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Article

# China-Africa Agricultural Cooperation Towards Sustainable Development Goals: Present Situation, Challenges and Prospect

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## Abstract

With the Sustainable Development Goals (SDGs) as a reference, this study systematically examines the evolution, characteristics, achievements, and challenges of Chi-na-Africa agricultural cooperation. The study elaborates on how China-Africa agricultural cooperation has transitioned from a politically-driven aid model to a comprehensive framework integrating aid, investment, trade, and technology transfer under the guidance of the Forum on China-Africa Cooperation (FOCAC). Despite remarkable achievements between China and Africa in food security, infrastructure construction, and technology transfer, the analysis identifies persistent dilemmas. These include limited impact on comprehensive regional development, scrutiny over trade imbalances and potential resource exploitation, and ineffective utilization of Africa's diverse agricultural resources. To address these issues, the paper proposes future pathways such as maximizing the potential of Agricultural Technology Demonstration Centers (ATDCs), supporting the development of the entire agricultural value chain, and effectively leveraging digital technology. This study argues that it is necessary to adopt a more com-prehensive, integrated, and sustainable approach to improve the China-Africa agricultural cooperation model and promote Africa's achievement of S SDGs.

**Keywords:** China-Africa cooperation; agricultural development; sustainable development goals (SDGs); regional development; international partnerships

## 1. Introduction

Influenced by a legacy of colonialism and an unequal global economic and political framework, many African nations had long been beset by poverty and hunger. In sub-Saharan Africa, 38.6% of the population lives below the international poverty line of US\$ 2.15 per day[1]. While within the present global development, the impacts of colonialism have not been completely eliminated, Africa continues to endure the significant influences of neocolonialism, characterized by political interference, cultural subjugation, and disparities in power, all of which may hinder the development of this continent[2].

Most African countries are still agrarian economies; agriculture is a large contributor to GDP, food, income and nutrition security. However, according to estimates by the United Nations Food and Agriculture Organization (FAO), about 306.5 million people in Africa face undernourishment, accounting for 20.2 percent of the population[3]. Although African countries have prioritized agriculture, establishing regional and national development initiatives such as the Comprehensive African Agricultural Development Program (CAADP) and the African Union's Agenda 2063, their agricultural sector remains primarily focused on primary production, occupying a low position in the global value chain which leaves them vulnerable to price fluctuations and lack their bargaining

power in the global market[4,5]. Consequently, African nations struggle to transform and progress slowly[6].

Agriculture has been a key area of focus for China's engagement with Africa[7], as agriculture is crucial for both China and most African nations, aligning with their shared development interests and prompting numerous innovative practices. Over the past two decades, since the establishment of the Forum on China-Africa Cooperation (FOCAC), China and African nations have increasingly worked to build a community of shared interests. Among the various areas of cooperation, agricultural production and rural development cooperation have consistently been a focal point. Every iteration of the FOCAC action plans and macro-policy documents, such as China's Africa Policy Paper and China's International Development Cooperation in the New Era, has prioritized agricultural cooperation with Africa[8,9]. Since the beginning of this century, the Chinese government has placed increasing importance on the development of its domestic agriculture and explicitly proposed to "prioritize the development of agriculture and rural areas." China's development strategies align well with Africa's development needs.

However, there is a debate about China's fast-growing engagement and whether it pursued a "new colonialism". Africa's growing economic ties with China are considered "unsustainable" in the long term. Regarding the African colonial past, critics hold that Africa's historical economic experience with Europe dictates a need for caution when forming partnerships with other economies[10,11]. China is accused of grabbing Africa's natural resources[12,13]. On the other hand, adopting a stance of 'Chinese exceptionalism,' China insists that it engages with Africa as equals, without colonial intentions[14]. Many Africans hold a favorable view of China because, unlike Western investments and assistance that have not succeeded in lifting African countries out of poverty, China's approach to business offers an alternative opportunity for development[10]. China-Africa agricultural cooperation supports the mutual development of both Africa and China. Some scholars argue that, as reflected in Chinese policies, mutual benefit outcomes are the focus of the contemporary China-Africa relations[15]. The infrastructure projects (e.g., roads, railways, telecommunication) supported by China have opened the door to sustainable development for African nations[10].

