Sentinel
Social and Environmental Trade-Offs in African Agriculture

Policy Brief
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Policy disconnects: trade-offs and synergies between Ghana's national objectives to increase agricultural production and conserve nature

Achieving environmental and climate change policy goals while increasing agricultural production in Ghana is becoming increasingly difficult due to policy disconnects between sectors. These relate to trade-offs that will need to be identified and managed more effectively and equitably if the national vision for sustainable development is to be achieved, and the country is to fulfil its commitments to global biodiversity conservation and climate change mitigation goals.

Summary

Objectives to raise agricultural production and achieve self-sufficiency in staple foods are a priority for Ghana.

Policy disconnects around forms of intensification and competing land uses, among others, require identification and mitigation.

Enhancing coordination between policy sectors, land use planning and the development of policy safeguards to ward against trade-offs are potential approaches to creating a coherent and effective policy landscape.

Background

This briefing is based on a review of relevant national-level policies and recent research evidence from Ghana, supported by key informant interviews with individuals within the agricultural and natural resource management sectors across government, policy and research. Policies were analysed based on two questions:

1) How does Ghana intend to meet current and future food needs?
2) How do strategies to increase food and agricultural production create trade-offs or synergies with other policy objectives?

Increasing agricultural production and achieving self-sufficiency

Goals to increase agricultural productivity and production are central to Ghana's agricultural strategy and to the wider national development agenda. To date, agricultural growth is thought to have largely been driven by land expansion rather than agricultural intensification, with yields and land productivity only seeing moderate growth since 1991.[1] Current strategies to raise production encompass both intensification and expansion, although the former is the more dominant discourse found in national

Policy disconnects

Based on the wording of current or recent national policy in Ghana, the following very significant disconnects have been recognised:

- Objectives to remove some 324 million trees by 2027[2] may be at odds with objectives to plant trees,[3] increase tree cover and reduce the loss of forest.[4]
- Objectives to increase fertiliser use through subsidies[5] may be at odds with objectives to phase out subsidies for inputs harmful to biodiversity.[6]
- Objectives to increase cropland area[7] may be at odds with objectives to intensify agriculture to reduce the need to expand farmland and make space for afforestation.[8]

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Definitions

Trade-offs occur where achieving more of one objective results in achieving less of another.

Synergies occur where achievements towards one objective also contribute to achieving a different objective.

Policy disconnects occur when policies, strategies, plans, institutions, processes and objectives within policies do not work in harmony or towards a shared vision, leading to trade-offs. Disconnects may be due to differing priorities at different scales of policy; an imbalance in the division of responsibility between national and lower levels of governance; and mismatches between responsibilities and resource distribution across scales (Adapted from Franks et al., 2017).[9]

Intensification is an increase in agricultural production per unit of inputs (consisting of labour, land, time, fertiliser, seed, feed and/or cash).[10]

policy. Intensification efforts revolve around increasing the use of fertilisers and improved seeds, as well as increasing mechanisation and irrigation coverage, improving access to extension services, select value chain development and reducing post-harvest losses. This is presented in the context of agricultural modernisation, economic development, job creation and food production.

Agricultural production goals are largely to be achieved through the Ministry of Food and Agriculture's flagship programmes, including Planting for Food and Jobs (PFJ), Rearing for Food and Jobs (RFJ) and Planting for Export and Development (PERD).[11] Despite the government's fertiliser subsidy under the PFJ comprising a substantial proportion of its national budget, yields remain low and any yield gains are likely to be unsustainable over time with ongoing soil degradation and climate change.[12] Indeed the reliance on increasing fertiliser use as the main strategy to increase staple crop production has been criticised widely. These critics recommend that the PFJ campaign be reformed to include subsidies for organic fertiliser, as well as incentives to adopt integrated soil fertility management (ISFM) and climate smart agriculture (CSA) practices.[13] This is important as land becomes scarcer and households are forced to use the same land for farming each year, and for Ghana in particular, which has soils inherently low in fertility and a high rate of soil nutrient depletion compared to other countries in sub-Saharan Africa.[14] Rapidly increasing prices for fertiliser, which globally have increased by about 87% since the middle of 2021, will compound the problem.[15]

