

## Understanding the winners and losers of agricultural expansion in Ghana

Ghana's population is forecast to double by 2050, resulting in an increased need for food provision. Much of this will be achieved through agricultural expansion. But what are the impacts? Who benefits or loses – and why? How will agricultural expansion ultimately affect food security?

### Impacts of agricultural expansion on livelihoods

In Ghana, agricultural expansion is leading to the loss of natural habitats such as forests, woodlands and grasslands and the direct and indirect benefits derivable from these natural habitats. But, driven by necessity and the desire to improve their lives, farmers continue expanding their fields into natural habitats. The short-term benefit for those expanding is obvious – more land to cultivate and more crops to produce for consumption or sale, but what are the consequences for the livelihoods of rural people overall? Who wins and who loses from expansion of farmland?

Many rural households are interested in increasing their agricultural production. Often, they must choose between increasing investment on existing land (intensification) or expanding into uncultivated land. But while the decision of one farmer to expand might have little impact on the landscape and livelihoods of other farmers, the collective

decisions of many farmers to expand (rather than intensify) results in a complex pattern of 'winners' and 'losers' that can evolve over time.

By implication, those households involved in agricultural expansion may derive benefits directly from their actions, while those dependent on services and products from the forests, woodlands and grasslands may be affected negatively by their loss. This can also lead to 'winners' and 'losers' within the same household, depending on individual roles within a household or community. And what appears as a benefit in the short-term to a particular group may be a loss in the long-term to all the groups in the community.

It is important to recognise the differential impacts of agricultural expansion and to identify the most effective ways of managing these impacts in different contexts, involving all those affected. This should help ensure that some community members are not disadvantaged by expansion, further widening the inequality gap. Instead, more inclusive common resource management policies should be promoted, drawing on the work of Ostrom (see Box 2).

### Summary

In Ghana, a key agriculture policy goal is to provide food and jobs for its growing population.<sup>3</sup> There is an urgent need for a national-level strategy to manage agricultural expansion while also targeting inequality at the community level. Policymakers should consider reviewing the status of existing protected areas and community-based land-use planning for common forest resources to improve land management and productivity on existing farmland.

### Background

This policy brief examines the impact of agricultural expansion based on the perceptions of different types of farmer. Over the last four years, the Sentinel project has engaged with stakeholders and communities in the Western and Upper West regions of Ghana to explore how communities interact with natural habitats and to understand perspectives on the political economy of natural habitat management.



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## Box 1. Ghana: key statistics

- Ghana's population is about 29 million people, growing at the rate of 2.2% per annum<sup>1</sup> and approximately 45% of the population depend on agriculture for their livelihoods.<sup>4</sup>
- Forest covers about 37% of total land in Ghana with a deforestation rate of about 3% per year, among the highest in Africa.<sup>2,5</sup>
- About 24.2% of the population lives below the poverty line and poverty is the leading cause of hunger and malnutrition.<sup>4</sup>
- Approximately 11 million people live in forest locations, with about two-thirds depending on the forest for their livelihoods.<sup>6</sup>

## Farmer perceptions of winners and losers of agricultural expansion

The Sentinel project conducted research in two communities over 2020–21 within two study districts in the Western and Upper West regions of Ghana (see Figure 1 for approximate locations). We used a household survey with a sample size of 200 households per site, quantitative and qualitative research methods, gender- and age-disaggregated focus group discussions, visualisations and ranking. During this research we engaged with different groups of farmers based on gender (women and men) and age (youth and adults). Using wealth categorisation exercises with community leaders, we grouped households by wealth indicators generated by the community participants as wealthy, moderately wealthy and poor.

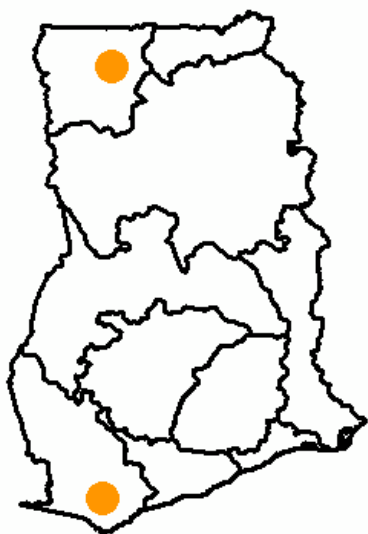


Figure 1. Approximate locations of the study sites (exact locations are withheld to maintain anonymity of the communities)

Agricultural expansion into forests and other natural habitats increases farmland. Our household survey in Ghana demonstrated that farmers perceive a significant trend of this agricultural expansion into forest land (see Figure 2).<sup>7</sup> Some of this expansion is driven by commercial agriculture in the Western region, but much of it is caused by smallholder farmers growing food and cash crops.<sup>5</sup>

## Declining soil fertility and forest resources

Our research participants perceived various land-use or land-cover changes in their communities (Figure 2). Participants noted that increasing their farm size to provide young farmers with a plot of land of their own to cultivate is an important way of securing rural livelihoods. More land means a greater potential to grow crops for food and cash, and to keep up with population growth and market demand.

