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## Research Article

# HARVESTING KNOWLEDGE: CHINESE AGRICULTURAL TECHNOLOGY TRANSFER TO TYPICAL DRY AREAS IN AFRICA: PRACTICE AND EXPERIENCE

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## ABSTRACT

This paper examines the practice and experience of Chinese agricultural technology transfer to typical dry areas in Africa. With increasing collaboration between China and African countries in the agricultural sector, there has been a growing focus on transferring Chinese agricultural technologies to address the unique challenges of dry regions in Africa. This paper explores the key areas of technology transfer, including drought-resistant crop varieties, water management techniques, soil fertility enhancement, and agricultural mechanization. It examines the practical implementation of these technologies in selected dry areas of Africa, highlighting the outcomes and lessons learned. The paper also discusses the opportunities and challenges associated with Chinese agricultural technology transfer in dry areas and emphasizes the importance of knowledge exchange and capacity building for sustainable agricultural development in Africa.

## KEYWORDS

Chinese agricultural technology transfer, Africa, dry areas, drought-resistant crops, water management, soil fertility, agricultural mechanization, knowledge exchange, capacity building, sustainable development.

## INTRODUCTION

The collaboration between China and African countries in the agricultural sector has gained significant

attention in recent years. In particular, Chinese agricultural technologies have been increasingly

transferred to typical dry areas in Africa, aiming to address the specific challenges faced by these regions. This paper provides an overview of the practice and experience of Chinese agricultural technology transfer in typical dry areas of Africa. It explores the key areas of technology transfer, highlighting the efforts to enhance drought resilience, improve water management, enhance soil fertility, and promote agricultural mechanization. By sharing experiences and outcomes, this paper aims to shed light on the opportunities and challenges associated with Chinese agricultural technology transfer in dry areas of Africa.

## METHOD

This study adopts a mixed-method approach to examine the practice and experience of Chinese agricultural technology transfer in typical dry areas of Africa.

Firstly, a comprehensive literature review was conducted to gather information on the subject. Various academic databases, research papers, reports, and policy documents were consulted to identify relevant studies and publications. The literature review provided insights into the key areas of technology transfer, the specific technologies employed, and the outcomes of their implementation in dry areas of Africa.

Additionally, case studies were conducted to gain a deeper understanding of the practical implementation of Chinese agricultural technologies in selected dry areas of Africa. The case studies involved site visits, interviews with farmers, agricultural experts, and local stakeholders, and the collection of primary data related to the adoption and impact of Chinese technologies. The case studies provided real-world examples and practical experiences, complementing the findings from the literature review.

The collected data from both the literature review and case studies were analyzed using thematic analysis. Similarities, differences, challenges, and success factors were identified, and patterns and trends in the technology transfer process were examined. The analysis aimed to capture the diverse perspectives and experiences related to Chinese agricultural technology transfer in dry areas of Africa.

By combining the findings from the literature review and case studies, this paper presents a comprehensive understanding of the practice and experience of Chinese agricultural technology transfer in typical dry areas of Africa.

## RESULTS

The results of this study shed light on the practice and experience of Chinese agricultural technology transfer in typical dry areas of Africa. The literature review and case studies revealed several key findings:

### Drought-resistant crop varieties:

Chinese agricultural technology transfer has focused on introducing drought-tolerant crop varieties to enhance agricultural productivity in dry areas. These varieties have shown promising results in improving crop yields and resilience to water scarcity.

### Water management techniques:

Chinese technologies for water management, such as micro-irrigation systems and water-saving techniques, have been implemented in dry areas of Africa. These technologies have played a crucial role in optimizing water use, increasing irrigation efficiency, and conserving water resources.

### Soil fertility enhancement:

Chinese agricultural technologies, including organic fertilizers, composting techniques, and soil conservation practices, have been transferred to improve soil fertility in dry areas. These technologies have helped replenish soil nutrients, enhance soil structure, and promote sustainable agricultural practices.

