management.

4.3.6 Strengthened stakeholder capacities

SLMP supports capacity building of government staff at all levels. The main areas covered by the training programme are:

- Climate-smart watershed and landscape management
- Biodiversity and ecosystem protection
- Participatory land certification and administration
- Participatory land-use planning, and
- Maintenance of communal resources and infrastructure (World Bank 2014).

At community level, capacity building is conducted mainly by technical staff of the woreda and kebele local governments. During Phase I, SLMP supported 344,800 farmers with a comprehensive training programme (World Bank 2014) and more than 380,000 households by 2017 (World Bank 2018). The main areas covered by this farmer training programme include:

- Participatory land-use planning at watershed level
- Land rehabilitation (such as building terraces, bunds and dams) and improved agricultural technologies (such as improved seeds and fertilisers)
- Environmental and social safeguards (ESS) monitoring and evaluation
- Raising awareness of land certification and administration processes, and
- Livelihoods diversification strategies (eg agroforestry) (World Bank 2014).

Approaches used to create the enabling condition:

- **Farmer training centres (FTCs)** were established in each kebele by the government as an entry point for efforts to improve agricultural extension services delivery and the participation of farmers in technology development. Since the first FTC opened in 2002, 8,500 FTCs have opened across the country (although fewer than 2,000 FTCs were fully in operation when a recent assessment was conducted) (GIZ 2015).
- **Farmer-to-farmer learning:** Farmers are more likely to adopt better land-management practices when they learn from each other. Exchange visits were arranged for selected farmers to visit the SLMP Phase I sites and observe the changes made by various integrated land-management measures. Those selected are usually model farmers, community leaders or woreda officers, although so far none have been women or youth. As well as looking at technical interventions (eg specific land-management practices) farmers also have a chance to discuss practical issues such as soil types, costs of conservation measures in question, and useful leverage for desired outcomes, as well as how to ensure the ownership and sustainability of the project (GIZ 2015). Moreover, they learn how to develop local bylaws through a participatory process including conflict-resolution methods and benefit-sharing arrangements. Peer-to-peer learning processes also serve to give the visiting farmers the confidence to try new ideas.
- **Enhanced extension services (capacity and motivation):** Most regions of Ethiopia have far more extension service staff per farmer than other countries in Africa. This means that the country has the capacity to promote rapid extension of improved practices assuming a) that they prove to be effective in reality and b) that the extension staff have the motivation to do so. In the case of SLMP, motivation is boosted by the payment of allowances for fieldwork. However, since this is paid for by donor funding there are concerns about the future sustainability of these payments, which could impact staff motivation.

4.3.7 Participatory and user-friendly monitoring

Compared to SLMP Phase I, Phase II has a stronger monitoring and evaluation component. This should address the expanded programme scope, strengthen reporting to the government and donors (SLMP 2018), and provide better administrative support to NSC and NTC. The project employs monitoring and evaluation (M&E) specialists at the federal level and M&E officers at the regional, zonal and woreda levels. At the kebele level, M&E is undertaken by woreda agricultural and natural resources officers and woreda M&E officers on a monthly basis. Their reports are submitted to woreda steering committees (WSC) for review and compilation into the woreda M&E report (World Bank 2014). As well as collecting quantitative and qualitative information related to specific project-supported interventions, the M&E system is responsible for ensuring the environmental and social safeguards of the project, in particular checking whether mitigation measures to reduce negative impacts that were identified during project design have been effectively implemented.

Approaches used to create the enabling condition:

- **Dedicated, motivated M&E staff:** During the SLMP Phase I, the emphasis on M&E was relatively low. In particular, M&E officers at the local levels felt neither sufficiently incentivised nor adequately trained to deliver quality work on schedule, and this caused high staff turnover. Learning from this experience, SLMP Phase II has put into practice

enhanced recruitment procedures. It has recruited many more M&E staff, used better training systems, and has improved salaries and benefits. In reality, any intervention that is contributing to better trade-off management (eg land-use planning) will be implemented with varying degrees of success within and across communities. Like with any other project intervention, the net impact of the project on trade-off management will be the sum of the contributions of all stakeholders. Poor performance by even a few stakeholders can drag down the net impact particularly when it comes to environmental impacts. The actions of just a few people can cause much damage, for example felling trees in a fragile water catchment area. The M&E system is the management tool that should identify performance problems and flag them with management, and an effective system depends on motivated people to operate it.

- **Environmental and social safeguards (ESS):** These are policies and procedures designed to avoid negative impacts on the environment (biodiversity and ecosystem services) or on people's well-being (social impacts) with particular emphasis on poor people living within the project area. SLMP Phase II had a stronger emphasis on ESS than Phase I and the forthcoming Phase III is expected to have a stronger emphasis still, given the World Bank's new safeguards framework (which now applies to all World Bank projects worldwide since it was approved in October 2018). Whereas M&E simply reports progress against a set of indicators and targets, ESS are normative in defining minimum performance requirements and identifying any negative consequences of a project if performance does not meet these standards (ie non-compliance). In the worst case, this could mean the termination of a project. ESS has two components: process monitoring and impact monitoring. Process monitoring keeps an eye on the compliance and application of the SLMP measures and standards whereas impact monitoring tracks the biophysical and socioeconomic impacts of SLMP activities (World Bank 2014). Local community members are invited to participate in all stages of ESS.
- In theory, ESS should make a key contribution to better trade-off management. For example, if a project trade-off is found to have negative environmental impacts, the extent should be limited by the project's safeguards. Sub-standard performances should trigger mitigation actions designed to reduce if not avoid the negative impact. The same is true in terms of social impacts. These safeguards should limit the extent to which one objective can be traded off against another, although we have not found any evidence of this happening yet in practice in SLMP.

4.3.8 Multiple spatial scales

This enabling condition is about the value of working at several spatial scales and building strong linkages. SLMP uses an integrated landscape management approach, implemented at the micro-watershed level. A watershed is an area of land from which all surface water run-off flows are collected and drained through a common point and comes in different sizes and shapes (MoANR 2017). Micro-watersheds are areas of the upper catchment of a river system. SLMP works with 130 micro-watersheds (a biophysical land unit), each of which covers several kebeles. There are 530 kebeles nested within micro-watersheds in total. Each kebele has its own land-use plan and these contribute to the management plan(s) of the watershed(s) to which they belong.

Approaches used to create the enabling condition:

- **Nesting of land-use planning:** By focusing on just two scales – kebeles and micro-watersheds – and nesting one within the other, the SLMP project has established a vertical linkage that is clear from both a biophysical and institutional perspective. However, it appears that the two are not as well aligned as they might be. This is because watershed planning began first (whereas logically, it should have begun with the kebeles). The lead agencies for each are also different, which has led to disconnects and conflicts in some areas.
- **Alignment with structures of national and local government:** The management and technical committees that the project relies upon are pre-existing government committees with already clearly established roles and interrelationships. In contrast to some projects that establish 'parallel structures', SLMP works entirely with and through existing structures of government.

4.3.9 Financial sustainability

SLMP has adopted a series of strategies to sustain its activities and impact beyond the donor-funded implementation period.

Approaches used to create the enabling condition:

- **Mainstreaming into national strategies:** Most sustainable land-management activities including the land certification programme have been already listed in other national-scale development programmes such as the Growth and Transformation Plan (GTP) and Climate-Resilient Green Economy Facility (CRGE). This ensures national ownership and political support while at the same time enabling MoANR to mobilise large-scale donor funding to expand the programme. A major new phase with US$179 million donor funding started in January 2019 (MoANR 2017).

- **Adequate, diversified financial incentives for farmers:** While the land-use planning process itself at community level is mandatory – driven and sustained by government policy – the implementation by individual farmers of the land-use and land-management practices proposed for their land is voluntary. Much of the project's investment in improved land-management practices and income generation is therefore geared to increase the benefits of sustainable land management and thus the incentives for farmers to adopt and sustain these practices.
- **Integration of financial and regulatory instruments:** Ethiopia has a long history of forcing farmers to practice specified soil conservation practices and the policy and legal framework for enforcement on land-use plans is in the pipeline. While this was excessively top-down and ultimately ineffective, the externalities of land degradation and associated trade-offs (eg siltation of dams or the drain on public finances by social protection programmes in degraded areas) do justify some degree of regulation to protect the interests of distant/offsite stakeholders. Better management of trade-offs will require the integration of financial incentives (carrots) with regulations (sticks) to a) improve land-use efficiency to increase productivity, b) alleviate trade-offs and maximise synergies and c) do this with a socially differentiated approach that includes specific provisions to address the needs of more vulnerable social groups. Some key stakeholders recognise this but the extent to which it is reflected in policy discourse is unclear.

4.3.10 Continual learning and adaptative management

Approaches used to create the enabling condition:

- **Learning via steering committees and technical committees at local, regional and national levels:** SLMP has adopted a decentralised and integrated land-management approach which is highly adaptive. The National Steering Committee (NSC) leads the process by delegating its operational duties to regional steering committees (RSCs) and woreda steering committees (WSCs) and regularly receives feedback on implementation gaps and challenges for corrective actions through performance-monitoring systems according to the environmental and social monitoring indicators. RSCs and WSCs also exercise and develop their capacity by reviewing annual work plans and budgets submitted by regional bureaus of agriculture (BoAs) and woreda offices of agriculture and natural resources (WoANRs) and by sharing best practices with other SLMP projects in the country through annual workshops organised by the NSC.
- **Farmer-to-farmer learning:** As well as supporting capacity building in key skills, peer-to-peer learning through exchange visits between communities contributes to adaptive management both in relation to the collective effort to develop and implement kebele land-use plans and efforts of individual farmers to improve their land-management and agricultural practices.

4.4 Discussion: barriers and opportunities to scaling up

4.4.1 Transparent and fair benefits and costs

- **High investment is needed to increase benefits** in degraded climate-vulnerable low-productivity areas. Fundamental constraints affect the willingness of farmers to adopt new land-management practices: food insecurity, poverty and vulnerability. Ethiopia has decades of experience promoting soil and water conservation measures on a massive scale which largely failed. Failure rates were apparently particularly high in the poorer areas of the country. In contrast, SLMP operates in relatively food-secure areas where crop productivity (ie return on investment) is generally higher and the risk of crop failure is lower. We can anticipate that this will affect farmer engagement in efforts to better manage trade-offs both in terms of their willingness to engage in land-use planning and implement provisions of the plan. There is also growing experience in Ethiopia of measures to mitigate risks of crop failure such as social safety nets and crop insurance. One or both may be needed if the SLMP approach is to be extended to chronically food-insecure areas.
- **Lack of benefits but high costs for youth:** Given the extreme land shortages and in particular the demands from youth for land, questions are being raised about the lack of economic benefits and thus the sustainability of leaving degraded areas to regenerate naturally. Although there are associated activities that are supposed to generate benefits (eg beekeeping) they are not yet at a sufficient scale to benefit enough people, and there is limited potential to expand.

[7] REDD+ stands for reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries.