In the communities we studied, the farmers we spoke to had opened up farmland in the forest in the years preceding our survey. However, the soil fertility and productivity of newly cleared land often degraded quickly, producing much less than its potential. In some cases, land was abandoned because of soil degradation due to poor land management. Consequently, increasing the area under cultivation has not necessarily increased the overall production of crops – although it may just compensate for the productivity lost.

We also found that many rural households – in particular poorer ones – depend on forest resources for their livelihoods (both timber and non-timber forest products or NTFPs). These include fuelwood, building materials, medicinal plants, fruits and other edible plants, honey, and fodder. Women mostly rely on fuelwood, men on the availability of building materials, and both men and youth on honey for their livelihoods. All of the community benefits from medicinal plants, fruits and other edible plants. However, participants also reported the loss of many medicinal herbs and trees. Community 2's local herbalist had had to hire labourers to search the forest for previously common medicinal plants. One participant stated:

*Through the expansion of farmlands, we end up clearing all herbal plants that our forefathers used for medicinal purposes. Those that grow up in our farms too are destroyed by weedicides. As a result, we do not currently have such herbal plants in our community. Some noticeable herbal plants that were formerly used by our parents but not currently available in our community include acheampong, ntumrum, abekempon, sumpi, nkwadaa nkwadaa borodi, yennya and tuantini.*

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Farmers in Community 2 also linked declining soil fertility to a decrease in forest wildlife (as wild animal droppings enhance soil fertility and encourage natural regeneration) and in communal grazing areas for domestic livestock, and to their lack of sufficient income to purchase chemical fertilisers. The forest also provides the fuelwood that the women collect to be able to cook for their families.

## Damaged ecosystem services

There are also other intangible benefits that affect the whole community: ecosystem services such as pollination, water regulation and purification, erosion control, and carbon storage and climate regulation. But as more forest is turned into farmland, tipping points may be reached, beyond which these ecosystem services will disappear or be irreversibly damaged. This will affect

everyone currently deriving benefits from the forest. Table 1 shows some potential winners and losers of agricultural expansion and types of gains/losses, as conceptualised.

Farmers are aware of these differential impacts to some extent. For example, they reported that water bodies in Community 2 dry up in the dry season. Almost all the tube wells also dry up, meaning less drinking water for livestock. In the long-term, women and children are the worst affected because they travel long distances to fetch water. In addition, due to rapid agricultural expansion, tall trees that once served as windbreaks to prevent storm damage have been felled, leaving community properties highly vulnerable.

Table 1. Differential impacts of agricultural expansion according to timescales

Impact of expansion	Time frame of impact	Group affected and nature of impact (positive, negative, neutral)	
		Expander (actor with a higher level of agency/influence/power to expand)	Non-expander (actor with a lower level of agency/influence/power to expand)
Increase in agricultural production (crops and livestock) for food and income	Short	Positive	Neutral
	Medium	Positive	Potentially positive (more food to buy locally) or potentially negative (reduced income due to increase in supply and therefore lower food prices)
	Long	Potentially negative (reduced income due to increase in supply and therefore lower food prices)	
Reduced access to farmland in the future	Short	Neutral (as expansion satisfies short-term land requirement)	Negative (expansion reduces long-term benefits from ecosystem services)
	Medium	Negative	
	Long		
Loss of regulating ecosystem services (water regulation, erosion control etc)	Short	Neutral	Negative (as old land is affected by erosion and changes to water cycles)
	Medium	Negative (as both new and old land is affected by erosion and changes to water cycles)	
	Long		
Reduced access/availability of timber for construction, charcoal etc	Short	Negative (but depends on extent to which household relies on these resources for income)	Negative (but depends on extent to which household relies on these resources for income)
	Medium		
	Long		
Loss of income and other benefits from NTFPs	Short	Neutral (unlikely to depend on NTFPs in the short term)	Negative (if depending on NTFPs)
	Medium	Negative (if depending on NTFPs or purchasing NTFPs from non-expanders)	

Note: Short-term (single season), medium-term (two to five seasons); long-term (beyond 5 seasons)

