Agriculture

Agricultural reform elsewhere in the world: Lessons for Africa?

Jakkie Cilliers
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The first 20 years of China’s agricultural revolution, which improved productivity on smallholder farms through institutional incentivisation, access to better seeds and better farming practices, holds many lessons for Africa.

In the 1970s and 1980s, Deng Xiaoping used the household responsibility approach to transform the domestic agricultural sector in China. The reforms contracted individual households instead of collectives to farm. With this new responsibility and various other market-related reforms, productivity improved in the order of 20% above collective era output. [34]

Average yield nearly tripled between 1970 and 2013 and was a catalyst in the economic growth enjoyed by the country during those decades. The available calories per person increased by nearly 70% and there were fewer than 2 million malnourished children in 2015, compared with the more than 22 million in 1987.

The African experience is that different families farm small patches of land, relying on unproductive, often traditional, practices. This is similar to the situation in China several decades ago. By working with the individual farmer and focusing on improved smallholder productivity, China transformed its agricultural sector and fed its rapidly growing population. Today, electronic land-use transfer systems contribute to continued productivity, with farmers being able to lease their land to others, creating larger and potentially more productive farms. [35]

Brazil also enjoyed rapid improvements in agricultural production in the decade between 2000 and 2010. Although the country has traditionally been a net food exporter, it has improved that position by nearly seven percentage points. Between 1981 and 2016, Brazil more than doubled average cereal yields, despite the size of the land under cultivation only increasing by about 6%.

Brazil’s agricultural sector has grown in absolute terms and diversified but, like China, only achieved that progress once it had graduated to an upper middle-income status. Today, Brazil is the world’s largest exporter of both sugar and coffee, second only to the United States in soybean exports, and third to the United States and Argentina in maize exports. [36] The genetic tailoring of seeds and plants had an essential role in these changes.

Brazil is now at a stage in development where it is moving beyond agricultural production for food security. The country exported approximately 12% more food than it consumed in 2018 and has begun to embrace a ‘forest, agriculture and livestock integration’ approach to farming that is widely acknowledged to have benefits for both agricultural production and environmental sustainability. [37] But it is achieving many of these goals at the much greater cost of environmental degradation, as farmland steadily encroaches on the vast Amazon forests that serve as an important global carbon sink.
Agriculture: Thematic Futures

Endnotes


5. T Lewis, Transatlantic slave trade, 2018


14. World Bank, Aggregated LPI

15. World Bank, Aggregated LPI

16. Embassy of the DR Congo, Invest in DRC, Agriculture


19. In 2003, the New Partnership for Africa’s Development (now called the African Union Development Agency) published its Comprehensive Africa Agriculture Development Programme, with ambitious goals, namely to: allocate at least 10% of national budgets to agriculture; reach rural growth rates of 6% annually by 2015; integrate and invigorate regional and national agricultural markets; significantly increase agricultural exports; transform Africa into a ‘strategic player’ in global agricultural science and technology; practise sound environmental and land management techniques; and reduce rural poverty (see: M Fleshman, Boosting African farm yields, 2014).

20. The commitment to devote at least 10% of national budgets to agriculture and rural development was also included in the 2003 Maputo Declaration by African heads of state and reiterated in the 2014 Malabo Declaration on Accelerated Agricultural Growth and Transformation in Africa.

21. On aggregate, Africa spends only 5–7% of national budgets on agriculture, although a 2018 study found that 11 African countries did manage to allocate 10% or more of their budgets to agriculture in some years since 2005, with Ethiopia, Kenya, Mozambique and Sierra Leone achieving 6% agricultural...