4.4.2 Strengthened stakeholder capacities

- **Motivating government extension staff through payments of top-up allowances** may not be a barrier to scaling up so long as this is donor funded. However, it is important to maintain the level of extension support already provided to farmers. Capacity building should be ongoing. This is an issue that emerged in the Bale Mountains Eco-region REDD+ Project (BMERP) case study in Chapter 5.[7]

4.4.3 Multiple spatial scales

- Land-use planning at kebele level is a major intervention of SLMP and several other projects. But implementation of land-use plans is currently weak as there is no policy or legal framework at national and regional levels to support/enforce implementation.
- A new policy for land-use planning has been drafted and is under consultation. But the process has been put on hold since the decision to move the land-use planning unit from the Office of the Prime Minister to MoANR. Once the policy process resumes, there is the risk that environmental considerations will be marginalised in the future management of trade-offs between agricultural production and the conservation of natural habitats that are not classified as agricultural lands (such as natural forests and woodlands).
- The government currently has no land-use planning above woreda level, although there are plans to establish land-use planning functions all the way up to national level. If/when these are established there will be challenges in reconciling higher-level perspectives on trade-offs with the existing land-use planning process where trade-offs are currently addressed from a community perspective with little attention to higher-level priorities.

4.4.4 Opportunities for scaling up

Ethiopia's sustainable land-management track record over the last 30 years has been mixed. This is ascribed to the fact that the geographic focus was on marginal lands that may have had the worst land degradation but where the people were particularly poor and vulnerable and so least able to invest in establishing sustainable land-management practices and maintaining them over time. In recent years, Ethiopia has developed successful social safety-net programmes and insurance for crop failures for such areas. This has increased prospects for success where sustainable land-management practices have been effectively linked to such safeguards (as they have been in some areas).

The relatively new provision in land rights law that specifies that land is owned jointly by husbands and wives has empowered women to have more influence over land-use planning at community level and decisions on land use at household level. How this will play out in the Ethiopian context is unclear and an important topic for further research.

Judging by the description in MoANR's participatory land-use planning manual (2017) the 'P' in 'PLUP' is a very light form of participation. Referring to well-known typology of participation developed by Pretty *et al.* (1995), PLUP appears to be an expert-led process at levels 3 and 4. The observation of several respondents that negative impacts on poorer people and youth are disregarded is one consequence of this. However, there is an opportunity to adapt the process to become more genuinely participatory and more inclusive of marginalised groups.

5

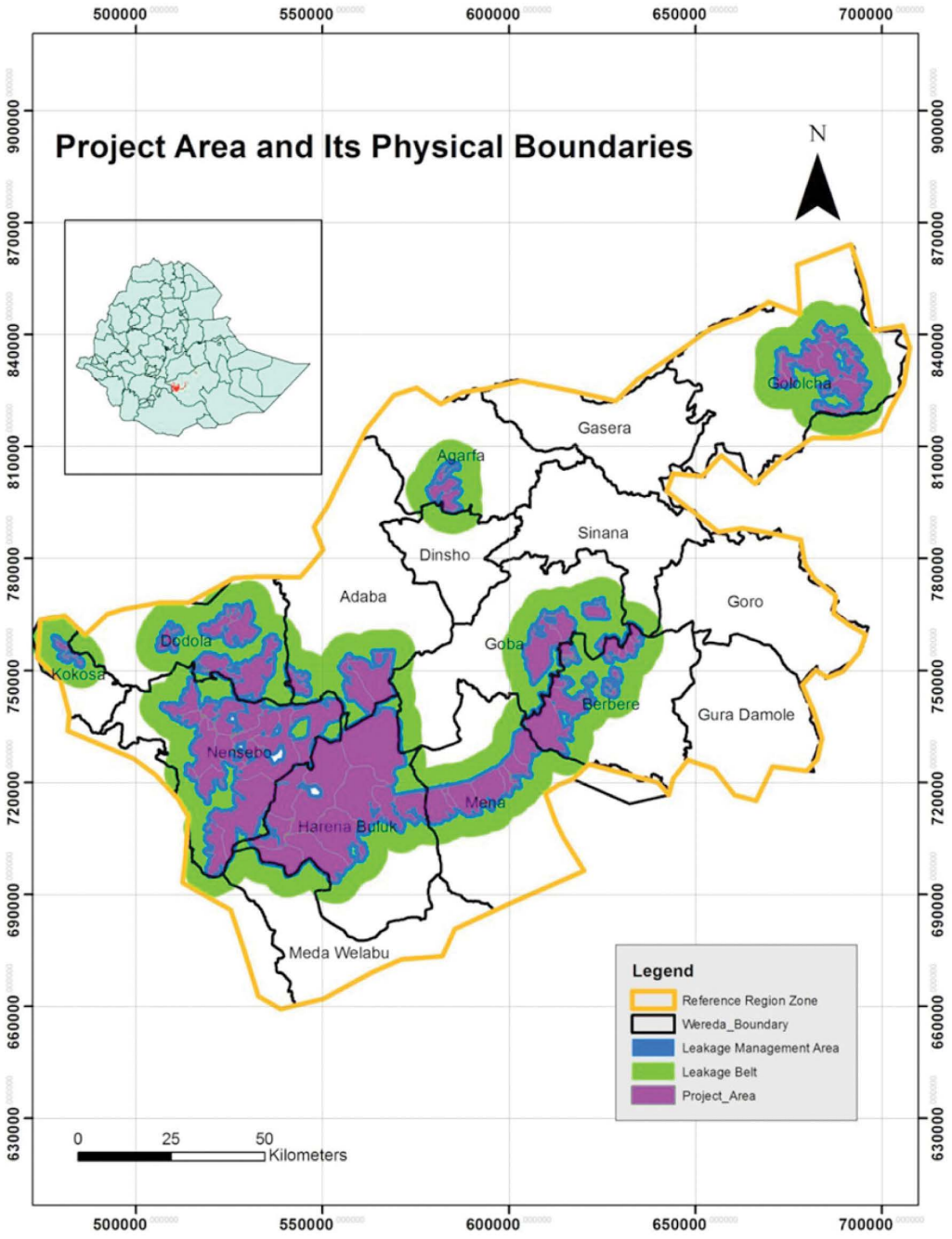
Case study: Bale Mountains Eco-Region REDD+ Project (BMERP), Ethiopia

Oromia is the largest regional state in Ethiopia and home to 70 per cent of the remaining high forest cover in the country (OFWE 2013). One of its largest forest blocks is the Bale Mountains Eco-Region (BMER), and like most other parts of the country, BMER has been experiencing a high level of deforestation and forest degradation (OFWE 2013). BMER is a high plateau, mostly over 3,000m above sea level, and the largest afro-alpine habitat on the African continent (see Figure 8 for the project location map) (OFWE 2013). The region is host to globally unique and diverse fauna and flora and inhabited by about 1.6 million people, which is about 1.5 per cent of the population of Ethiopia.

The Bale Mountains Eco-Region REDD+ Project (BMERP) builds on the Bale Eco-Region Sustainable Management Programme (BERSMP). It has been running since 2007 and implemented by the Oromia Forest and Wildlife Enterprise (OFWE) and NGOs Farm Africa Ethiopia and SOS Sahel Ethiopia. The original programme (BERSMP) focused on building the capacity of local communities to sustainably manage land and forest resources in the Bale Eco-Region, by introducing participatory forest management (PFM), land rehabilitation and developing NTFP business enterprises. To ensure the sustainability of these activities, it was realised that a financing mechanism was needed. For this purpose, Farm Africa and SOS Sahel tried to establish payments for environmental services (PES), focusing on carbon and watershed management. REDD+ emerged as a prospect to finance PES as its potential was found to be much higher than other options available. The Norwegian Government agreed to fund the piloting of a REDD+ project for three years after the BERSMP came to an end (€2 million), which would also include the establishment of sustainable small-scale enterprises to provide an alternative income source and buffer against price volatilities in the carbon market.

The Bale Eco-Region REDD+ project area covers 500,000ha and surrounds the Bale National Park

Figure 8. Location of the Bale Mountains Eco-region REDD+ Project



Source: Reproduced from https://www.farmafrica.org/downloads/reducing-deforestation-and-emissions-in-bale-whats-the-incentive-for-local-communities.pdf

(200,000ha) which is one of 34 Global Biodiversity Hotspots. It is expected to run for 20 years and according to the project feasibility study an estimated 18 million tonnes of CO_2e emission reductions is likely to be achieved over the project lifetime. With additional funding from the European Union the project will expand to eventually cover 18 woredas.

The project is implemented by the same project proponents as under BERSMP – OFWE and Farm Africa. Unlike SLMP (where the management of food production versus forest conservation trade-offs is not an explicit objective), BMERP is specifically designed to manage this trade-off. Key interventions include:

- Setting up small-scale forest-friendly businesses and local cooperatives that provide alternative income sources for local communities
- Promoting agricultural intensification in existing farmlands
- Building local institutions to address the challenges associated with access to forest resources
- Planting trees to create an alternative source of construction timber
- Strengthening the enforcement of existing policies and law, and
- Introducing improved fuel-saving cookstoves and practices to reduce the unsustainable harvesting of fuelwood (Lemenih and Biot 2017).

5.1 Key land-use trade-offs addressed

The region is facing growing pressures of deforestation and forest degradation. Between 2000 and 2011, the region experienced an average annual deforestation rate of 3.7 per cent. This is almost four times the rest of the country's 1 per cent deforestation rate (OFWE 2017). The main driver of deforestation is agricultural expansion. Cultivated land currently takes up almost 20 per cent of the entire region and is mainly dominated by subsistence farming (OFWE 2013). Subsistence farming of cereal crops (eg maize, wheat, barley, teff) and vegetables (eg cabbage and beetroot) forms the basis of smallholder farmers' livelihoods. Coffee production is also a major component of their income, particularly in the southern BMER. Coffee is mostly produced either at a small scale or in the form of agroforestry (forest coffee). BMER's forests have also been exposed to intensive livestock grazing, which has led to grass depletion and land degradation. The lack of windbreaks and heavy rainfall have caused soil erosion and subsequently deteriorated landscapes. These conditions together have encouraged smallholder farmers to pursue more than one livelihood strategy to cope with land degradation and scarcity.

5.2 Evidence of better management of trade-offs

During the BMERP's first monitoring cycle (2012–2015), it was reported that deforestation was reduced by 62 per cent against its anticipated rate – that is a total of 12,496 hectares of forest saved, equivalent to a saving of 5.5 million tonnes of carbon emissions (Lemenih and Biot 2017).

There is not yet any solid evidence of an increase in food production per unit area of farmland. There is no data on total food production but if the expansion of cropped areas has been small then it can be concluded that there has been a slight increase in total food production within the project area. Some deforestation has occurred, but much less than would otherwise have been the case.

With the SLMP case study in Chapter 4, we have reasonably strong evidence of better trade-off management from comparing the current situation with the situation before the project started, subject to some (fairly plausible) assumptions about the potential of the land-use planning and forest-restoration interventions being implemented to improve trade-off management. In contrast, with BMERP, forests are still being lost but at a lesser rate than would have otherwise been the case.

To draw any conclusion on trade-off management, we need to compare 'with project' versus 'without project' (the reference scenario). As with SLMP, we have no solid evidence of more effective and equitable trade-off management from the measurement of food production and forest conservation outcomes. But we can look at the uptake of project interventions that should contribute to delivering these objectives.