Despite land scarcity, land degradation and commitments to climate change mitigation agreed at UNFCCC COP26 in November 2021 that will require conversion of natural forests and grasslands to be much reduced, agricultural expansion is being supported in national policy. Plans for expansion include the African Development Bank funded project *Technologies for African Agricultural Transformation in the Savannah (TAAT-S)*, which has the direct aim of bringing 16 million of Africa's 400 million hectares (ha) of the savannah into agricultural production, 100,000 ha of which will be in Ghana.[16,17] The National Spatial Development Framework (NSDF, 2015–2035) states that 65% of Ghana's land is suitable for agriculture and that large areas of grassland in the country (34% of land area) could be converted to agriculture. Additionally, since cropland is largely organised into small units, separated by grassland, the Ghana Zero Hunger Strategic Review (GZHSR) states that `larger and more productive farms' could be created by converting these in-between areas.[18]

Staple crop production targets detailed in policy are largely linked to achieving and maintaining national self-sufficiency over the short term as opposed to projections of future food demand, for example the FAO's projection that cereal demand will increase by a factor of 3.2 by 2050.[19,20] The goal of self-sufficiency in staple crops has become more of a priority since the 2007/08 global recession and will likely continue to be high on the political agenda due to disruptions in supply brought about by the COVID-19 pandemic and now the war in Ukraine.[21] This largely political objective can be justified as important for shielding a country from international supply issues, building national pride and growing the agricultural sector. On the other hand, many economists argue it is inefficient and can distort markets.[22] As of 2018, maize self-sufficiency was at 97%, rice at 39% and sorghum at 100%, with a goal of 100% self-sufficiency by 2023.[23] Cereal production is thought to have been declining in recent years, however, and demand for cereals is rising rapidly,[24] due both to population growth and rising demand for livestock feed.[25] Additionally, maize, sorghum and cassava are all expected to experience losses in the area of land suitable for growing under two different climate scenarios.[26]

Alongside self-sufficiency targets, the GZHSR sets the goal of doubling total agricultural yields per ha by 2030, as directed by Sustainable Development Goal 2.3, and the country also has specific targets to increase meat production and vegetable production.[27] Such objectives do not exist in a vacuum, however, and may impact, and be impacted by, other national priorities.

Exploring trade-offs between policy objectives

National policy objectives, when developed under different ministries and departments, can be in competition with one another. In Ghana, for example, the continued reliance on a fertiliser subsidy as the main driver of agricultural intensification may pose a trade-off with the pursuit of sustainable farming as well as with plans to phase out incentives for inputs harmful to biodiversity.[28] While CSA in Ghana has been found to have had a positive and significant impact on the production levels and revenues of farmers, such benefits may remain small in scale

if conventional intensification is favoured at the policy level.[29] Although numerous policies support climate smart and sustainable agriculture as a way of increasing agricultural production (as well as a way of sustaining yields under climate change, reducing greenhouse gases, protecting biodiversity and tackling land degradation), there is little discussion as to how this fits, both in terms of budget and land use planning, with more conventional strategies of intensification. More broadly, there are trade-offs between agricultural and environmental development, which may prevent both national and international commitments, such as climate mitigation targets under the UNFCCC and post-2020 biodiversity conservation goals, from being achieved.

Ghana has ambitious afforestation/reforestation targets. Approximately 625,000 ha of forest plantations are planned under the Forestry Development Master Plan (FDMP, 2016–2036) with 3.1 million ha of planted forests to be established by 2036. Some 5.2 million ha of cropland and 8.2 million ha of grassland have been found to be suitable, and it is expected that about 20% of the country's fallow and shrubland area (ie 2.68 million ha) could be sourced for forest plantation development.[30] Plantation establishment is promoted as a central strategy to increasing forest cover, boosting agricultural productivity, increasing timber production and protecting biodiversity. In 2015, Ghana also committed to restoring two million ha of forest, particularly in the Northern Savannah Ecological Zone, under the Ghana Strategic Investment Framework for Sustainable Land Management. In addition, 75% of cropland area (approximately 4 million ha) will be targeted for trees-on-farms/farm boundary planting and CSA by 2040, and some 168,000 ha of energy (biomass/fuelwood) plantations and 475,000 ha of plantations for industrial, environmental or other uses will be established.[31] These demands for land for plantations, for forest and for farming will be in direct competition with each other if not managed. Where production objectives win out, goals to reduce greenhouse gas emisions, protect biodiversity and maintain forest cover lose.