22. AllAfrica, *Communique: Africa food security leadership dialogue*, August 5, 2019

23. IPPMedia, *Value add in Africa: First steps in a long journey*, 2019; also see: African Cashew Alliance, About us

24. The world cocoa industry is worth more than US$100 billion annually; also see: Y Adegoke, *Why Europe dominates the global chocolate market while Africa produces all the cocoa*, 2018; D Philling, The African farmers taking on big chocolate, *Financial Mail*, 16 December 2019; H Fofack, *Overcoming the colonial development model of resource extraction for sustainable development in Africa*, 2019


31. World Bank, *Agriculture in Africa: Telling facts from myths*


33. World Bank, *Agriculture in Africa: Telling facts from myths*

34. In contrast to the tripling in growth cited earlier, this was an improvement across the entire country, so the growth is understandably much smaller; see: JY Lin, The Household Responsibility System in China’s Agricultural Reform: A Theoretical and Empirical Study, *Economic Development and Cultural Change*, 36:53, 1988, S199–S224

35. China-Africa Project, Chinese and African agriculture have a lot more in common that most people think: *Interview with Xinqing Lu, Associate Programme Officer for Alliance for a Green Revolution in Africa*, 3 December 2019

36. OEC, Brazil


38. L Abboud, *The robot revolution down on the farm*, 2018


40. R Kimani and P Bosire, *FarmDrive*, 2019

41. In most of rural Africa, precise location of a farm is objectively unknown so the location is determined via a series of SMS questions (e.g. time to walk to different primary schools). The more schools a farmer is familiar with in their area, the easier it is to hone in on their specific location.

42. J Bird, *'Smart' insurance helps poor farmers to cut risk*, *Financial Times*, 5 December 2018; also see, for example, https://agrocenta.com/ and https://www.zenvus.com/.

44. S Gebre, AGRA plans to invest $500 million in African seed companies, Bloomberg, 7 September 2016

45. The Alliance for Food Sovereignty in Africa and its allied organisations argue that ‘AGRA has unequivocally failed in its mission to increase productivity and incomes and reduce food insecurity, and has in fact harmed broader efforts to support African farmers.’ See: Various co-signatories, Open letter: The Green Revolution in Africa has unequivocally failed, 15 September 2021


47. Ammonia manufacturing contributes 1% of worldwide carbon dioxide emissions. See LK Boerner, Industrial ammonia production emits more CO2 than any other chemical-making reaction. Chemists want to change that, Chemical & Engineering News, 15 June 2019


49. Indorama Petrochemicals, About IEPL, Port Harcourt


54. Food and Agriculture Organization, Food wastage: Key facts and figures

55. InspiraFarms, Our team

56. The improvements in yields are similar in magnitude to the improvements seen in South Asia between 1980 and 2020, and in a similar timeframe. Indeed, South America achieved a much more rapid increase between 2000 and 2010, moving from roughly 7.8 tons per hectare to about 11.8 tons.

57. Chart 14 presents the reduction in extreme poverty in African countries across the low- and middle-income categories. The reduction in extreme poverty in Seychelles, Africa’s only high-income country, is negligible.

58. The contribution of agriculture as a proportion of the Seychelles’ economy, the continent’s only high-income island state, was about 4% in 2019.

59. Some of these constraints can be overcome through technology, such as the use of precision irrigation and application of precise amounts of fertiliser exactly where they are required. Then there is also the potential of vertical farming, which could produce 180 m tons of food globally, according to some analysts.


61. Food and Agriculture Organization, Government expenditure on agriculture, 2019


63. Intergovernmental Panel on Climate Change, Working Group II: Impacts, adaptation and vulnerability, 2018


65. The International Institute of Tropical Agriculture does particularly impressive work in this regard. See: https://www.iita.org/
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About the authors

Jakkie Cilliers is the founder and former executive director of the Institute for Security Studies (ISS). He currently serves as chair of the ISS Board of Trustees and head of the African Futures and Innovation (AFI) programme at the Pretoria office of the ISS. His 2017 best-seller Fate of the Nation addresses South Africa’s futures from political, economic and social perspectives. His two most recent books, Africa First! Igniting a Growth Revolution (March 2020) and The Future of Africa: Challenges and Opportunities (April 2021), take a rigorous look at the continent as a whole.

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