However, there is an additional challenge with BMERP. It is less clear if some of the key interventions that have the potential for better trade-off management are actually delivering, notably participatory forest management (PFM). There are concerns over its sustainability because of farmer dissatisfaction with the level of tangible benefits which in turn is partly due to difficulties in selling the carbon credits generated by the project and very low carbon prices at the present time.

5.3 Creating the right enabling conditions

5.3.1 Understanding and reconciling competing land-use needs

While Farm Africa sees trade-off management as being at the heart of this project, the understanding of OFWE seems to be somewhat different. OFWE sees this project first and foremost as a source of funding for rural development. However, Farm Africa believes that local communities have a good understanding of trade-offs and this is largely due to the efforts of the project.

Approaches used to create the enabling condition:

- **Locally tailored materials help raise awareness on land-use trade-offs:** Materials on diverse conservation topics were developed by Farm Africa/SOS Sahel Ethiopia for government staff and

community members through organising workshops and visiting best-practice sites. Between 2012 and 2015, about 1,122 government officials and technical staff (954 men and 168 women) and a total of 4,992 community members (3,170 men and 1,822 women) attended the workshops and the best-practice sites. These were an opportunity to exchange learning about climate change, the value of forests and sustainable land-use, as well as REDD+ measurements, reporting and verification (MRV) (OFWE 2016). Furthermore, 4,000 brochures on the impacts of climate change and the role of forests in mitigating climate change were published and distributed to local communities. Overall, awareness creation has encouraged more community members to actively participate in BMERP activities and government officials and technical staff to be more committed to the project.

- **Building future scenarios to communicate land-use trade-offs:** OFWE has developed and disseminated two land-use change scenarios based on the analysis of historical land-use and land-cover change between 2000 and 2011 to promote the active participation of local communities in BMERP (OFWE 2016). The exercise shows that BMER would have had two potential land-use scenarios in the absence of BMERP: forests converted to agricultural land (baseline) or forests conserved but at great cost to OFWE in terms of law enforcement and to local communities in terms of opportunity costs (OFWE 2016). The exercise helped raise awareness of different competing interests and trade-offs by exploring how the trade-offs might play out over time.

5.3.2 Building trust among key stakeholders

At community level, a major source of mistrust of the government is the fear that the project is just a cover for land grabbing. Communities fear they will be displaced and their land reforested.

Approaches to creating the enabling condition:

- **Free, prior and informed consultation (FPIC)** ensures that the project does not proceed without the community's support. The process engages local communities from project inception where the government's Woreda Coordination Committee calls for a community (kebele) meeting and explains the purpose of BMERP. The World Bank's approach has to date been to use free, prior and informed consultation ('consultation' as opposed to 'consent'). It has claimed that it is equivalent to free, prior and informed consent but many experts disagree and the World Bank's new safeguards policy now adopts the term 'consent'. Nonetheless, it is clear that the FPIC process has helped to reassure communities that the government is being honest with them and that it will honour the PFM agreements that they have developed.
- **Good financial governance:** This is essential in any country where financial mismanagement is a potential risk. BMERP has a clear governance structure with strong transparency and accountability, including independent external auditing. OFWE has a policy of zero tolerance of corruption and has an anticorruption unit that independently checks and controls the way it manages its operation and financial resources.

5.3.3 Engaging multiple stakeholders

The main drivers of deforestation lie outside of the forest sector. To reduce deforestation and forest degradation, BMERP needs to ensure that multiple stakeholders efficiently cooperate across all land-use sectors and across all levels of governance (MEFCC 2017).

While stakeholder engagement has in general been a strength of the project, Farm Africa is concerned about the insufficient engagement of youth. This is particularly important as the needs of youth for agricultural land, and the very high opportunity cost of PFM from their perspective, is perhaps the biggest single threat to the viability of PFM.

Approaches used to create the enabling condition:

- **Increasing the scale of operations to attract interests from powerful stakeholders:** Integrating the efforts of different sectors is key for trade-off management and Farm Africa has found that this becomes easier to achieve as the scale of the project increases. This is partly because key actors take a larger initiative more seriously and Farm Africa has recently secured funding for a major expansion/scaling out of the project, enabling it to achieve genuine landscape scale.
- **Creating a multistakeholder platform (NCRC and Rainforest Alliance 2012):**
- OFWE is a government-owned regional implementing organisation of BMERP. Having eight regional branches, OFWE works for forest conservation, land management and sustainable use of natural resources through supporting and supervising the institutional set-up of local PFM cooperatives (The REDD Desk 2018).
- Farm Africa/SOS Sahel Ethiopia is a consortium of international and national NGOs. It supports local communities out of poverty through better management of land and natural resources. They are also the main fundraisers for BMERP.

- The Woreda Coordination Committee (the government administration unit) oversees OFWE's work at the woreda level by monitoring BMERP on a quarterly basis while supporting OFWE as the government's forest law-enforcement arm. OFWE and Farm Africa/SOS Sahel Ethiopia meet with the zonal administration biannually and with the regional government annually.

5.3.4 Clarifying land rights, responsibilities and accountability

The forest lands of BMER fall under two categories of land management with different rights and responsibilities:

- The Bale Mountains National Park is managed by the Ethiopian Wildlife Conservation Authority (EWCA). Communities have no right to use land or resources in the park.
- Forestlands surrounding the Bale Mountains National Park are managed by the Oromia regional government through OFWE. Some of this forest is co-managed with local communities under joint forest management agreements (JFMAs). Some of these lands have been communally managed for grazing and collection of fuel/construction wood. JFMAs recognise these traditions and support communal land-management systems. The JFMAs set out the user rights, other benefits and responsibilities of the community-based cooperatives and the relevant forest enterprises (see Box 3). Each cooperative has its own designated area of forest with approximately 300 to 400 households in charge and sets up an executive committee assigned with PFM duties and conducting forest patrols (NCRC and Rainforest Alliance 2012).

Approaches used to create the enabling condition:

- **Joint forest management agreements (JFMAs)** set out the rights, benefits and responsibilities of the community-based cooperatives and government. The project and its predecessor have established 64 cooperatives across the region, and each cooperative signs a JFMA with OFWE. The project and its predecessor BSMERP facilitated the development of the JFMAs that underpin PFM.

BOX 3. RIGHTS, BENEFITS AND RESPONSIBILITIES UNDER PARTICIPATORY FOREST MANAGEMENT

Under the JFMA, the cooperatives are granted the following rights and benefits (OFWE 2016):

- Recognition of the right to live in the forest if they are currently doing so
- Sustainable utilisation of forest resources based on the forest management plan, and
- A share of the benefits from ecosystem services.

Correspondingly, the cooperatives also have the following responsibilities (OFWE 2016):

- Produce and implement the joint forest management plan
- Ensure that destructive activities (eg forest fires, clearance and settlement) do not occur within the forest
- Seek prosecution for individuals who break the agreed bylaws and internal laws
- Prevent new construction, coffee plantation and agricultural expansion into the forest
- Ensure that the forest is able to naturally regenerate
- Manage and control non-community members who have access based on paying a nominal user fee and traditional user rights
- Ensure that beekeeping is sustainably managed, and
- Ensure that any fire-related events are fully controlled and managed (eg cooking, burning crop residues, smoking beehives).

OFWE has the following responsibilities (OFWE 2016):

- Provide technical assistance to the cooperatives for sustainable forest development, protection and utilisation
- Assist and monitor the implementation of JFMAs
- Ensure that the rights of cooperatives are not violated by any individuals, groups or organisations, and
- Ensure that benefits from ecosystem services (including carbon sequestration, payments for environmental services and trophy hunting) are shared with the cooperatives.

5.3.5 Transparent and fair benefits and costs

A critical element of the project's strategy is increasing the tangible benefits to local people derived from PFM. The two main strategies are payments for ecosystem services – specifically through REDD+ (reduced emissions from deforestation and forest degradation) – and enabling communities to establish tree plantations within the forest area that they manage under PFM. Community tree planting has to date been prohibited but the project has secured permission to try this on a pilot basis.

With REDD+ payments, the national strategy now states that the amount of funds allocated to the given community should reflect their performance in terms of reducing deforestation and forest degradation. 'Results-based' means tying payments to actual conservation outcomes rather than just the activities that should deliver conservation outcomes. In principle, this contributes to conservation and local livelihoods and creates the synergy between them that is the basis of payments for ecosystem services. However, at present the revenue that goes to communities is used for communal development projects such as schools and so not directly linked to agricultural production. Farm Africa is lobbying for the revenue to be spent on communal income-generating projects that could include, and help support, agricultural production and thus boost synergy between forest conservation and agricultural production, but has not been successful to date.

Approaches used to create the enabling condition:

- **Free, prior and informed consultation** is a process for BMERP to ensure that communities are fully aware of the project's theory of change and its related risks and benefits. While it does not meet the standards of a true FPIC process in terms of genuinely giving communities the power to decide whether and how they want to engage in the REDD+ project, it does seem to have enabled communities to become fully aware of the concept of REDD+, the strategy and theory of change of the project, and the potential costs, risks and benefits. However, during an interview conducted as part of this research, it has been reported that there have been problems with the FPIC process, which has raised unrealistic expectations over the level of benefits that will flow from REDD+.
- **Increasing benefits from the forest:** After a few years of engaging in PFM through the JFMAs, many communities have become dissatisfied with what they perceive as too few benefits and substantial responsibilities and costs. Two interviewees that we spoke to reported that some are now on the verge of giving up, and OFWE reports that in other parts of the Oromia region, some communities have abandoned PFM for this reason. The project has responded by convincing the regional government to permit – on a pilot basis – planting and harvesting of certain tree species within the reserve – a practice which has never been permitted in forest reserves before. This has the potential to substantially increase benefits to communities. Without this, many people consider that PFM in this part of Ethiopia is doomed to fail because of the high agricultural potential of the land and thus high opportunity costs.

5.3.6 Strengthening stakeholder capacities

As discussed at the start of this chapter, the project provides capacity building for all project interventions, from supporting small-scale forest-friendly businesses and local cooperatives to building local institutions to address the challenges associated with access to forest resources.

Approaches used to create the enabling condition:

- **PFM capacity building for cooperatives:** Capacity building on management and technical issues for PFM is led by Oromia Cooperative Promotion Agency (OCPA), a regional government agency that provides public and private cooperatives with administrative and technical support. There has also been some governance support provided, although Farm Africa emphasises that this should not be a one-off training event but rather an ongoing process of training and mentoring. A challenge that is being encountered is that effective training and mentoring needs motivated staff and there is a risk that once the project and its top-up allowances end, government staff will lose motivation.
- **Community guidelines:** Guidelines to strengthen the capacity of community cooperatives have been developed and distributed to 64 cooperatives (OFWE 2016). The first guidelines focused on the implementation process of PFM and the second on governance of cooperatives and financial and assets management. Good governance is fundamental for successful community-based natural resource management such as PFM (Ostrom 2009).
- **Capacity building for forest-based enterprises:** The project has built cooperatives' business-development skills in sustainable forest management. It helps identify potential NTFPs (eg forest coffee, honey and bamboo). This capacity building has been done by 40 OFWE staff trained by Farm Africa (OFWE 2016).