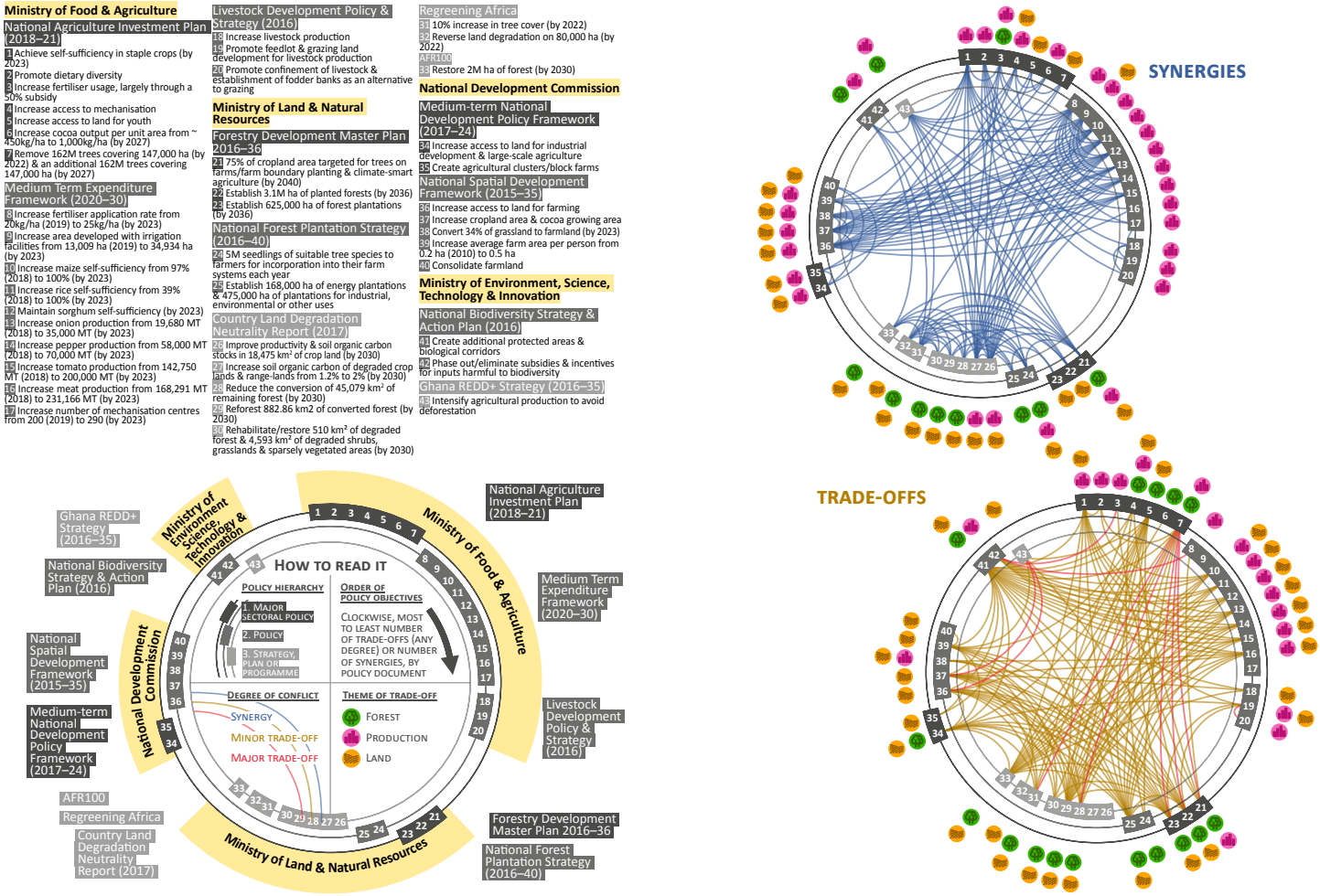
Both agricultural and environmental policies include very little mention of the relationship between farming and forests despite annual crops and tree crops causing 78% of forest loss between 1986 and 2015.[32] Across all forestry policies is the implicit assumption that trees on farms and plantation establishments will have positive impacts on food production levels, or a lack of recognition of the links to agricultural production and the modernisation plans of the Ministry of Food and Agriculture.[33] As an example, Ghana's Nationally Determined Contribution (NDC) of 2015 states that by reforesting/afforesting 20,000 ha of degraded lands each year, some 370 million tonnes of staple food will be produced annually, but it is not clear how these co-benefits have been calculated. Additionally, the Forest Investment Programme (FIP) of 2012 states that plantations are expected to "enhance food security through improved agriculture production on farmed lands to reduce forest pressures",[34] but with little detail as to how. The government's objectives to improve the productivity, profitability and competitiveness of smallholder farming may also pose a risk of motivating further agricultural expansion into natural habitats. If farming, through intensification and productivity increases, becomes more efficient and profitable, then it becomes beneficial to expand, a phenomenon known as the rebound effect or Jevons paradox, which is common in some regions of Latin America.[35] This effect, by encouraging deforestation, may negatively impact Ghana's ability to preserve and increase forest area.