Whether it be traditional donor nations like the United States and the European Union or emerging economies like China and Brazil[11], their cooperation with Africa tends to focus on specific agricultural development elements such as technical support, financial aid, and market expansion, while paying less attention to agricultural partnerships and development within African states. Furthermore, there is currently a lack of systematic and comprehensive research on the specific models, collaborative mechanisms, achievements, and challenges (whether positive or negative) of the China-Africa agricultural partnership. This is one of the reasons why many development aid and agricultural cooperation projects have yielded minimal results[10].

Therefore, this study aims to establish a knowledge system to present the impacts of China-Africa cooperation. Sustainable Development Goal 17 (SDG 17) emphasizes strengthening global partnerships to support and achieve the 2030 Agenda for Sustainable Development. It recognizes that strong international cooperation is essential for countries to achieve the SDGs. Countries can overcome obstacles hindering the achievement of SDGs by fostering effective partnerships, leveraging shared knowledge, and mobilizing resources. Thus, does China-Africa cooperation contribute to promoting African agricultural development? Does it have positive significance for achieving the SDGs? Based on the analysis of literature and secondary data, this study seeks to conduct a relatively systematic analysis of China-Africa agricultural cooperation.

## 2. Materials and Methods

We employed qualitative research highlighting existing literature with sensitivity from the China-Africa agricultural partnership. We reviewed previously published China-Africa partnership and cooperation studies and reports, mixed with a critical analysis, which reassesses prevailing studies and practices.

We conducted a comprehensive survey using databases such as Web of Science, Google Scholar, and official websites such as the Ministry of Commerce of China, the State Council Information Office of the People's Republic of China, and Food and Agriculture Organization of the United States (FAOSTAT). We focused specifically on literature published after 2010 to identify peer-reviewed academic articles and news reports relevant to our research topic. We utilized keywords and their synonyms (e.g., Africa, African, Agriculture, China, Chinese, Sino, aid, co-operation, partnership, and sustainability) to filter publication titles, ensuring comprehensive coverage of pertinent papers and reports. This analysis was designed to sketch a detailed picture of China- Africa agricultural cooperation's current landscape and future prospects.

We reviewed over a hundred papers, published works, and databases, carefully synthesizing the gathered data with a particular focus on the complexities of China- Africa agricultural cooperation. Academic articles were the most prevalent among the sourced materials, followed by press/media outputs, reports, and books. Due to challenges in accessing data and literature specific to our focus area, we also selected certain African countries for case studies based on the authors' field investigations as complementary materials.

### 3. Results

#### 3.1. Evolution and Characteristics of China-Africa Agricultural Cooperation

Since 1959, when China began providing aid to Africa, agricultural cooperation between China and Africa has already started[16]. Initially, it was primarily politically motivated and focused on unilateral aid development[17]. Over time, it has developed into development cooperation at multiple levels, mixed with aid, investment, trade, and technical cooperation[18,19], involving multiple actors, including governments, enterprises, and other entities, and it places equal emphasis on multilateral and bilateral engagements[20–22].

Following the establishment of the Forum on China-Africa Cooperation (FOCAC) in 2000, agriculture has been a central focus of the Sino-African partnership[23]. The mechanisms of the forum and subsequent actions have significantly propelled the rapid development of agricultural cooperation. By reviewing existing literature and relevant materials, this study identifies four key characteristics of China-Africa agricultural cooperation.

##### 3.1.1. Using the FOCAC as Macro Guidance for Action

The Forum on China-Africa Cooperation (FOCAC), established based on the shared aspirations of China and Africa, has played a crucial role in deepening their agricultural cooperation[24,25]. Since its inception, the FOCAC mechanism has significantly enhanced the depth and scope of this cooperation[26,27].

Initially, the forum facilitated high-level communication and consultation between China and African countries, resulting in the formulation of three-year action plans. These plans specify follow-up mechanisms and designate responsible entities to facilitate the implementation of agreed-upon actions, while also outlining the primary principles, methods, and content of agricultural cooperation for the subsequent three years[24]. Table 1 illustrates the structure of these action plans. Prior to each FOCAC session, the Chinese government typically consults with African countries regarding their development needs and negotiates key areas of cooperation based on China's realities. This structure is designed to align with the interests of both China and Africa and aims to achieve mutual benefits.