5.3.7 Participatory and user-friendly monitoring

In the monitoring plan of BMERP, OFWE is responsible for collecting, analysing, processing and reporting on monitoring data during the first five years of implementation. Parameters to be monitored are biomass inventory, social and biodiversity impact assessments, and the progress of planned activities (OFWE 2016). The overall monitoring, evaluation and reporting system is guided by both the REDD+ measurement, reporting and verification (MRV) systems and the Climate-Resilient Green Economy (CRGE) facility's M&E systems (MEFCC 2017).

Approaches used to create the enabling condition:

- **Using a multistakeholder approach:** Farm Africa, OFWE, the Woreda Coordination Committee and local PFM cooperative members have jointly identified the indicators and other information needs of the monitoring system. This multistakeholder approach has increased the relevance and accuracy of this management information system and may also have increased the commitment of different stakeholders to provide the required information.
- **Developing indicators relevant to stakeholder interests and knowledge:** For M&E related to trade-off management, the choice of indicators (metrics in quantitative terms) is an important issue. The indicators define what aspects of the forest conservation/food production trade-off the stakeholders are actually focusing on. As an indicator for the provision of forest ecosystem services, the project is using hydrological metrics such as water flow rates and water quality at sample sites within the water catchments around the forest. These are easily measured with simple equipment and are metrics which everyone (including local people) knows are sensitive to deforestation and forest degradation – in other words, the M&E system is using local as well as expert knowledge.

5.3.8 Multiple spatial scales

Figure 8 shows the project area which lies in the south of Oromia Region. The notion of multiple scales has two dimensions.

Horizontal dimension: How does the work of a site-based project complement (or undermine) similar efforts in other parts of the region and the country? In the context of BMERP, a major issue here is leakage. With any environmental (or development) intervention there is a risk that efforts to combat a problem in a certain location displace part or all of the problem to another place. This is a major risk in combating deforestation and carbon emissions. For example, people engaged in illegal forest conversion for farming may respond to BMERP by simply moving to another part of the country.

Approaches used to create the enabling condition:

- **Leakage risk management:** As required by design standards for voluntary carbon projects, BMERP gave careful consideration to leakage in its design and developed a mitigation strategy and monitoring system to check the effectiveness of this strategy. This involved defining a leakage 'belt' around the forest reserve (see Figure 8).
- **Vertical dimension:** How does the project link with decision-making at higher (and potentially lower) levels?

Approaches used to create the enabling condition:

- **Institutionalisation within government:** At the regional state level, the lead implementing agency of the project is OFWE (an agency of Oromia regional government). Being institutionalised within government at the regional level, the project is automatically linked upward to relevant federal government agencies and downwards to local government at community level (woredas and kebeles).
- **Policy engagement:** At national level, BMERP works to update and enhance federal policies to support regional and local-level PFM activities. For example, the National REDD+ Secretariat has facilitated a series of meetings with MoANR, MEFCC and MoWIE to foster integrated land-use policies. It also works to improve federal and regional-level anticorruption and bribery laws legislated to restrain any illegal activities in the region.

5.3.9 Financial sustainability

Financial sustainability may not be a key issue for projects that (by their very nature) only need to intervene for a limited period of time. In the context of ecosystem services, a good example is soil conservation. Once structures (terraces, bunds etc) are in place, farmers receive enough benefits to want to maintain them. This is not the case with a REDD+ project such as BMERP where preventing deforestation of land that has high agricultural potential comes with a major opportunity cost to those who would otherwise have cleared the land. Far from diminishing over time, this cost is likely to increase as demand for agricultural products increases and/or new technology further increases agricultural production potential.

A REDD+ project has to maintain not only the financial incentives that encourage conservation but also a whole set of management and governance functions to operate this incentive mechanism and provide the law-enforcement measures required to complement the incentive mechanism, and to monitor and verify the

carbon emissions reductions that are to be sold as carbon credits.

Approaches used to create the enabling condition:

- **Carbon finance:** Income generated from carbon credits is channelled to the project sites through OFWE's funding transfer system. Forestry consultants TerraCarbon and Climate Focus conducted a detailed financial feasibility study for BMERP at the inception stage when both Farm Africa/SOS Sahel Ethiopia and OFWE lacked the technical capacity for such a process. On the basis of a carbon price of US$4/$tCO_2e$, the project designers concluded that the project would be financially sustainable (NCRC and Rainforest Alliance 2012). However, the project has been unable to sell carbon credits even at this low price as there are many carbon projects and limited demand for this type of carbon credit. This is now raising serious concerns about the financial sustainability of the project.
- **Forest-based enterprises:** As noted earlier, BMERP is currently piloting a scheme to boost income to farmers and the regional government by establishing productive plantations within forest reserves. The innovation is giving communities the rights to manage and benefit from these plantations. Without this, both OWFE and Farm Africa believe that PFM (and thus REDD+) cannot be sustained in this region.

5.3.10 Continual learning and adaptative management

BMERP generates knowledge that can contribute to reducing forest-based emissions and improving natural resource-based livelihoods for other communities in Ethiopia and more broadly in the Horn of Africa. The knowledge will be enriched everyday by the lessons learnt from the different stakeholders involved. To effectively capture this knowledge, it is important to involve the stakeholders not only in planning and implementation, but also in the M&E stages. In particular, it is critical to include the project beneficiaries – local community leaders and members – because they often have the best ideas as to how the project results could continue to remain relevant to them. They are best placed to ensure what the project delivers.

According to the MEFCC's guidelines, BMERP has tried to ensure beneficiary participation throughout the project, including M&E (MEFCC 2017). Local farmers and herders in the target areas have been engaged in the M&E process and particularly encouraged to participate in the social and biodiversity impact assessment. Information has been generated regularly, and documented and shared with other REDD+ projects in Ethiopia the National REDD+ Secretariat (MEFCC 2017).

5.4 Discussion: barriers and opportunities to scaling up

There are growing concerns about the viability of REDD+ in the highlands of Ethiopia related in particular to the high opportunity cost of retaining natural forests in areas with medium to high agricultural potential: costs to both government and to local people, who feel they have a right to use forest land both outside and within gazetted protected areas. The barriers to scaling up REDD+ as an approach to managing forest and agricultural trade-offs are more political and economic than related to natural resource management. The following sections discuss specific barriers related to the 10 principles.

5.4.1 Clarifying land rights, responsibilities and accountability

One problem with forest management in reserves outside of formal protected areas is the lack of clarity on rights and responsibilities of different actors with respect to protecting and using forest resources. The new Forest Act of 2018 clarifies this, but there remains a problem that user rights are limited to NTFPs (which have relatively little value compared to poles and timber). This also deters farmers from investing in tree planting. Farm Africa has requested that the government extends user rights to some timber products on a pilot basis. If legalised, this would greatly increase the potential benefits to farmers as timber production would generate more revenues than REDD+.

5.4.2 Transparent and fair costs and benefits

A serious perverse incentive that undermines forest conservation efforts is that budget allocations from regional government to local government (eg woreda level) are proportional to the population of the area and area of land that is farmed. Woredas are less populated and/or are partially covered by forest. They are therefore at a disadvantage, and it will appear to be in their interest to convert forests to farmland.

The REDD+ project is run by OFWE with support from Farm Africa. It is not clear to what extent OFWE is doing this to conserve ecosystem services with regional or national-level value (public good) or to generate revenue for the region from donor investment in REDD+ and, in time, carbon revenue. Two key interviewees suggested it is more the latter.

At farmer level – now that the project has been going for some years and farmers understand REDD+ – there is growing resentment. Many farmers believe they are not getting their fair share of benefits. As one interviewee put it, 'OFWE field staff are feeling the heat'.

Also, in terms of benefits that have been shared within communities, there have been significant problems of elite capture, with powerful leaders benefiting disproportionately. This adds to the feeling that benefit-sharing arrangements are unfair thereby undermining the motivation of both farmers and OFWE staff. Farm Africa is very much aware of this. It is trying to address this challenge through capacity building in management and governance.

With many project interventions, there is a challenge of gender inequity which is rooted in cultural norms and governance problems. In particular, women's participation in the cooperatives that manage PFM has been minimal (OFWE 2016). Although women in general have benefitted from readily available fuelwood and fodder for livestock, the cooperative membership is mostly limited to men, who traditionally lead the households, partly to avoid paying multiple registration fees.

5.4.3 Multiple spatial scales

There are major disconnects in public policy and political and economic priorities between federal and regional levels. Oromia's regional government's interest in forest conservation seems to be more related to revenue for development than climate change mitigation or conservation per se. Meanwhile, at national level the federal government has made a number of bold commitments to reduce, and indeed reverse, deforestation as a part to the national contribution to reducing GHG emissions. The trade-offs in continuing to protect forest land with high agricultural potential are not acknowledged at national level. Ironically, as we learnt from talking to Farm Africa staff, most farmers do not have a siloed perspective on development and so have a good understanding of these trade-offs.

5.4.4 Financial sustainability

The principle mechanism for forest conservation within forest reserves – participatory forest management – is facing problems. There are not enough benefits to communities (except where the forest areas include some plantation forestry that can be harvested). Therefore, when project support for PFM and associated livelihood activities ends, it is likely that PFM will fail as it has in some other parts of the region. If the piloting of tree-product production within forest reserves by local people is successful and legalised this could transform the situation.

5.4.5 Opportunities for scaling up

Allowing farmers to produce timber within forest reserves that are managed under PFM would create a real opportunity to extend this pilot to other areas, without which PFM and REDD+ may be doomed to failure unless there is a dramatic increase in carbon prices. Meanwhile, the new Ethiopian government is strongly committed to advancing gender equality. This is another tangible opportunity, for example in terms of decisions on the allocation of benefits.

6

Discussion and conclusions

Our research has studied four case studies that operate at very different spatial scales ranging from a 5,000km² area around Bale National Park in Ethiopia to 36 GMAs across Zambia covering 22 per cent of the country (see Table 2). Government agencies led the implementation of three of the case studies, while COMACO, a non-profit company, led the fourth. Drawing on lessons learnt from these four cases, this chapter discusses key enabling conditions for better management of land-use trade-offs, summarises common approaches used to create enabling conditions, and identifies challenges to scaling up those approaches. It also recommends several future research topics.

Our research objective was never to evaluate to *what* extent each project was better managing land-use trade-offs. The evidence we observed for better management

Table 2. Context of the four case studies

		ZAMBIA		ETHIOPIA	
		COMACO	PLUP IN GMAs	SLMP	BMERP
Evidence of better management of land-use trade-offs	Food security and poverty alleviation	Yes	No	Some	Some
	Forest and biodiversity conservation	Yes	Some	Some	Yes
Operation scale		934,000km² operational area in Luangwa Valley watershed ecosystem	National level: a total of 36 GMAs across Zambia covering 167,000km²	Landscape scale (135 watersheds)	5,000km² area around Bale National Park
Activities led by		Non-profit company	Government	Government	Government

of land-use trade-offs is based on existing data. Most of the cases did not have a business-as-usual baseline except COMACO and BMERP (the latter only on forest and biodiversity conservation outcomes). For the purposes of this study on enabling conditions, it has been sufficient to know that each project has to *some* extent delivered better management of trade-offs.

