

# Chapter 11

## Agribusiness Technology Transfer and Innovation as a Catalyst for Food Security in Developing Countries: Case of Kenya

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### ABSTRACT

*This study assesses the influence of agribusinesses technology transfer and innovation in developing countries, Kenya. The study used a sample framework of 300 enterprises and structural equation modeling for content analysis. The findings show that innovation and technology transfer have a positive impact on firm performance and rural development. However, the lack of effective agribusiness technology transfer from R&D institutions to the industry is the main challenge facing agribusiness performance and rural development in developing countries. Thus, the need for financial support for research and development institutes that would promote the linkages between the innovators and the agribusiness enterprises in rural areas. The study recommends that to encourage innovation and technology adoption across business sectors, a suitable policy linking agribusiness enterprises with R&D institutions is critical in promoting innovation transfer from these institutions.*

### INTRODUCTION

Technology transfer is a process that embraces the advancement of innovation and organizational performance (Bennett & Vaidya, 2005). The rapid changes in the global industrial environment act as

DOI: 10.4018/978-1-7998-4849-3.ch011

a catalyst for companies to improve their competitive advantage by obtaining new technical skills by advancing their technologies. The majority of advanced and emerging countries depend on technology transfer and innovativeness of small agribusiness enterprises to speed their rural economic development (Ramanathan, 2011). Previous studies have shown that firms that have invested in new technology have experienced noticeable development in relation to their profitability (Ahmed et al., 2015; Huang, 2016).

Agriculture plays a key role in reducing global poverty. It is estimated that 75% of the population engaged in agriculture-related activities and lived in rural areas (Chan, Sipes, & Lee, 2017). It is estimated that 70% of the working population in sub-Saharan Africa and 67% of the working population in South Asia work in agriculture (GOK, 2016). In Kenya, agriculture is the mainstay for economic development and contributes 26 percent directly to the GDP and 27% indirectly via other sectors. The agribusiness industry provides employment for over 40% of the Kenyan population and 70% of Kenyans in rural areas. Additionally, it helps achieve the urban-rural balance; by creating job openings in rural areas and discouraging rural-urban migration.

According to FAO (2019), the number of malnourished populations in developing nations is about 870 million people. In Africa, the number of undernourished people has steadily increased since the early 1990s from 175 million to 239 million. FAO (2019) has also shown that 36 countries in the world require external food assistance. From the 36 countries requiring external food assistance, 28 countries come from Africa. According to Kaloi *et al.* (2005), fifteen million (approx. 50%) of Kenyans are faced with food insecurity; about 3 million were supplied with food relief throughout the year. Due to this food security concern, the government and lead agencies in the agricultural sector have come up with a number of agricultural technologies to boost food production (AGRA, 2017).

Despite decades of investment in agricultural technology, hunger and poverty continue to ravage many people in developing countries. The poverty situation in Kenya is changing and directly affects the country's agricultural sector. Currently, 46% of Kenya's population survives on less than \$ 1 per day, while 37% are facing food insecurity, and 35% of children below five years are malnourished. The country's population has increased considerably and is expected to double over the next 27 years, reaching 81 million in 2039. As a result of this rapid growth, the areas with high agricultural potential is decreasing, and this affects food production. This problem is particularly serious in rural regions of Kenya that depend on rainwater to irrigate agriculture, with the limited implementation of new technologies, low agricultural productivity in arid and semi-arid areas of the republic. Climate change is deteriorating Kenya's aridity situation due to increased weather variability that is unsuitable for sustainable food production (Chege & Wang, 2020).

According to Jagoda *et al.* (2010), there are several factors impeding the acceptance of new technologies, particularly in agribusiness enterprises due to the highly complex and turbulent environs. Worldwide changes and progress are associated with new technologies that help the business to generate new products, processes, and markets. Firms depend on technology transfer to acquire new knowledge and technique to enhance production capacity and to sustain competitive advantages. Thus agribusiness technology transfer is necessary for boosting food security in Kenya.

The purpose of this study is to examine the impact of agribusiness technology transfer and innovation in Kenya. The study addresses the following questions:

1. How can agribusiness technology transfer boost rural development in developing countries?
2. How can agribusiness in rural regions benefit from the rapid advances in agricultural technology being achieved in the developed world?

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