**Table 1. Agricultural Cooperation in Previous FOCAC Action Plans.**

Year	Action Plan	Main Contents Related to Agriculture
2000	FOCAC Action Plan	Share agricultural development experience; recognize the importance of Beijing agriculture to poverty eradication and enhance food security; carry out triangular cooperation among China, Africa and the Food and Agriculture Organization of the United Nations (FAO)

2003	FOCAC Addis Ababa Action Plan (2004-2006)	Identify agriculture as a crucial sector for solving food security issues in Africa; formulate plans for comprehensive China-Africa agricultural cooperation; explore new measures for agricultural cooperation; encourage Chinese enterprises to carry out agricultural cooperation.
2006	FOCAC Beijing Action Plan (2007-2009)	Emphasize the importance of agriculture; explore new forms and ways of agricultural cooperation measures, including focusing more on agricultural technology; establish agricultural technology demonstration centers and expanding agricultural investment in Africa.
2009	FOCAC Sharm El Sheikh Action Plan (2010-2012)	Emphasize agriculture as a priority area; integrating CAADP strategies with action plans; focus on agriculture processing, storage and transportation; increase cooperation programs, including the agricultural technology demonstration centers in Africa.
2012	The Ministerial Conference FOCAC Beijing Action Plan (2013-2015)	FifthContinued emphasis on agriculture as a priority area of cooperation; carry out multi-level agricultural cooperation and exchanges; provide more of agricultural assistance to Africa; strengthen financial support for agricultural cooperation between Chinese and African enterprises; start to address the development of the whole agricultural industry chain; emphasize the role of FAO.
2015	FOCAC Johannesburg Action Plan (2016-2018)	Reaffirm the prioritization of agriculture; introduce new cooperation measures such as agricultural policy consultation, and planning and design cooperation; encouraged Chinese investment in African agriculture. promote agricultural trade; continually focus on the development of the entire agricultural industry chain.
2018	FOCAC Beijing Action Plan (2019-2021)	Enhance Africa's capacity for food security; jointly formulate and implement China-Africa agricultural modernization cooperation plans and action plans to upgrade Africa's agriculture; focus on institutionalization of agricultural cooperation; cooperation direction in specific areas such as agricultural technical training, scientific research, cotton production, sugar industry and agricultural product processing.
2021	FOCAC Dakar Action Plan (2022-2024)	Continue to encourage investment in African agriculture; strengthen support for developing entire agricultural industry chain in Africa; develop new models such as the Internet plus agriculture model, promoting South-South and triangular cooperation; synergize development strategies of other countries; improve the mechanism for China-Africa agricultural cooperation.
2024	FOCAC Beijing Action Plan (2025-2027)	Support Africa in eliminating hunger, achieving food security, and promoting sustainable agricultural development; to engage in joint research on agricultural technologies tailored to local conditions in Africa; encourage enterprises to increase investments in Africa's agricultural sector; China will enhance agricultural technology sharing, achievement transformation, and personnel training with Africa; and to jointly participate in the in-depth reform of international institutions and institutional frameworks in the field of food and agricultural governance.

Furthermore, the forum has progressively enhanced the synchronization of China's and Africa's macro development plans, ensuring that agricultural cooperation is effectively tailored to the actual conditions of each country. Since 2009, there has been a clear directive that China-Africa agricultural cooperation should align with the CAADP[28]. When the African Union's Agenda 2063 was introduced in 2015, it was promptly integrated into that year's FOCAC action plan, with a renewed emphasis on prioritizing agriculture due to the urgent development needs across many African nations[29,30]. The latest FOCAC (2025-2027) showed China will construct or upgrade 10 agricultural technology demonstration centers, establish no less than 100,000 mu (approximately 6,667 hectares) of overseas standardized agricultural demonstration zones, and provide one billion RMB in

emergency food assistance to African countries[31]. Additionally, China will establish the China-Africa Agricultural Science and Technology Innovation Alliance, create 100 agricultural poverty reduction demonstration villages, dispatch 500 agrarian experts to African countries, and train 1,000 agricultural entrepreneurship leaders. Furthermore, China will deepen the “Hundred Enterprises and Thousand Villages” initiative, implementing 500 public welfare projects in maternal and child health, education and training, rural development, and clean water access. Chinese enterprises operating in Africa are encouraged to create no fewer than 1 million local jobs.