There are always winners and losers in each case as different stakeholders have different land-use preferences. While the case studies help illustrate the importance of understanding those different preferences and bringing different stakeholders together, our research has not evaluated who wins or who loses.

6.1 Enabling conditions

Our research revealed that enabling conditions for better management of land-use trade-offs are closely aligned with the ten principles developed by Sayer *et al.* (2013) (see Box 1). We did not intend to critique nor replace these ten principles but have adapted them into ten essential and interlinked enabling conditions contextualised within our research's scope (discussed in Section 1.3) and the four case studies (see Box 4 for a list of the enabling conditions, and Appendix 2 for a comparison with the ten principles of Sayer *et al.* 2013). The following sections summarise the key issues that emerged under each of the ten enabling conditions.

BOX 4. TEN ENABLING CONDITIONS FOR BETTER MANAGING THE COMPETING LAND-USE OBJECTIVES OF FOOD PRODUCTION AND FOREST CONSERVATION

1. Understanding and reconciling competing land-use needs
2. Building trust among key stakeholders
3. Engaging multiple stakeholders
4. Clear land rights, responsibilities and accountability
5. Transparent and fair benefits and costs
6. Strengthened stakeholder capacities
7. Participatory and user-friendly monitoring
8. Multiple spatial scales
9. Financial and institutional sustainability, and
10. Continuous learning and adaptive management.

6.1.1 Enabling condition 1: Understanding and reconciling competing land-use needs

Different stakeholders have different land-use objectives and value natural resources in different ways. To better-manage land-use trade-offs, it is important to first understand what the different land-use objectives and competing needs are. But better understanding itself is not enough and approaches must be taken to alleviate the competition between those different land-use needs. For example, in the second case study in Chapter 3, participatory land-use planning processes revealed different stakeholders' needs and based on that, stakeholders together negotiated and designed land-use zoning in GMAs in Zambia.

All four cases created or worked towards creating the first enabling condition. But in practice, whether land-use trade-offs are better managed or not also depends on nine other enabling conditions. These nine enabling conditions are arguably important for any conservation interventions but there are some specific considerations for each in the context of managing land-use trade-offs.

6.1.2 Enabling condition 2: Building trust among key stakeholders

Key stakeholders are those who drive land-use changes. In all four cases, they include communities who farm and rely on the natural resources. Others may vary depending on local context. For example, in COMACO's case, the key stakeholders who needed to build trust were the communities and COMACO. In SLMP's case, it was about building trust between the communities and government agencies.

6.1.3 Enabling condition 3: Engaging multiple stakeholders

Trade-off management is a process of balancing competing interests of different key stakeholders. It is vital that they are effectively engaged in decision-making processes whether by direct representation, or through policymakers, planners or politicians who are supposed to serve their interests. Multiple stakeholder engagement is also important in terms of accessing diverse sets of expertise ranging from sustainable farming and forest management to market analysis and enterprise development.

6.1.4 Enabling condition 4: Clear land rights, responsibilities and accountability

Clear individual and communal land rights and responsibilities that are accepted by key stakeholders

are fundamental for good natural resource management. In both Ethiopia and Zambia, ultimate land-ownership rights are vested in the state. But there are new provisions for secure, long-term user rights which seem to be sufficient to incentivise land stewardship for the longer term. It is also important to have an accountability system so that responsible behaviour is supported and rewarded while failure to uphold responsibilities is penalised.

6.1.5 Enabling condition 5: Transparent and fair benefits and costs

Transparency in how costs and benefits are shared is the foundation for building trust among key stakeholders. Those who bear the costs for better managing the land will need to have sufficient incentives to do so.

6.1.6 Enabling condition 6: Strengthened stakeholder capacities

Key stakeholders will require improved skills and abilities to carry out their land-management responsibilities and effectively implement the range of interventions that support trade-off management. With clear land rights and responsibilities, targeted capacity building can be carried out tailored to different stakeholders' roles and needs.

6.1.7 Enabling condition 7: Participatory and user-friendly monitoring

To better manage land-use trade-offs, progress towards achieving competing land-use objectives needs to be monitored. For example, COMACO's monitoring system focuses on both agricultural production, food security and conservation goals. This allows it to learn and adapt its interventions to ensure that progress against one objective is not achieved at the expense of another.

6.1.8 Enabling condition 8: Multiple spatial scales

Outcomes of land-use management at any spatial scale are influenced by factors operating at other scales. It is important to work across different spatial scales to deal with those factors and link farm-level practices with national-level policies.

6.1.9 Enabling condition 9: Financial and institutional sustainability

Sustainable land-use management practices often require forgoing short-term quick gains for long-term benefits. To deliver those long-term benefits for any interventions, there must be long-term financing mechanisms and institutional support.

6.1.10 Enabling condition 10: Continuous learning and adaptative management

Managing land-use trade-offs requires learning from doing, and understanding and adapting to changing social, economic, political and environmental drivers of land use and land-use changes. It requires continuously balancing progress and adapting activities to deliver against different land-use objectives.

6.2 Common approaches used to create the enabling conditions

All ten enabling conditions are interlinked and indispensable. The only case that has clearly recorded evidence of better management of land-use-trade-offs (COMACO) works across all ten enabling conditions. In other cases, the lack of one or a few enabling conditions has created barriers. For example, only by ensuring financial and institutional sustainability can any intervention deliver fair benefits or invest in strengthened stakeholder capacity and monitoring activities. Transparent and fair benefits in turn help nurture trust and bring different stakeholders together. Trust building, capacity building, stakeholder engagement and monitoring activities all feed into learning and adaptative management which in turn informs and strengthens all other enabling conditions.

Table 3 summarises the approaches taken by each case study to create enabling conditions. Approaches varied, depending on social and political contexts: for example, the tiered extension-service model used by COMACO may not work in a less hierarchical social context. Providing conservation incentives at community level like COMACO and GMAs may not work in areas where there is no history and culture of communal land management. But there are some common lessons learnt.

6.2.1 Reduce the competition between land-use objectives

Incentives should be designed to explicitly reduce the competition between land-use objectives. COMACO's 'conservation deals' explicitly seek to reduce the competition between food production and conservation objectives. The deals reward farmers who undertake conservation activities with market access and premium prices for their crops, capacity support for food production, and conservation dividends. Such explicit links are extremely important to ensure a fair share of benefits and costs, and accountability.

In comparison, other incentives that do not explicitly tackle competing land-use objectives are less effective. They may sometimes increase trade-offs by maximising one outcome at the expense of another. For example, if hunting revenue sharing in GMAs and carbon payments for forest conservation are not linked and paired with other mechanisms to reduce food insecurity in local communities, they will not be effective in reducing agricultural expansion into forests as communities still need to seek agricultural land to produce food for their families.

6.2.2 Combine 'carrots' and 'sticks'

To ensure accountability, incentives alone are not enough. They must be combined with regulatory actions or penalties for those who fail to carry out their responsibilities or undermine sustainable land management. For example, COMACO will cease trading with and withdraw support for any chiefdoms which fail to uphold their conservation pledges. SLMP implements clear environmental and social safeguard policies to regulate all interventions (including agricultural production) to reduce land-use trade-offs.

6.2.3 Pair value-chain approaches with national-level policies

Market-based value-chain approaches like COMACO's can provide long-term benefits and ensure financial sustainability of any interventions. But they are limited in addressing external factors like migration and climate change and their effectiveness can be constrained by government policies.

Market-based approaches can also struggle to create impacts at national scale as they do not work in all contexts. For example, in remote areas with no infrastructure or market access, market-based approaches are hard to establish. On the other hand, national-level policies such as nested land-use planning or strong social and environmental policies can help address issues like migration and climate change, and can provide enabling environments for value chain-based approaches and effect impacts at scale. But there are often too few supporting financial mechanisms or benefits built into these policies to make them effective.

Pairing the two can build a more holistic approach to land-use management. For example, national-level participatory land-use planning can help provide broad guidance on land-use priorities and set differentiated land-use objectives for different spatial zones based on biophysical factors (eg conservation values and soil suitability). Clear land-use priorities and zoning at national level can then guide regional and local nested but more detailed land-use plans. In line with those land-use priorities negotiated at national level and further elaborated at regional and local levels, value chain-based approaches can then be designed to incentivise and sustain local actions. The following factors are important to consider:

- **Ensure a diverse range of sustainably produced products:** A combination of agricultural and forest products are important to provide balanced incentives for integrated land uses to deliver against different land-use objectives. A narrow focus on products in only one sector tends to lead to favouring one land-use objective at the expense of the other. A diversified product portfolio can also reduce farmers' risks in the face of climate change.
- **Use bottom-up approaches:** Land-use trade-offs are often better understood at local level where communities or government agencies have to juggle those competing needs on a daily basis. At national level, due to siloed sectoral policy-planning processes, the trade-offs are less well understood or discussed. It is important to ensure that local stakeholders – especially communities – are engaged. Build their capacity to design, implement, monitor and learn from land-use management practices.
- **Work with existing institutions:** In all four cases, working with existing institutions can be a cost-effective way to mobilise action and build trust. For example, in Zambia both cases work with existing traditional authorities to mobilise communities. In Ethiopia, interventions are implemented by existing government institutions which helps mobilise finance and ensures long-term government support.
- **Institutionalise multistakeholder support:** Given the complex and cross-sectoral nature of land-use trade-off management, multistakeholder support is indispensable for any interventions to be successful. Such engagement must be institutionalised to ensure continued multistakeholder support for the design, implementation, monitoring and learning of any interventions. There are different ways to institutionalise multistakeholder support: for example, COMACO has an institutional policy to openly share and engage with all interested stakeholders. In Ethiopia, government mandates and leads multistakeholder platforms. See also Box 5 for another approach from Tanzania, where a major agricultural development project institutionalises multistakeholder engagement platforms to support the management of land-use trade-offs.

6.3 Common challenges to scaling up

Table 4 summarises key challenges in creating enabling conditions or scaling up approaches in each case study. The following sections discuss the main common challenges.