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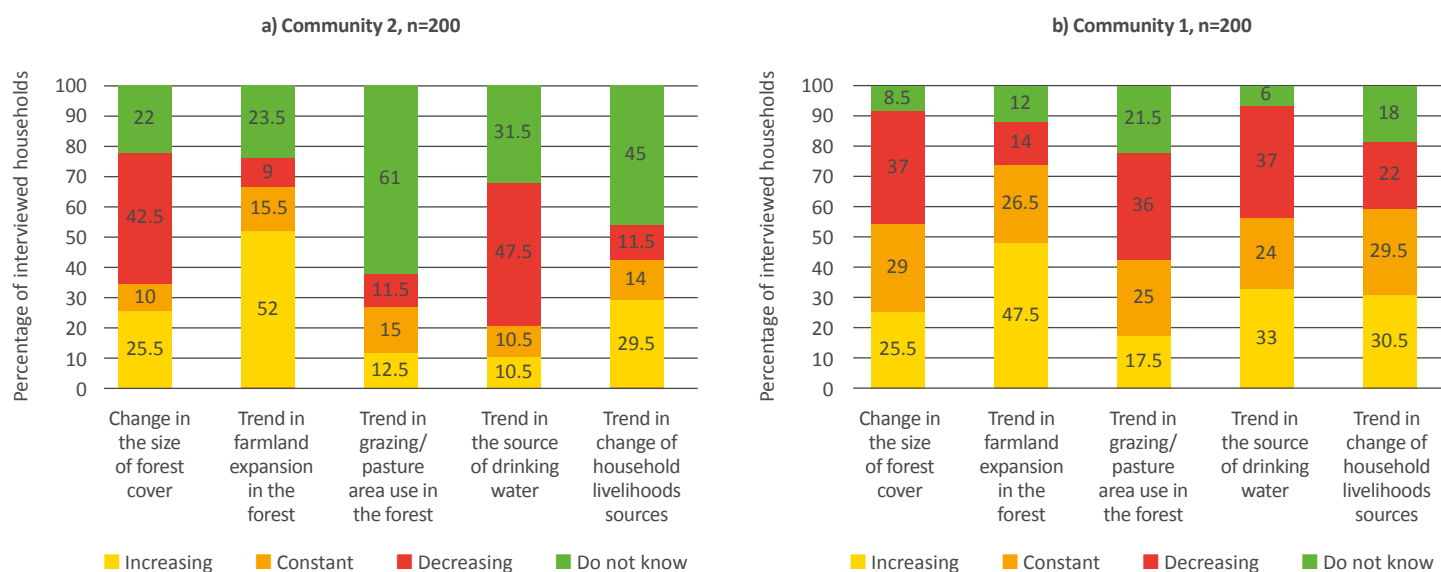


Figure 2. Household perceptions of land-use/land-cover change in (a) Community 2 and (b) Community 1 in Ghana. Data source: Sentinel Ghana household survey.

## Impacts on food security

Unsurprisingly, our participants noted that agricultural expansion had increased food production, at least in the short term. Some participants in Community 2 pointed out that staple food crops (such as maize) cannot be cultivated in the same area as already-established cocoa. Cocoa trees require partial shade, which forest canopies provide. Consequently, expansion into forestland or previously uncultivated land enables the community to continue cultivating food crops on newly expanded fertile lands. With increased food production, households can store food for later consumption and sell the surplus to provide additional income. This helps them to cater for their family's needs, especially health, education and training.

However, participants reported that well-off men are often the main beneficiaries of expansion, because they have capital to invest in cultivating large areas for commercial farming. Male farmers tend to prioritise cash-crop farming over food-crop farming, while female farmers tend to prioritise food crop farming over cash crop. One farmer in Community 2 who benefitted from expansion highlighted that:

*Our income increased when we expanded our farms, some of us were able to build our own houses and acquire some personal properties.*

Some farmers highlighted explicitly that expansion leads to an increase in income from the cultivation of cash crops:

*Through expansion, we increase the number of cash crops [such as cocoa and rubber] that we harvest yearly to increase our income from crop sales.*

However, while some farmers are able to sell part of their produce to generate income, purchase agricultural inputs and improve agricultural productivity, the benefits of agricultural expansion can be short-lived. As one participant noted,

*Although we expanded our farms, most of us plant cash crops and food crops for the first three years. However, after the third year, we cannot plant food crops again because of the canopies of cash crops such as cocoa or rubber plants. Due to this phenomenon, most of us have only cash crops on our lands and we do not have any available lands to plant food crops. This therefore leads to the reduction in food crop production in our community.*

Participants in the poor and the moderately wealthy groups we spoke to also noted that agricultural expansion could lead to food shortages in the long term. Expansion has led to the disappearance of some animal species (bushmeat) in Ghana. Participants indicated that hunting used to be an important economic activity. However, due to agricultural expansion, hunting grounds have been converted to farmland and many wild animals have disappeared. Not only have hunters lost a source of income – there is also less bushmeat to consume for community members. Since expansion is a gradual process, the impact is felt by everyone in the long term. As one participant from Community 1 indicated, sightings of wild animals are now uncommon, due to growing areas of farmland – and future generations may never see some of these species.