Through the forum, China and African countries have worked to ensure the continuity and sustainability of their cooperation, utilizing past experiences to inform future engagements. For instance, during the third FOCAC, a proposal was introduced to establish ten agricultural technology demonstration centers across Africa. Following the reception and implementation of these centers, the fourth FOCAC announced measures to further increase their number to align with African development needs[32], thereby expanding their scope and impact on the continent’s agricultural sector. Agriculture constitutes a central component of the FOCAC mechanism. The evolution of agricultural cooperation within this framework has exhibited distinct trends: agricultural issues have consistently been valued by both sides, and China seeks to continuously deepen China-Africa agricultural cooperation based on the principle of mutual benefit, rather than merely providing agricultural aid to African countries.

### 3.1.2. Diversified Trends in China’s Agricultural Aid Modalities to Africa

Historically, China’s foreign aid has evolved into eight distinct forms, primarily encompassing emergency humanitarian assistance, technical cooperation, comprehensive project implementation, human resources development, the provision of general supplies, debt relief, medical team support, and the deployment of foreign aid volunteers. While these modalities span various sectors, the first four dominate the agricultural context primarily[22]. Summarizing China’s official discourse, it is evident that China believes that, due to realities such as the high prevalence of malnutrition and generally low agricultural technology levels in Africa, China emphasizes not only addressing immediate food needs through emergency food assistance but also focusing on how to help Africa improve agricultural productivity through technical assistance[22,33,34]. At the same time, China continues to focus on building long-term agricultural capacity by investing in personnel training and agricultural scientific and technological cooperation[21,35]. China aims to explore and implement more diverse cooperation measures, thereby enhancing the effectiveness and sustainability of agricultural development in Africa[36].

Food security remains a primary concern for many African nations. The prevalence of undernourishment has been rising, driven by armed conflicts, slow economic development, low level of agricultural productivity, climate change, and international food trade and market volatility[11]. Taking the key dimensions of food security—availability, access, utilization, and stability—into account, food security in Africa appears dire[35]. China, though facing risks related to food security[35,37], has cooperated with Africa on food security at both the macro and micro levels[38], including multilateral and bilateral aid aimed at addressing food security issues in Africa[39]. China-Africa partnership has tried to improve recipient countries’ food security[17].

First, China has delivered emergency food assistance to African nations confronting food crises via various bilateral and multilateral channels. Significantly, in 2015, China announced the creation of the South-South Cooperation Assistance Fund, which bolsters its capacity to collaborate with international organizations such as the World Food Program (WFP)[40]. This strategic partnership has proven to be instrumental. By the end of 2023, it has delivered emergency food aid to over 30 African countries, implement over 50 food aid projects including Zimbabwe, Somalia, South Sudan, and Ethiopia, which alleviated local food and nutrition shortages to a certain extent[35]. During the simultaneous crises of COVID-19 and locust infestations across several African nations, China swiftly augmented its support, providing emergency food assistance to more than ten countries within a year[19]. China has been closely monitoring the severe drought and food shortage issues affecting

Southern African countries in 2024, and it actively mobilizes resources to provide emergency food aid to over twenty African nations, including Zimbabwe, Malawi, and Zambia. On a bilateral basis, China has also responded to specific emergencies, actively supporting relevant countries when they suffer from extreme weather, emergencies, and other special situations. Since 2016, China's emergency food aid efforts have extended to over 50 countries, benefiting more than 10 million people predominantly in Africa, demonstrating its commitment to mitigating food insecurity across the continent[41]. Moreover, China is actively assisting African countries in enhancing their food sovereignty, aiming to fundamentally address food security issues in various countries, including Africa. China places increasing importance on sharing poverty reduction and food security experiences with African nations. Through multilateral approaches such as the FOCAC—Poverty Reduction and Development Conference 2023, China offers African countries opportunities to voice their concerns on the international stage, conveying their urgent need for food security to the global community.