Table 3. Enabling conditions and approaches used to create them

	ZAMBIA		ETHIOPIA	
	COMACO	PLUP IN GMAs	SLMP	BMERP
Understanding and reconciling competing land-use needs	Fieldwork and survey done to understand communities' land-use needs Payments for nature that explicitly link one land-use objective to another to reduce competition	Multistakeholder land-use planning workshops informed by spatial analysis Land-use zoning Hunting revenue sharing to reduce competition between land uses	Bottom-up land-use planning supported by progressive local leadership	Locally tailored materials to raise awareness Scenario building
Building trust among key stakeholders	Working through existing local institutions Locally placed extension services Transparent revenue sharing		Awareness raising of land-use planning process	FPIC Transparent project finance management
Engaging multiple stakeholders	Openly and strategically sought complementary partnerships	Multistakeholder land-use planning workshops and field work Enhanced democratic community representative structures	Building on existing governance structure to engage multistakeholders at all levels	Multistakeholder platform Increased scale of operation to attract attention of key stakeholders
Clear land rights, responsibilities and accountability	Conservation agreement including CCAs that lays out clear rights, responsibilities and accountability		Building on existing government commitments to ensure secure land tenure through land certification Building on customary arrangements Gender equality	Joint forest management agreement
Transparent and fair benefits and costs	Business model built to maximise profit margins for responsible land stewards Options for farmers to weigh costs and benefits themselves		Technical support to increase community income conditional on land-use planning Tenure security as a benefit	FPIC process to negotiate and communicate costs and benefits Result-based payments Increasing benefits from frosts

	ZAMBIA		ETHIOPIA	
	COMACO	PLUP IN GMAs	SLMP	BMERP
Strengthened stakeholder capacities	Tiered extension service model Comprehensive capacity building along value-chain Tailored capacity building based on local needs	Targeted capacity building based on land-use zoning	Farmers' training centre Peer-to-peer learning Enhanced extension service providers' capacity and motivation	Supporting capacity building for community cooperatives through community guidelines Targeted capacity building for business planning
Participatory and user-friendly monitoring	Simple and easy-to-use performance indicators Dedicated monitoring staff and computerised system Third-party evaluations	Communities mobilised to participate through enhanced community organisations	Dedicated and motivated M&E staff Environmental and social safeguards	Multistakeholder approach to designing indicators that are relevant to stakeholders' interests and knowledge
Multiple spatial scales	Working through cooperatives and traditional authorities to reach impact at scale Collaboration with local, provincial and national governments	Nested land-use zoning and plans to link national vision with local actions	Nesting of land-use planning Working with existing governance structure	Active engagement in informing national policies Working with existing governance structures to institutionalise project approaches Developing strategy and monitoring system to minimise leakage
Financial and institutional sustainability	Value-chain approach to secure funding through sales of sustainably produced products		Mainstreaming into national strategies Diversified financial incentives for farmers Integration of financial and regulatory instruments	Diversified income streams for forests Carbon finance
Continuous learning and adaptive management	Peer-to-peer learning Periodic strategic planning and annual performance review	Peer-to-peer learning among community members Periodic multistakeholder review of land-use plans	Decentralised integrated land-management approach that builds in learning Peer-to-peer learning	

BOX 5. SAGCOT'S GREEN REFERENCE GROUP: A MULTISTAKEHOLDER PLATFORM FOR MANAGING CONSERVATION TRADE-OFFS IN A MAJOR AGRICULTURAL DEVELOPMENT PROJECT

By Annette Green with inputs from Charles Meshack (Tanzania Forest Conservation Group) and Lucy Magembe (TNC)

What is SAGCOT?

The Southern Agricultural Growth Corridor of Tanzania (SAGCOT) project coordinates and facilitates commercial investment in agriculture in Tanzania. SAGCOT aims to release the untapped potential of agriculture in a 300,000km^2 central belt across the country, making the sector commercially viable for the benefit of millions of Tanzanians. The SAGCOT corridor zone covers ecologically sensitive areas both with and without formal protection.

What is the Green Reference Group (GRG)?

The GRG is a multistakeholder platform for dialogue on sustainable investment. It functions as a conduit between SAGCOT and key conservation stakeholders in Tanzania. The GRG streamlines communication between these two groups, and performs the vital function of ensuring conservation issues are represented in SAGCOT decision-making.

How does the GRG work?

GRG membership represents SAGCOT's principal stakeholder groups, including not only conservation, but also social, land and business interests. Membership is kept intentionally small to 15–20 members at any one time. This allows the GRG to function efficiently in its role as an informal advisory board to SAGCOT Centre Ltd (SCL), the limited company managing SAGCOT activities and engaging with SAGCOT's multiple partners.

As an advisory body, the GRG does not have the authority to directly impact on SAGCOT's strategy or the investments of SAGCOT partners. Coordinating the activities of so many actors, reconciling their (not always complementary) interests, and aligning their activities with the principles of inclusive green growth is an ambitious undertaking. But by creating much-needed space for dialogue on sustainable investment and ensuring conservation is kept central within all discussions, the GRG plays a role in managing conservation and agricultural development trade-offs in the SAGCOT zone.

How does the GRG help SAGCOT manage trade-offs between conservation and agriculture?

Via the GRG and with the support of SNAPP, the Environmental Feeder Group (EFG)[8] was instrumental in the development of the SAGCOT investment guidelines tool. Recognising the need to offer guidance to SAGCOT investors on the sustainable development goals of the Government of Tanzania, the EFG helped establish a dedicated taskforce to work on business engagement, led by staff from the Worldwide Fund for Nature (WWF), TNC, the International Union for Conservation of Nature (IUCN) and SilverlandsTZ Ltd (a commercial poultry farm). So far, the tool has been used by 15 commercial investors to help them reflect on their compliance with SAGCOT's inclusive green growth principles.

How does the SAGCOT investment guidelines tool work?

The tool is a voluntary questionnaire designed to help potential investors think carefully through the social and environmental impacts of their activities within the SAGCOT zone. Self-assessment is completed by investors prior to an in-person investment meeting at SAGCOT. It includes questions on how environmental consultation processes have been or will be used – and if the investment will directly or indirectly impact land within 5km of ecologically sensitive areas, such as forests. SAGCOT is then able to assist investors in obtaining supplementary information such as maps, where required.

[8] The Environmental Feeder Group (EFG) was established as a sub-group in which conservation stakeholders can collectively highlight issues as SAGCOT progresses, to be relayed to the GRG via EFG leadership. EFG leaders therefore act as conservation stakeholder representatives within the GRG, in turn ensuring conservation concerns are raised with SAGCOT.

Table 4. Challenges in creating enabling conditions

	ZAMBIA		ETHIOPIA	
	COMACO	PLUP IN GMAs	SLMP	BMERP
Understanding and reconciling competing land-use needs				
Building trust among key stakeholders		Entrenched mistrust due to historical land disputes and non-transparent land-allocation processes		
Engaging multiple stakeholders		Lack of multistakeholder implementation structure Ineffective representation structure for communities		
Clear land rights, responsibilities and accountability		Overlapping and conflicting mandates for different government agencies Lack of secure natural resource user rights for communities		Lack of clear policy on rights and responsibilities of different stakeholders in forest reserves
Transparent and fair benefits and costs	Managing human-wildlife conflicts when wildlife population increases Managing higher opportunity costs as agriculture activities become more lucrative as business expands	Insufficient incentives for conservation Benefits are not linked to performance nor who bears the costs	High level of investment needed to increase benefits in degraded, climate-vulnerable, low-productivity areas Lack of benefits but high costs for youth	Benefits being allocated disproportionality to wealthier people Insufficient incentives for farmers Perverse incentives that discourage local government from supporting forest conservation
Strengthened stakeholder capacities		Little funding and uncoordinated capacity building for communities and government	End of allowances to government staff at end of project will undermine motivation of extension service providers	
Participatory and user-friendly monitoring		Lack of capacity and incentives for monitoring		

	ZAMBIA		ETHIOPIA	
	COMACO	PLUP IN GMAs	SLMP	BMERP
Multiple spatial scales	Engaging non-COMACO chiefdoms in the watershed ecosystem and managing migration into the watershed		Paralysis of land-use planning at national level Land-use planning is under a sectoral ministry (Ministry of Agriculture)	Disconnect between political and economic priorities between federal and regional levels
Financial and institutional sustainability	High investment needed to work across value-chains and the lack of potential investors to incubate business	Costly participatory planning process and implementation		Carbon price is currently too low for carbon revenue to sustain project activities
Continuous learning and adaptive management	Increasing uncertainties related to climate change	Lack of funding and information on performance to support learning		

6.3.1 Creating and sustaining sufficient benefits for conservation

All four cases face challenges to secure and sustain sufficient benefits to incentivise conservation. In value chain-based approaches, as the business grows and profits for agriculture products increase, the opportunity costs for farmers to conserve land for forests and biodiversity also increases. Carbon and hunting revenues alone often are not sufficient to offset those costs. Benefits generated through sustainable land-use management practices often take time to accrue (for example, better water and nutrient retention in the soil). But the costs are incurred upfront (for example, lower yields in the early years of conservation agriculture compared to farms using fertilisers).

Benefits generated at community level are also often prone to elite capture where more powerful community members benefit disproportionately. Those benefits also may not be directly linked to incentivising conservation activities: for example, hunting revenues in GMAs are shared with all communities and not based on whether they have upheld agreed land-use plans or hunting quotas.

6.3.2 Multiple spatial scales

For interventions that do not operate at national level, it is often difficult to deal with external factors that shape land-use dynamics such as population growth, shifts in diet, migration, trade or climate change. Different stakeholders at different scales may also have very different priorities. For example, while governments at national level may set priorities to conserve biodiversity, local farmers who are struggling to feed their families will naturally have very different priorities.

6.3.3 Financial and institutional sustainability

Building a business model that involves and empowers smallholder farmers (who often operate in remote areas) requires substantial investment in business incubation. Conducting and implementing participatory land-use planning and sustaining large-scale land restoration activities also requires substantial amounts of funding over a long period of time. Developing countries lack the financial means to sustain these government-led programmes and internationally there is a lack of financing mechanisms to incubate and support forest and farm producer organisations.

6.3.4 Continuous learning and adaptative management

Compared to non-state actors, government agencies often lack the mechanisms to learn and are slow to change. All stakeholders also face the increasing uncertainties and risks posed by climate change on both agricultural production (eg drought and floods) and forest and biodiversity conservation (eg forest fires).

6.4 Future research topics

Learnings from the four case studies also highlight several potential future research topics. These were beyond the scope of this research but are important for better management of land-use trade-offs in the future.

6.4.1 Equity in trade-off management

With an ecosystem-services framing of trade-offs, the tendency is to consider outcomes at an aggregate level (the outcome is overall win-win or win-lose etc). But what is the extent and nature of differences in outcomes across different social groups (who are the winners and losers)? How can these concerns be effectively communicated to decision makers? And how can more equitable approaches be promoted? In other words, what are the enabling conditions for more equitable outcomes?

6.4.2 What types of land and land-user rights are effective in managing land-use trade-offs?

Clear land and land-user rights are important to provide incentives for better land-use management in the long term. But it is not clear how different types of land and land-user rights compare in managing land-use trade-offs. Different types of land and land-user rights are used in the four cases:

- COMACO's approach is based on customary land rights and clarifies land-user rights through voluntary conservation agreements with communities.
- In the DNPW case study, participatory land-use planning uses national policies on GMAs to guide the land-use planning process, which further clarifies land-user rights on communally owned customary land.
- SLMP's land certification programme issues individual land-use titles while supporting those individuals to work together at community level to develop land-use plans collectively.
- BMERP utilities joint forest management agreements to set out user rights and land-use responsibilities for communities in government-owned forests.

All cases seem to indicate that it is important to have a common pool of resources and collective responsibilities to better manage competing land-use needs. Future research can gather further evidence to understand the pros and cons of different types of land and land-user rights arrangements in managing land-use trade-offs.