*Our grandparents farmed on a smaller scale such as on one or two acres and this enabled wild animals to freely move. But these days with the introduction of technology farmers can cultivate more acres of land and therefore they have limited spaces for the wild animals to move around. Hunters do not get animals to hunt as the animals have disappeared due to agricultural expansion, thereby reducing the activities of hunters.*

Participants in Community 2 also recounted that in the past, wild fruits were very common. The seeds from fruit trees on nearby fallow lands or secondary forests were dispersed on farmlands

after being consumed by wild animals such as birds and squirrels. In Community 1, wild fruits like the shea nut are collected and sold to supplement income. However, agricultural expansion has contributed to the reduction in wild fruits such as shea, which was previously in abundance. Shea fruits are an important source of food for farmers while working in the fields. Women also depend on wild edible fruits from the forest for income during the rainy season. However, according to participants in Community 1, shea is now found only in the forest reserve area, where entry to collect wild fruits is prohibited. This decline means farmers will be affected in the medium term.

Some participants in Community 1 also reported that changes in rainfall patterns affect production. Farmers do not know when the rains will start or end, hence affecting planting decisions, a problem which affects all farmers and their communities. In the short term, crops start to show signs of poor growth from the lack of water. Regular rainfall improves food production, leading to an abundance of food in the community and decreasing food prices, so those who depend on local food markets enjoy the benefits of low prices. But without regular rainfall, the ground is hard to till and there is insufficient water for livestock. As one Community 1 participant noted,

*The change in rainfall pattern affects yields because we do not know when rains will start and end, hence affecting our planting decisions. Wrong judgement by some farmers results in poor harvest.*



## What can we do about the impacts of agricultural expansion?

The pressures on Ghana's forests will continue and are likely to grow, making it difficult to reduce expansion. The population is forecast to double by 2050,<sup>8</sup> resulting in an increased need for food. It is still possible that some of the most harmful impacts can be avoided, if the following recommendations are taken into consideration:

- A priority is to improve land management and productivity on existing farmland, and in particular by addressing land degradation via appropriate regeneration activities – we cannot afford to lose land for both farming and nature.
- Policymakers should promote community-based land-use planning that explicitly takes into account the multiple benefits from forests and factors these into decisions, which could lead to more equitable outcomes. This could involve reviewing protected area status of forests that provide high levels of ecosystem services based on Ostrom's (1990)<sup>9</sup> eight principles of managing the commons (Box 2).

### Box 2. Ostrom's eight principles for managing commons

#### 1. Commons need to have clearly defined boundaries

*It is important to clearly specify who is entitled to what*

#### 2. Rules should fit local circumstances

*Do not try to create a one-size-fits-all commons resource management system; create rules that are grounded in each local context*

#### 3. Participatory decision-making is vital

*Involve all community groups in creating the rules - this makes them more likely to be adhered to. Pay particular attention to groups that usually lack influence to ensure they are included*

#### 4. Commons must be monitored

*Agree with the community the best way to monitor adherence to the rules*

#### 5. Sanctions for those who abuse the commons should be graduated

*Include staged sanctions, utilising importance of reputation as well as warnings and/or fines to allow time for learning and adaptation*

#### 6. Conflict resolution should be easily accessible

*It is important that everyone has access to a form of mediation that is both easy to understand and affordable*

#### 7. Commons need the right to organise

*The community rules surrounding the commons must be recognised as legitimate by the relevant higher local authorities*

#### 8. Commons work best when nested within larger networks

*Dependent on the nature of the resource, these rules may need to harmonise with wider regional rules eg river management*

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- As expansion continues, benefits from natural resources will be lost, further exacerbating inequality. Our participants indicated that wealthier male farmers were better able to take advantage of agricultural expansion. Unmanaged expansion, therefore, runs the risk of both embedding current inequalities and exacerbating them. Policymakers must prioritise natural resources management strategies that explicitly target inequality.
- In Ghana, national-level policy has successfully helped to prevent and/or minimise forest expansion by managing forest reserves as protected areas. Policymakers should consolidate these gains by implementing land-use planning for common forest resources not already under protection to accommodate future population growth.

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