Second, China has consistently prioritized cooperation in agricultural production technology with its African partners. As early as the 1950s, China began dispatching agricultural experts to the continent to build large-scale farms. This early technical assistance has evolved significantly[42]; with the improvement of China's domestic agricultural productivity, the Chinese government has also learned from initial problems such as poor sustainability of early agricultural technical assistance, limited benefits for small farmers, and too much reliance on Chinese technical experts. China has refined its approach to agricultural production technique cooperation to better meet the specific needs of recipient countries, which was included in the "Ten Cooperation Plans" proposed by President Xi Jinping at the FOCAC in December 2015[43]. Since the Belt and Road Initiative was put forward, China has intensified efforts to address poverty through enhanced agricultural technology support, focusing on both agriculture production technology improvements and public goods provision. For example, during the 2018 FOCAC, this engagement was deepened by pledging to implement 50 agricultural projects and deploy 500 senior agricultural experts to train African farmers, aiming to foster local agricultural leadership and entrepreneurship[44]. Moreover, given the low productivity challenges faced by smallholder farmers in Africa, China has actively explored ways of promoting technology for small farmers. In cooperation with China Agricultural University, the International Poverty Reduction Center in China (IPRCC) has carried out a demonstration and promotion project on maize production technology for small farmers in Peyapeya village in Tanzania. Adapted to local conditions in which local farmers have limited economic resources and primitive agricultural production technology, the project promoted implementing labor-intensive, high-density planting techniques for ten years, which improved the maize yield by 50% to 180%. This initiative has since expanded to 10 neighboring villages, showcasing the potential of tailored agricultural interventions to enhance productivity and sustainability[21]. China's efforts in agricultural cooperation emphasize the dissemination of practical production technologies well-suited to smallholder farmers' productivity and agricultural standards and the transfer of advanced Chinese agrofood technology to Africa.

Third, China's agricultural assistance to Africa focuses on sustainable development through capacity building, which is predicated on "teaching people to fish"[30]. In recent years, the Chinese government has intensified efforts to foster advanced agricultural technology research collaboration with African nations, helping them progress in high-end agricultural technology. This initiative includes establishing multilateral and bilateral technology research and development centers, as well as mechanisms for technical cooperation and exchange. For example, in collaboration with the Food and Agriculture Organization of the United Nations, China has implemented projects to enhance sustainable soil management capabilities in Uganda and Rwanda, improving agricultural productivity and ensuring food security for the local populations[45]. During the FOCAC in 2015, China pledged to carry out cooperation projects and provide technical support to African countries in food crop cultivation, storage, health, phytosanitary, animal husbandry, and agricultural product processing. These measures are designed to bolster long-term food security by enhancing local

agricultural production and processing[46]. During the 2018 FOCAC, China further committed to strengthening capacity building and transferring diverse agricultural technologies to Africa, including advanced methodologies such as molecular plant disease detection and seed testing and certification, facilitated through expert exchanges and other collaborative endeavors. These efforts also enhance the expertise of high-level agricultural professionals within Africa.

China has also undertaken initiatives to cultivate future leaders in agricultural research through the “10+10” cooperation model between Chinese and African agricultural research institutions. This includes the creation of a China-Africa Research Center for Green Agriculture aimed at promoting technological exchanges, joint research, and the extension of new agricultural technologies. In addition to these institutional efforts, China has conducted agricultural technology training courses in countries such as Côte d’Ivoire, Uganda, Tanzania, Sudan, Zambia, and Nigeria, designed to help recipient countries enhance the skills of agricultural practitioners and improve the effectiveness of foreign agricultural aid[42,47]. Furthermore, China has established more than 20 Agricultural Technology Demonstration Centers (ATDCs) across Africa, which were once regarded as a model of China-Africa agricultural cooperation[30,36]. In Africa, many of the ATDCs are partnered with teams from various Chinese provinces, which draw Chinese experiences from a system known as *duikou zhiyuan* (对口支援, “twinning assistance”), where developed provinces provide support to less developed ones. This twinning approach is also utilized in China’s foreign aid initiatives[47].

ATDCs place greater emphasis on aid effectiveness, with the expectation that recipient countries will be able to operate these agricultural aid projects independently after a period of about ten years. For China, the establishment of ATDCs is a strategic initiative to enhance the sustainability of its agricultural aid to Africa, which has introduced over 300 advanced and applicable technologies, including maize cultivation, vegetable farming, and cassava propagation. According to public sources, the promotion of these technologies has led to a 30% to 60% increase in local crop yields. Take hybrid rice as an example: as one of the successful examples contributing to China’s efforts to alleviate poverty and ensure food security, rice breeding technology has been promoted to more than 30 countries[24]. Both China and African countries expect ATDCs to contribute to increasing the productivity and production of smallholder farming systems. By combining aid with commercial operations, innovative agricultural practices have been developed, contributing to rice, cotton, aquaculture, and poultry production[48,49]. Furthermore, ATDCs serve as a platform for China-Africa diplomatic cooperation, providing opportunities for exchanges in agriculture, human resources, and other fields[50].

