

Opinion

Transforming Ghana's agricultural sector

By Dr Bjorn Lomborg and Prof. Robert Darko Osei

AGRICULTURE is a significant contributor to the Ghanaian economy and an important source of employment, with over 40 per cent of all workers engaged in farming.

With growth and development, the country is gradually shifting away from this sector towards industry and services, but agriculture is still key for the economy and a necessary vehicle for reducing poverty and food insecurity.

Increasing agricultural output is an important policy goal of the government and can be achieved through three main mechanisms: increasing area under cultivation, improving the yield and reducing post-harvest losses, all areas in which there's currently room for improvement.

Only about 64 per cent of the total agriculture land area of Ghana is cultivated, 30 per cent of agricultural land is under mechanisation and the use of improved seeds and fertiliser is low.

Post-harvest losses are also relevant, reaching about 18 per cent of the country's annual maize production.

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Government investment could potentially increase agricultural output in these areas, but with so many areas requiring attention, where would investment do the most good for every cedi spent?

Ghana Priorities

Ghana Priorities, a collaboration between the National Development Planning Commission (NDPC) and the award-winning think tank, the Copenhagen Consensus, provides new inputs for this discussion.

Since last year, 28 teams of economists have studied over 80 initiatives to detect the smartest policies for the country not only in economic, but also social and environmental terms. The results are now being published for the benefit of all Ghana.

Production efficiency

To improve the agricultural sector's production efficiency and post-harvest management, a group of researchers, namely Robert Darko Osei, Freda Asem, Charles Yaw Okyere, Wilson Appiah-Kubi, Justina Onumah and Yaw Ofori-Appiah from the University of Ghana and Brad Wong of Copenhagen Consensus analysed the cost and benefits of improved seeds and fertiliser, irrigation and mechanisation to increase yields, and warehouses to reduce post-harvest losses.

Improved seeds can increase agricultural yields, but their use is still low in Ghana, mostly due to their high cost and lack of information among smallholder farmers.

Subsidies for improved seeds for maize production could boost their usage by 30 per cent and have a substantial effect on yield. The researchers estimated the total cost of this intervention at GHe 490 million for the highly efficient hybrid seeds and GHe 510 million for the popular open-pollinated variety (OPV), but the benefit in higher agricultural yields would be worth nearly GHe 1.8 billion with hybrid seeds and close to GHe 1.2 billion with OPV.

Every cedi spent on this

intervention would bring a return 2.3 to 3.6 times higher than the original investment.

Fertiliser use is also below the optimal levels among smallholder farmers, so the researchers examined the economic viability of maintaining the current 50 per cent subsidy so that farmers can afford the required quantities.

After five years the subsidies would gradually be lowered as farmers would benefit from higher yields. In total, the costs amount to GHe 460 million, but the intervention would increase fertiliser use by 27 per cent and result in a benefit of GHe 2 billion, over four times higher than the cost.

Water scarcity

The scarcity of water is an additional limiting factor for crops and climate change aggravates the situation, so the economists studied the possibility of rehabilitating 10 existing irrigation sites to cover a total area of 3,400 hectares.

While the government would cover the cost of rehabilitation, the cost of ongoing maintenance would be borne by farmers in the form of user fees. Implementing this programme was estimated to cost GHe 360 million over three years, but it would result in benefits worth over GHe 510 million over a 10-year period, 1.5 times the cost of the original investment.

Mechanisation is essential for improving agricultural productivity but remains low among Ghana's smallholder farmers.

An intervention to increase the area under mechanisation by 13 per cent in 10 years through purchasing additional tractors and implements to improve soil quality and higher plant growth would cost nearly GHe 430 million.

However, the benefit would be an 11 per cent increase in yields and overall agricultural output. This benefit would amount to over GHe 820 million by 2039, which means every cedi spent on this initiative would generate nearly three cedis in benefit.

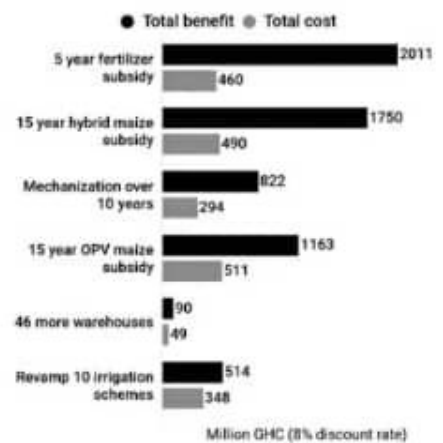
Interventions for smallholder farmers

Social value for money (benefit-cost ratio)

- 1 **4.4x Fertilizer**
Maintained 50% price subsidy increasing the usage by 27% for 5 years, then phase-out over 5 years to 26% price subsidy
- 2 **3.6x Hybrid maize seeds**
Price subsidy for improved seeds by 50% resulting in 11% annual usage growth over 15 years
- 3 **2.8x Mechanization**
Increase area under mechanization with 13% over 10 years
- 4 **2.3x OPV maize seeds**
Price subsidy for improved OPV seeds by 50% resulting in 11% annual usage growth over 15 years
- 5 **1.8x Warehouse capacity**
Increase maize warehouses capacity by 46,000 tonnes by building and operating 46 new warehouses
- 6 **1.5x Irrigation schemes**
Reversing 10 existing irrigation schemes covering 3,443 ha

Source: Authors' computations using 8% discount rate

Total costs and benefits in million GHC



Source: Authors' paper



Ghana's agricultural sector has great potential for improvement through smart investments in the right policies and modernised technologies.

Altogether, these five interventions provide policymakers interesting new inputs to help improve food security, reduce poverty and increase agricultural exports to boost the country's economy.

The writers are President of the Copenhagen Consensus and Associate Professor at the Institute of Statistical, Social and Economic Research (ISSER) of the University of Ghana, respectively.

Post-harvest

Investing in post-harvest loss reduction is another pathway for stabilising prices, ensuring food security and reducing poverty.

The researchers looked at constructing 46 new warehouses with an average capacity of 1,000 tonnes to curb post-harvest storage losses.

For the entire 15 years of this intervention, the costs are estimated at GHe 50 million, but the benefits in post-harvest losses avoided, stability and an eventual reduction of prices amount to GHe 90 million, nearly double the cost.