Critically, goals to increase off-reserve plantation area and increase forest cover, at the expense of cropland or fallow land, seem to be in conflict with aims to conserve farmland and increase farm area, as well as aims to increase protected areas and establish biological corridors.[36] Land is also needed for expanding commercial agriculture and industrial development, as well as for livestock production. While the Livestock Development and Strategy Policy (2016) has aims to reduce pressure on land from livestock farming, it also lists developing land for grazing as an objective. Further potential trade-offs include the promotion of dietary diversity without consideration of the impact on the footprint of agriculture,[37] and a wider variety of crops may require more land than is currently farmed. The government's push to expand mechanised farming may also conflict with objectives to increase trees on farms if mechanisation is not appropriate, with it being difficult to plough with trees on the land.[38] In some instances these trade-offs are acknowledged. The 2016 National Biodiversity Strategy and Action Plan (NBSAP) states an instance where a farmer who had illegally cultivated parts of a wildlife reserve was awarded the title of best farmer for the district.[39] Largely missing, however, are approaches to mitigating such trade-offs. Certain policies mention the competing interests and lack of coordination between ministries, but offer few suggestions for overcoming these issues.

As a first step, the synergies and trade-offs between Ghana's policy objectives were mapped. Figure 1 maps a range of national policy objectives to highlight the ways in which objectives are in synergy with each other, each contributing to the same end goal, or pose a potential trade-off, where the full attainment of both objectives is unlikely. This mapping exercise captures a moment in time, given that policy is continually evolving, and one based on the assumption that all claims on land may potentially be at odds with one another if land is scarce and land use is not effectively planned and regulated.

Policy disconnects: trade-offs and synergies in Ghana

Figure 1: Trade-offs and synergies between policy objectives in Ghana



Looking ahead: key messages

- Increasing agricultural production and productivity are national priorities in Ghana.
- Ghana's policies need to address how growing food demand in the medium to longer term will be met, and what the implications might be for forests, greenhouse gas emissions and biodiversity. Can national self-sufficiency be achieved without impacting other national priorities?
- Assumptions underlying objectives in Ghana's policies need to be tested. For example, will increasing agricultural production per unit area reduce pressure on land, and will low external input farming systems, plantations and agroforestry boost production?
- Safeguards at national and local, policy and implementation levels need to be put in to place to prevent agricultural intensification leading to expansion of farmland in to natural habitats.
- It is unlikely that Ghana's national policy objectives can all be achieved simultaneously. Success in one arena may come at the expense of another, and so policymakers need to urgently consider potential trade-offs and conduct land use planning looking to the medium and longer term to identify areas for industrial farming, sustainable climate smart farming, forest protection and restoration.
- Some of the apparent contradictions in policy aims may stem from a lack of geographic specificity, for example outlining where trees will be incorporated on farms and where agricultural mechanisation will be promoted. This could then support local level customary authorities to similarly plan for high and low intensity farming as well as ecosystem restoration and protection of vulnerable habitats, including restoring abandoned land.
- The Lands Commission will need to play a central role in coordinating and planning policy objectives that affect land, and, along with other agencies of central government, must seek ways of managing trade-offs between ministries, particularly during policy formation.

- Greater coordination between sectors (eg land, forestry, agriculture, local government, tourism, urban planning, mining), who often execute their planning mandates in isolation of each other, is needed from the policy development and consultation stages to overcome unintended trade-offs between policy objectives.
- International agendas, particularly around climate mitigation and biodiversity conservation, must take into account national agricultural and production priorities, and how pursuing these may be preventing the attainment of global targets.

Addressing policy disconnects related to trade-offs and synergies between agricultural production, forestry and nature conservation is an opportunity to build more cohesive, effective and equitable policy that is better aligned with Ghana's vision for poverty reduction and sustainable development, and its international aspirations.

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