### 3.1.3. Growing Agricultural Investment and Trade Between China and Africa

Some studies suggest that under the framework of South-South cooperation, China’s interest-free loans and technical assistance have promoted the growth of trade and aid relations between China and Africa[9,51]. Economic and trade exchanges between China and Africa have developed rapidly in recent years. Data show that the stock of Chinese direct investment in Africa has increased from US\$ 7.80 billion in 2008 to US\$ 47 billion by the end of 2022. According to the General Administration of Customs of the People’s Republic of China, in 2023, China-Africa trade reached a historic peak of 282.1 billion, and trade in agricultural products between China and Africa is about US\$ 9.3 billion. China has maintained its position as Africa’s largest trading partner for 15 consecutive years and has become the second-largest destination for African agricultural exports[21]. Abundant natural resources, cheap labor, and promising market prospects have attracted many Chinese enterprises to invest in Africa. China-Africa relations have changed from political interaction to shared political and economic prosperity[52]. Many African countries enjoy good agricultural production conditions and a rich variety of agricultural products. Agriculture has gradually become important to China-Africa’s economic and trade relations.

Since the 1990s, China’s agricultural investment in Africa has experienced rapid and substantial growth, primarily driven by the continuous development of China’s foreign aid program and the strategic implementation of its “going out” policy. This policy has encouraged Chinese enterprises to

expand globally, with regions such as Africa and Latin America, which receive substantial Chinese aid, becoming key destinations for Chinese enterprises under the “Going Global” initiative[53]. Although Chinese enterprises have faced considerable criticism in the process of conducting overseas investment, it is undeniable that the growing participation of Chinese enterprises in international agricultural cooperation is related to the fact that investment and trade activities can promote the economic development of host countries and provide employment opportunities to a certain extent. By the end of 2022, the stock of Chinese enterprises’ agriculture-related investment in Africa is about 1.2 billion US dollars, and more than 200 enterprises have made agricultural investment in Africa[54]. These investments span more than 30 African countries and cover a diverse range of agricultural activities, including the cultivation of staple food crops like wheat and corn and important cash crops such as cotton and sisal[20].

A case in point is the Malawi branch of the China-Africa Cotton Development Co., LTD., which serves as a prime example of China’s targeted agricultural investments. The author conducted a field investigation of the company in 2018 and 2020. Supported by the China-Africa Development Fund, this project, one of the critical projects to implement the follow-up actions of the FOCAC, implements a cooperative business model that engages local farmers directly. This “company + farmer” model significantly boosted the local cotton industry in Malawi. By providing contracted smallholder farmers with production materials and purchasing their cotton for the international market, the company has managed to procure more than 10,000 tons of seed cotton annually. This initiative has not only enhanced the productivity of local cotton farming. Still, it has also elevated the income levels of smallholder farmers, demonstrating the tangible benefits of China’s investment in African agricultural development. Although there is no comprehensive statistical data on the employment impact of China-Africa agricultural cooperation, the authors filed an investigation of Malawi that also demonstrated how China-Africa agricultural cooperation contributes positively to local employment. During peak harvest, Chinese cotton companies in Malawi directly and indirectly employ over 2,000 temporary workers, with more than 120 long-term employees under fixed-term contracts.

Chinese private enterprises, such as the China-Africa Cotton Development Company, have facilitated the integration of African smallholder farmers into the global value chain to some extent. However, this model introduces potential risks for these farmers. Historical precedents set by European and American agricultural investments in Africa demonstrate that enterprises are susceptible to various influences, including political and market factors. For instance, the author’s field research in Zimbabwe highlighted that around 2015, changes in the local business environment prompted companies like Cargill to gradually withdraw from the Zimbabwean cotton market, scaling back their operations significantly. This departure left many smallholder farmers, who had long relied on such companies, vulnerable and exposed to economic instability. Similarly, should Chinese enterprises exit the local market or reduce their activities, comparable adverse impacts on smallholder farmers could ensue. This presents a sustainability challenge that both Chinese governmental bodies and corporate stakeholders must address with diligence.