### Agricultural mechanization:

Chinese agricultural machinery and equipment have been introduced to enhance productivity and reduce labor-intensive practices in dry areas of Africa. Mechanization has facilitated timely and efficient farm operations, contributing to increased agricultural output and improved livelihoods.

### DISCUSSION

The findings of this study highlight the positive impact of Chinese agricultural technology transfer in typical dry areas of Africa. The introduction of drought-resistant crop varieties and water management techniques has contributed to improved agricultural productivity and resilience to climate variability. Moreover, the adoption of soil fertility enhancement practices has helped address soil degradation issues and promote sustainable land management practices.

The transfer of agricultural mechanization technologies has also played a significant role in alleviating labor constraints and increasing productivity in dry areas. However, challenges such as high initial investment costs, limited access to machinery, and inadequate technical capacity may hinder the widespread adoption of mechanization technologies.

The success of Chinese agricultural technology transfer in dry areas of Africa can be attributed to several factors. These include knowledge exchange, capacity

building, and local participation. Effective knowledge exchange platforms and partnerships have facilitated the transfer of technologies, while capacity-building initiatives have enhanced the technical skills and knowledge of farmers and agricultural extension workers.

### CONCLUSION

In conclusion, the practice and experience of Chinese agricultural technology transfer in typical dry areas of Africa have demonstrated positive outcomes and potential for sustainable agricultural development. The introduction of drought-resistant crop varieties, water management techniques, soil fertility enhancement practices, and agricultural mechanization has contributed to increased productivity, resilience, and improved livelihoods.

To ensure the success and sustainability of technology transfer, it is crucial to strengthen knowledge exchange platforms, promote capacity building, and foster local participation. Collaboration between China, African governments, research institutions, and local communities can further enhance the effectiveness of technology transfer initiatives.

By harvesting knowledge through Chinese agricultural technology transfer, typical dry areas in Africa can overcome challenges and harness the potential of innovative solutions to achieve sustainable agricultural development, food security, and economic growth.

### REFERENCES

1. Huang, J., Qiao, F., Zhang, X., Wang, X., Cai, J., & Rozelle, S. (2017). The impact of agricultural technology adoption on income inequality in rural China: Evidence from southern Yunnan Province. *China Economic Review*, 46, 220-232.

2. Liu, Z., Li, W., Huang, J., Zhang, X., Rozelle, S., & Chen, K. (2013). Agricultural technology adoption and inclusive growth: A review. *Journal of International Development*, 25(4), 419-427.
3. He, X., Li, X., & Wang, W. (2016). The impacts of agricultural technology adoption on farmers' welfare in rural China. *China Economic Review*, 41, 90-104.
4. Dong, F., Liu, L., Li, X., Chen, K., & Zhang, X. (2019). Effects of agricultural technology adoption on farmers' subjective well-being in rural China. *Sustainability*, 11(1), 179.
5. Ma, X., Smale, M., Spielman, D., Zambrano, P., Nazli, H., Zaidi, F., ... & Hussain, Z. (2018). Modern wheat breeding in India: Implications for varieties, traits, institutional arrangements, and policy. *Food Policy*, 76, 48-60.
6. Meijer, M., & Morley, T. (2014). Irrigation and water management in sub-Saharan Africa: A review. *Physics and Chemistry of the Earth, Parts A/B/C*, 67, 13-26.
7. Li, X., Huang, J., Hu, R., & Zhi, Q. (2017). Understanding China's agricultural aid to Africa: Evidence from Ghana and Uganda. *World Development*, 89, 104-120.
8. Olwande, J., Smale, M., & Mathenge, M. (2016). Adoption of drought-tolerant maize varieties under rainfall stress in Kenya. *Journal of Agricultural Economics*, 67(2), 405-428.
9. Srinivasan, R., & Chami, R. (2018). China's influence on African agriculture: From knowledge transfer to technology adoption. *World Development*, 106, 357-367.
10. Wang, J., Huang, J., Qiao, F., & Rozelle, S. (2019). The diffusion of agricultural technologies in China: The role of village-level entrepreneurs. *China Economic Review*, 55, 179-191.