6.4.3 Impacts of gender equality

How does gender equality impact land-use management practices? How does it impact land-use trade-offs? Since 2016, Ethiopia's land registration law demands that land certificates are jointly held in the names of both husbands and wives. This is empowering women as land stewards and gives them more power to influence their children as they now have the power to decide how family land is inherited. This is changing power dynamics and has major implications for trade-off management at household level because women very often have different priorities to men in terms of land use. Exactly what the differences are and the extent to which these differences affect land-use trade-off management will vary greatly according to the context. As well as affecting decisions in any one year, the empowerment of women may also affect trade-off decisions that have an important temporal dimension. Women tend to take a longer-term view of household livelihood security – for example, how much time/effort is invested in soil conservation measures or tree-planting, or how household finance is managed (eg through saving and loan schemes). There seems to be a clear need for research on this issue to determine the extent to which gender equality (for example through land tenure) affects trade-off management and more broadly the uptake of sustainable land-management practices.

6.4.4 Impacts of youth engagement

How are youth engaged in land-use management? How does youth engagement impact on land-use trade-offs? Like women, youth may have different land-use priorities but are crucially important to engage for the long-term management of land-use trade-offs. It is not clear how they are currently engaged in land-use management in each case nor how their inclusion or exclusion will affect land-use decisions or managing land-use trade-offs in the future.

6.4.5 Exploring product diversity and effective business models

Why and when is it important to diversify agricultural and forest products for the better management of land-use trade-offs? Which business models can enable a diverse range of sustainably produced products? COMACO's case highlighted the importance of having a diverse range of agricultural and forest products to provide balanced incentives for integrated land uses and to adapt to climate change. But is diversification important in other contexts? What other evidence can support the need for diversification? When does it

make economic and environmental sense to diversify? Given most of the business models are built around specialisation and monoculture agriculture to be cost-effective, what are the business models that can enable profitable enterprises built around a diverse range of sustainably produced products from a mosaic landscape?

6.4.6 What is 'better'?

What does better management of trade-offs actually mean – better for whom? Better than what – the situation before the project or the situation that would have been likely in the absence of the project? How can this be represented in a conceptual or analytical framework for trade-off analysis? And what tools can effectively work with this concept and communicate results to decision makers?

Our research has focused on enabling conditions rather than trying to understand to what extent, how, and for whom the case studies have delivered better trade-off management (which all have done, to some extent). A more nuanced understanding of the different ways in which trade-off management becomes better or worse could provide a better understanding of how different enabling conditions contribute to different social (and environmental) outcomes.

Appendices

Appendix 1. Members of the SNAPP Working Group on Food Production and Forest Conservation in sub-Saharan Africa

	NAME	ORGANISATION	COUNTRY
1	Anne Trainor	The Nature Conservancy (TNC)*	USA
2	Barbara Adolph	Agroecology Team, IIED*	UK
3	Charles Meshack	Tanzania Forest Conservation Group*	Tanzania
4	Daniel Gusenbauer	GIZ research associate	Germany
5	Dora Neina	University of Ghana*	Ghana
6	Dorothy Effa	Alliance for a Green Revolution in Africa	Ghana
7	Elizabeth King	University of Georgia, USA	USA
8	Elizabeth Robinson	University of Reading	UK
9	Ezra Berkhout	Netherlands Environmental Agency*	Netherlands
10	Habte Mariam Kassa	Centre for International Forestry Research (CIFOR), Ethiopia*	Ethiopia
11	Jacob Mwitwa	Copperbelt University, Zambia*	Zambia
12	Joseph Tobias	Imperial College*	UK
13	Lucy Magembe	The Nature Conservancy (TNC)*	Tanzania
14	Marieke Sassen	Wageningen University/World Conservation Monitoring Centre*	Netherlands
15	Melanie Ryan	Luc Hoffmann Institute	UK
16	Mutinta Malambo	Zambia Agricultural Research Institute	Zambia
17	Nugun Jellason	University of Reading	UK
18	Phil Franks	Biodiversity Team, IIED*	UK
19	Sam Barrett	Agroecology Team, IIED	UK
20	Syed Amir Manzoor	University of Reading	UK
21	Tagel Gebrehiwot	Ethiopian Development Research Institute*	Ethiopia
22	Timothy Thomas	International Food Policy Research Institute (IFPRI)*	USA
23	Unai Pascual	Basque Centre for Climate Change*	Spain
24	Xiaoting Hou-Jones	Biodiversity Team, IIED	UK

* Denotes those who have been members of the working group since its inception.

Appendix 2. Comparison of the ten enabling conditions identified with the ten principles of Sayer *et al.* (2013)

	TEN ENABLING CONDITIONS	TEN PRINCIPLES (SAYER *et al.* 2013)	DIFFERENCES AND WHY
Objectives	To better manage land-use trade-offs between food production and forest and biodiversity conservation	To reconcile agriculture, conservation and other competing land uses through a landscape approach	Ten principles have broader objectives encompassing all competing land uses
1	Understanding and reconciling competing land-use needs	Multifunctionality	While the ten principles focus on multiple competing land uses, our research focused on two explicit competing land-use objectives and how to better manage the trade-offs. We reframed the enabling condition to focus on the two competing land-use objectives
2	Building trust among key stakeholders	Common concern entry point	While using a common concern entry point is a good approach to engage key stakeholders and build trust, the four case studies in this research all illustrated that there are also other approaches to building trust. We adapted it to reflect the fundamental objective underpinning this enabling condition – building trust rather than focusing on a single entry point
3	Engaging multiple stakeholders	Multiple stakeholders	N/A
4	Clear land rights, responsibilities and accountability	Clarification of rights and responsibilities	Four case studies illustrated that the most important rights and responsibilities to clarify were related to land (either ownership or user rights). To uphold those rights and responsibilities, there must also be an accountability system in place
5	Transparent and fair benefits and costs	Negotiated and transparent change logic	When interviewing key stakeholders for all four cases, we felt that 'change logic' was too vague a concept to grasp. The most fundamental issue was to have transparent and fair benefits and costs in order to incentivise change
6	Strengthened stakeholder capacities	Strengthened stakeholder capacity	N/A
7	Participatory and user-friendly monitoring	Participatory and user-friendly monitoring	N/A
8	Multiple spatial scale	Multiple scale	N/A
9	Financial and institutional sustainability	Resilience	'Resilience' is a very broad concept. Rather than a principle or enabling condition, it is an ultimate outcome that better management of competing land-uses and many other principles/enabling conditions can contribute to. For example, continuous learning and adaptive management can help deliver resilience. Based on the four case-study results, to deliver resilience, in addition to the other enabling conditions, another distinctive condition is the financial and institutional sustainability to enable long-term actions
10	Continuous learning and adaptative management	Continuous learning and adaptative management	N/A

References

Agarwal, B (2009) Gender and forest conservation: the impact of women's participation in community forest governance. *Ecological Economics* 68(11): 2,785–2,799.

Campbell, BM, Sayer, JA and Walker, B (2010) Navigating trade-offs: working for conservation and development outcomes. *Ecology and Society* 15(2): 16. www.ecologyandsociety.org/vol15/iss2/art16

Changemakers, Community Markets for Conservation (COMACO), www.changemakers.com/ashoka-fellows/entries/community-markets-conservation-comaco

Chemonics International Inc (2011) Situational and livelihoods analysis study in nine game management areas, surrounding the Kafue National Park, Zambia. Millennium Challenge Corporation, Washington DC, USA. http://bit.ly/2l6v66m

COMACO (2018a) 2019–23 COMACO strategic plan.

COMACO (2018b) 2017 COMACO factsheet: an annual summary of results and impacts.

COMACO, www.itswild.org/index.php/about-us

CSO (2016) Zambia's 2015 living conditions and monitoring survey. Ministry of Finance, Lusaka.

Day, M, Gumbo, D, Moombe, KB, Wijaya, A and Sunderland, T (2014) Zambia country profile: monitoring, reporting and verification for REDD+. Occasional Paper 113. Bogor, Indonesia: CIFOR. http://bit.ly/2FfayqD

Díaz, S, Demissew, S, Carabias, J, Joly, C, Lonsdale, M, Ash, N, Larigauderie, A, Adhikari, JR, Arico, S, Báldi, A, Bartuska, A, Baste, IA, Bilgin, A, Brondizio, E, Chan, KM, Figueroa, VE, Duraiappah, A, Fischer, M, Hill, R, Koetz, T, Leadley, P, Lyver, P, Mace, GM, Martin-Lopez, B, Okumura, M, Pacheco, D, Pascual, U, Pérez, ES, Reyers, B, Roth, E, Saito, O, Scholes, RJ, Sharma, N, Tallis, H, Thaman, R, Watson, R, Yahara, T, Hamid, ZA, Akosim, C, Al-Hafedh, Y, Allahverdiyev, R, Amankwah, E, Asah, ST, Asfaw, Z, Bartus, G, Brooks, LA, Caillaux, J, Dalle, G, Darnaedi, D, Driver, A, Erpul, G, Escobar-Eyzaguirre, P, Failler, P, Fouda, AMM, Fu, B, Gundimeda, H, Hashimoto, S, Homer, F, Lavorel, S, Lichtenstein, G, Mala, WA, Mandivenyi, W, Matczak, P, Mbizvo, C, Mehrdadi, M, Metzger, JP, Mikissa, JB, Moller, H, Mooney, HA, Mumby, P, Nagendra, H, Nesshover, C, Oteng-Yeboah, AA, Pataki, G, Roué, M, Rubis, J, Schultz, M, Smith, P, Sumaila, R, Takeuchi, K, Thomas, S, Verma, M, Yeo-Chang, Y and Zlatanova, D (2015) The IPBES conceptual framework – connecting nature and people. *Current Opinion in Environmental Sustainability* 14: 1–16. http://bit.ly/2F2eomV

FAO (2018a) The state of the world's forests 2018: forest pathway to sustainable development. FAO, Rome. www.fao.org/3/I9535EN/i9535en.pdf

FAO (2018b) Guidelines on sustainable forest management in drylands of Ethiopia. FAO, Rome. www.cifor.org/library/7219/

FAOSTAT (2018) FAO statistics database. Food and Agriculture Organization, Rome. www.fao.org//faostat/en/#data

Fernandez A, Richardson, RB, Tschirley, DL and Tembo, G (2009) Wildlife conservation in Zambia: Impacts on rural household welfare. https://ideas.repec.org/p/ags/midcwp/55053.html

Forest Trends (2017) Fertile ground: state of forest carbon finance 2017. www.forest-trends.org/publications/fertile-ground

Franks, P, Hou-Jones, X, Fikreyesus, D, Sintayehu, M, Mamuye, S, Danso, E, Meshack, C, McNicol, I and van Soesbergen, A (2017) Reconciling forest conservation with food production in sub-Saharan Africa: case studies from Ethiopia, Ghana and Tanzania. IIED, London. http://pubs.iied.org/17605IIED

GEF (2013) Strengthening management effectiveness and generating multiple environmental benefits within and around the Greater Kafue National Park in Zambia. http://bit.ly/2wHphG0

GIZ (2015) GIZ Ethiopia: lessons and experiences in sustainable land management. www.giz.de/en/worldwide/18912.html

GRZ (2016) Second national agricultural policy. Ministry of Agriculture and Ministry of Fisheries and Livestock, Lusaka.