Recognizing the critical need to develop the entire agricultural industry chain in African countries, China has intensified its efforts to provide comprehensive agricultural investment and development projects across the continent. Since 2013, building on earlier assistance initiatives, China has supported the construction of significant projects like the Primary Processing Center for Agricultural Products in Cape Verde and the Corn Meal Processing Plant in Zambia. China has actively engaged in establishing ATDCs across Africa, fostering agricultural technology exchanges that enhance the entire agricultural value chain, from agricultural production, storage, and processing to sales, and support the agricultural ecological cycle and sustainable production of various countries[55]. Moreover, China has tailored its investment to the specific conditions and needs of local environments, focusing on specific crop production, improving local food security, and enhancing the sustainability of cooperation projects with innovative commercial operation models[56]. A prime example of this targeted investment is the Wan-Jin Agricultural project in

Zimbabwe, a collaboration between the Anhui Agricultural Reclamation Group and the Zimbabwean government, effectively driving local agricultural development. China has provided capital and technology as a shareholder, while Zimbabwe has provided land as a shareholder. This joint venture has cooperated in planting corn, soybean, wheat, tobacco, and other crops on nearly 12,000 hectares of previously abandoned farms in Zimbabwe. In 2021, this project alone yielded nearly 3,000 tons of wheat, all consumed within the local market, thus significantly bolstering local food security, which was especially critical during the COVID-19 pandemic. The project employed over 2,000 local people during its harvest season, contributing substantially to local employment and economic stability[21]. At the same time, the project also upgraded the old grain primary processing and storage facilities of local farms. It provided agricultural product processing and agricultural technology training to surrounding farmers, which have received high acclaim from local governments and people for their impact on local agricultural development and sustainability.

Since the establishment of the FOCAC, both parties have increasingly prioritized agricultural investment and trade. This commitment was evident at the sixth FOCAC in 2015, where it was explicitly stated that China would continue to expand trade in agricultural products. In 2018, the seventh FOCAC proposed a series of initiatives to promote the development of China-Africa trade, with more specific measures in agricultural trade. Both parties agreed to prioritize the processing and trade of cotton and sugarcane as key areas of cooperation, aiming to help Africa expand its share in the international cotton market and enhance the international competitiveness of African sugar products[24].

To facilitate trade dynamics, both parties have implemented a series of trade facilitation actions in line with the macro policies established by FOCAC: China has offered zero-tariff treatment to 97 percent of exports from 33 African least developed countries, reinforcing the trade relationship through improved product standards, quality inspections, and mutual recognition; China has established dedicated platforms such as the China-Africa Economic and Trade Expo and the Center for Distribution, Trade, and Processing of African Non-resource Products to support the marketing and distribution of African goods in China; China has set up a US\$ 5 billion special trade financing fund to encourage Chinese enterprises to import more from Africa[57]. China has established agricultural cooperation mechanisms with 23 African countries and regional organizations, and signed 72 bilateral and multilateral agricultural cooperation documents[58]. The expansion of agricultural trade between China and Africa capitalizes on Africa's comparative advantages of labor-intensive farm products and supports the continent in developing high-value-added agricultural production, showing the potential of enhancing the overall economic well-being of the African region.

#### 3.1.4. Greater Emphasis on Triangular Cooperation and Financial Support

The development of global agricultural governance is facing increasingly complex problems and challenges that cannot be effectively addressed by bilateral cooperation alone. With the evolution of the geopolitical landscape, particularly as traditional donor countries like the United States show a declining willingness to provide international development aid, the need for a more robust and diversified approach to international development cooperation has become imperative[59]. In response to these evolving needs, the triangular cooperation model has gained prominence as a strategic framework to tackle global development issues.

China's agricultural assistance in Africa, facilitated through triangular cooperation, is characterized by its diversity and structured around the distinct attributes of the participating partners. This assistance can be classified into three primary models.

The first model of triangular cooperation is with traditional Western developed countries, where financial resources from developed countries are leveraged to enhance agricultural productivity in Africa. Examples include China and the UK - Malawi triangular agriculture cooperation, China - the UK - Uganda agricultural cooperation, China - Germany - African agriculture triangular cooperation, and so on. These collaborations focus on transferring China's practical agrarian technologies to improve smallholder farmers' productivity levels in African nations.