Hirsch, PD and Brosius, JP (2013) Navigating complex trade-offs in conservation and development: an integrative framework. *Interdisciplinary Studies* (31): 99–122.

Huber-Stearns, HR, Bennett, DE, Posner, S, Richards, RC, Fair, JH, Cousins, SJM and Romulo, CL (2017) Social-ecological enabling conditions for payments for

ecosystem services. *Ecology and Society* 22(1): 18. https://doi.org/10.5751/ES-08979-220118

Lewis D, Zulu T, Seulu J, Zulu E, Mumba R, Linyunga K, Makunga A, Tembo N, Hall S, Ngumayo J, and Banda W (2018) Farming for food and conservation: how small-scale farmers, food processing, and a business partner can restore a landscape.

Lewis D, Zulu T, Seulu J, Zulu E, Tembo N, and Banda W (2018b) COMACO wildlife impact assessment.

Lewis, D, Bell, SD, Fay, J, Bothi, KL, Gatere, L, Kabila, M, Mukamba, M, Matokwani, E, Mushimbalume, M, Moraru, CI, Lehmann, J, Lassoie, J, Wolfe, D, Lee, DR, Buck, L and Travis, AJ (2011) Community Markets for Conservation (COMACO) links biodiversity conservation with sustainable improvements in livelihoods and food production (2011) *Proceedings of the National Academy of Sciences of the United States of America (PNAS)* 108(34). www.pnas.org/content/108/34/13957_

Lindsey, PA, Nyirenda, VR, Barnes, JI, Becker, MS, McRobb, R, Tambling, CJ, Taylor, WA, Watson, FG and t'Sas-Rolfes, M (2014) Underperformance of African protected area networks and the case for new conservation models: insights from Zambia. *PLOS One.* https://doi.org/10.1371/journal.pone.0094109

Mayes, M (2018) Land cover change analyses for conservation land-use planning in Zambia. Unpublished data, TNC.

McShane, TO, Hirsch, PD, Trung, TC, Songorwa, AN, Kinzig, A, Monteferri, B, Mutekanga, D, Thang, HV, Dammert, JL, Pulgar-Vidal, M, Welch-Devine, M, Peter Brosius, J, Coppolillo, P, O'Connor, S (2011) Hard choices: making trade-offs between biodiversity conservation and human wellbeing. *Biological Conservation* 144(3): 966–972. http://bit.ly/2WyWOBB

MEFCC (2017) Proposal for REDD+ investment in Ethiopia (2017–2020).

Ministry of Agriculture (2017) Crop forecasting survey results for 2016/2017 agricultural season. www.parliament.gov.zm/node/6386

Mitiku, H, Herweg, K and Stillhardt, B (2006) Sustainable land management: a new approach to soil and water conservation in Ethiopia. Mekelle University, CDE and University of Bern. https://boris.unibe.ch/19217

MLNREP (2014) Second national communication to the United Nations Framework Convention on Climate Change 2000–2004.

MOANR (2017) Integrated local level participatory land use planning manual. Government of Ethiopia.

MoARD (2010) Ethiopian strategic investment framework. Government of Ethiopia.

Lemenih, M and Biot, Y (2017) Reducing deforestation and emissions in Bale: what's the incentive for local communities? Farm Africa. http://bit.ly/2MCPUa5

NCRC and Rainforest Alliance (2012) Case studies of existing smallholder- and community-led carbon projects in Africa: a review and analysis of governance and institutional structures and challenges and successes encountered by smallholder- and community-led carbon projects. http://bit.ly/2KDPX2x

Nhantumbo, I, Hou-Jones, X, Bolin, A and Warren, G (2016) Unlocking barriers to financing sustainable SMEs: uphill struggle or attainable ambition? http://pubs.iied.org/17387IIED/

Nyirenda, VR (2011) Community based natural resource management: stocktaking assessment: Zambia profile. USAID. http://bit.ly/2K5GOAr

Office of Auditor-General (2015) Report on Sustainable Forest Management, Lusaka.

OFWE (2013) Bale Mountains Eco-Region REDD+ Project. OFWE, Ethiopia.

OFWE (2016) Bale Mountains Eco-Region REDD+ Project monitoring & implementation report. OFWE, Ethiopia.

OFWE (2017) Bale Mountains Eco-Region REDD+ Project. OFWE, Ethiopia.

Ostrom, E (2009) A general framework for analyzing sustainability of social-ecological systems. *Science* 325: 419–422. https://doi.org/10.1126/science.1172133

Pretty, JN, Guijt, I, Thompson, J and Scoones, I (1995) Participatory learning and action: a trainer's guide. IIED, London. https://pubs.iied.org/6021IIED

Sayer, J, Sunderland, T, Ghazoul, J, Pfund, J-L, Sheil, D, Meijaard, E, Venter, M, Boedhihartono, AK, Day, M, Garcia, C, van Oosten, C and Buck, LE (2013) Ten principles for a landscape approach to reconciling agriculture, conservation, and other competing land uses. *Proceedings of the National Academy of Sciences of the United States of America* 110(21): 8,349–8,356. www.pnas.org/content/110/21/8349

Schmidt, E and Tadesse, F (2017) The Sustainable Land Management Program in the Ethiopian highlands: an evaluation of its impact on crop production. EDRI and IFPRI. http://bit.ly/2X1tlQ4

Sichilongo, M, Mulozi, P, Mbewe, B, Machala, C and Pavy, JM (2012) Zambian wildlife sector policy: situation analysis and recommendations for a future policy. Africa Technical Environment and Natural Resources Unit, World Bank, Lusaka. http://bit.ly/2IuyKpx

SLMP (2018) Environmental and Social Management Framework for Resilient Landscape and Livelihoods Project. MoANR, Government of Ethiopia. http://documents.worldbank.org/curated/en/807561528363713915/Environmental-and-Social-Management-Framework

Sommerville M, Mercedes Stickler, M, Norfolk, S, Mothers, T and Brooks, S (2016) 'Documenting customary land rights in Zambia: a low-cost open source approach.' Paper prepared for presentation at the 2016 World Bank Conference on Land and Poverty, 14–18 March 2016. http://bit.ly/2Zec43J

Subakanya, M, Tembo, G, Richardson, RB (2018) Land use planning and wildlife-inflicted crop damage in Zambia. *Environments* 5(10): 110. www.mdpi.com/2076-3298/5/10/110

The REDD Desk (2018) Bale Mountains Eco-Region REDD+ project. https://theredddesk.org/countries/initiatives/bale-mountains-eco-region-redd-project

TNC (2018) Land cover change analyses for conservation land-use planning in Zambia

UNDP (2012) Community Markets for Conservation (COMACO), Zambia. Equator Initiative Case Studies. http://bit.ly/31mssB9

USAID (2010) Zambia Environmental Threats and Opportunities Assessment (ETOA). http://bit.ly/2K71U1h

USAID (2015) Greenhouse gas emissions factsheet: Ethiopia. http://bit.ly/2F10Dom

USAID LandLinks, Zambia. https://www.land-links.org/country-profile/zambia

World Bank (2014) International Development Association (IDA) project appraisal document on Sustainable Land Management Project 2 (SLMP-2) Ethiopia. http://documents.worldbank.org/curated/en/856611468244777857/Ethiopia-Sustainable-Land-Management-Project

World Bank (2018) Project information document/integrated safeguards data sheet (PID/ISDS): Ethiopia resilient landscapes and livelihoods project. http://bit.ly/2I4tw4V

World Bank (2018b) Sustainable Land Management Project (P133133). http://bit.ly/2ImARgz

World Population Review, World population by country, http://worldpopulationreview.com/

ZAWA (2012) Lunga Luswishi game management area general management plan 2013–2023.

ZAWA (2015) Dry season survey of large herbivores for Kafue and Luangwa ecosystems. Preliminary report.

Related reading

Reconciling forest conservation with food production in sub-Sahara Africa: case studies from Ethiopia, Ghana and Tanzania (2017). IIED Research Report.

https://pubs.iied.org/17605IIED/

Managing trade-offs between growing food and conserving forests in sub-Sahara Africa (2016). IIED Briefing.

https://pubs.iied.org/17412IIED/

Food vs forests in sub-Sahara Africa: a challenge for SDGs (2015). IIED Briefing.

https://pubs.iied.org/17322IIED/

Acronyms

BERSMP	Bale Eco-Region Sustainable Management Programme
BMER	Bale Mountains Eco-region, Ethiopia
BMERP	Bale Mountains Eco-region REDD+ Project
CBNRM	Community-based natural resource management
CCA	Community conservation areas
CIFOR	Centre for International Forestry Research
COMACO	Community Market for Conservation
CRB	Community resource board
CRGE	Climate-Resilient Green Economy Facility, Ethiopia
DNPW	Department of National Parks and Wildlife, Zambia
ESS	Environmental and social safeguards
FPIC	Free, prior and informed consent **or** free, prior and informed consultation[9]
FTC	Farmers' training centres
GEF	Global Environment Facility
GHG	Greenhouse gases
GMAs	Game management areas
GMPs	General management plans
GRG	SAGCOT's Green Reference Group
GTP	Growth and Transformation Plan
IDA	International Development Association
IIED	International Institute for Environment and Development
ILM	Integrated landscape management
JFMAs	Joint forest management agreements
LLGMA	Lunga-Luswishi Game Management Area, Ethiopia
M&E	Monitoring and evaluation
MEFCC	Ministry of Environment, Forest and Climate Change, Ethiopia
MoANR	Ministry of Agriculture and Natural Resources, Ethiopia
MoWIE	Ministry of Water, Irrigation and Energy, Ethiopia
NGO	Non-governmental organisation
NSC	National Steering Committee, Ethiopia
NTC	National Technical Committee, Ethiopia
NTFPs	Non-timber forest products
OFWE	Oromia Forest and Wildlife Enterprise, Ethiopia
PES	Payments for environmental services
PFM	Participatory forest management
PGs	Producer groups
PLUP	Participatory land-use planning
PPF	Production possibility frontier
RSCs	Regional steering committees
REDD+	Reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries
RLLP	Resilient Landscapes and Livelihoods Project, Ethiopia
SAGCOT	Southern Agricultural Growth Corridor of Tanzania
SLMP	Sustainable Land Management Programme, Ethiopia
SNAPP	Science for Nature and People Partnership
SSA	sub-Saharan Africa
TNC	The Nature Conservancy
VAG	Village action group
WSC	Woreda steering committees, Ethiopia
ZAWA	Zambia Wildlife Authority

[9] See Section 5.3.2 for the distinction between the two terms used in this paper

Food demand in sub-Saharan Africa (SSA) is projected to more than double between 2018 and 2050. Historically, increasing food demand has been met largely through agricultural expansion – but at the expense of forests and biodiversity. To better manage competing land-use objectives for agricultural production and forest conservation, SSA countries need to look beyond technological solutions. They must adopt holistic approaches suitable for their political, economic and social contexts. This working paper aims to inspire and stimulate discussion and research on practical ways forward for SSA countries to better manage competing land-use objectives. It analyses four case studies from Ethiopia and Zambia and identifies common lessons learnt including ten enabling conditions and tried-and-tested approaches for managing trade-offs between increasing food production and forest conservation. It also highlights several important potential future research topics.

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