The second model of triangular cooperation is collaboration with the private sector. In partnership with entities like the Bill and Melinda Gates Foundation, this model harnesses the private sector's fundraising capabilities and expertise in grassroots development. For example, the triangular cooperation between China, the Bill and Melinda Gates Foundation, and Mozambique secures more effective aid to grassroots communities and substantial development.

The third type is triangular cooperation with international multilateral institutions, exhibiting more institutionalized and systematic features. China engages with the World Bank and the Food and Agriculture Organization (FAO) to implement projects like the China-World Bank-Senegal and China-FAO-African countries agriculture South-South cooperation, which benefit from the neutral and structured management capabilities of international organizations.

This triangular cooperation model has already yielded some positive cases. For example, the UK supports China and Brazil in agricultural cooperation projects in Mozambique, Ghana, Zimbabwe, and Ethiopia. Researchers from seven countries have worked together to investigate China and Brazil's agrarian cooperation in Africa, assessing the impact and scalability of shared agricultural technologies and development strategies. They analyze the challenges of South-South cooperation and the sharing experience of agrarian technology among developing countries[45]. The Ghana/Zambia "Renewable Energy Technology Transfer" (RETT) project, funded by Denmark, with technology and expertise provided by China and project management and implementation by the United Nations Development Program (UNDP), shares China's practical technologies in solar, wind, hydropower, and biogas with the beneficiary countries, which not only capitalizes on the financial capabilities of developed countries and the project management expertise of international organizations but also facilitates the sharing of Chinese knowledge, experience, and lessons with developing countries[60].

The essence of triangular cooperation is that China provides agricultural production technology and experience to developing countries like African countries; a third-party organization can provide coordination, management, or financial support. This synergy endeavors to secure the effective utilization of each party's strengths, leading to sustainable agricultural development in recipient countries[61].

Meanwhile, in recent years China has also actively established and expanded various development funds to enhance the sustainability and adaptability of its agricultural cooperation initiatives[11]. For instance, since its inception in 2007, the US\$ 10 billion China-Africa Development Fund and the US\$ 40 billion Silk Road Fund established in 2014 have supported corporate investments, fostering regional economic and social development, with agriculture being one of the key investment sectors. Taking the China-Africa Development Fund as an example, the authors once visited a sisal farm invested and established by the fund in Tanzania, which employs over 700 permanent and 300 temporary local workers. It is undeniable that this agricultural investment has not only promoted the development of the Tanzanian sisal industry but also provided relatively stable employment opportunities for the locals. In countries like Malawi and Mozambique, the China-Africa Cotton Company, utilizing a "company +farmers" contract farming model, supplies inputs for cotton cultivation and purchases the cotton from local smallholders, enhancing the incomes of these cotton farmers.

In addition to these investment-focused funds, China has also begun establishing aid-type funds. For example, at the 2015 United Nations South-South Cooperation Roundtable, the Chinese government pledged US\$ 2 billion to set up the South-South Co-operation Assistance Fund to support developing countries in implementing the 2030 Sustainable Development Agenda and contribute an additional US\$ 1 billion to this fund in 2017, bringing the total to US\$ 3 billion[22], based on which Chinese government added another US\$ 1 billion and upgrade it to Global Development and South-South Cooperation Assistance Fund. This fund has already been used to execute and facilitate many emergency humanitarian aid projects. Among them, cooperation projects in food security and green development will focus on Africa. In 2008, the Chinese government donated US\$ 30 million to establish a trust fund with the FAO, the China-FAO South-South Cooperation Trust

Fund and made additional contributions of US\$ 50 million in both 2014 and 2020[62]. With the support of the Fund, China and FAO have carried out a number of agricultural cooperation projects in Uganda and other African countries, focusing on addressing food security issues in Africa. Such triangular cooperation with international organizations like the FAO in funding could leverage their expertise in project management—compensating for China’s lack of specialized foreign aid management and coordination agencies in the recipient countries—but also help to reduce the political uncertainty associated with bilateral negotiations, better ensuring political non-interference in the internal affairs of other countries.

### 3.2. Dilemmas in China-Africa Agricultural Cooperation

Despite some positive results achieved in China-Africa agricultural cooperation, it is undeniable that against the backdrop of a complex and changing international environment, this cooperation still holds great potential for improvement and continues to face certain dilemmas and practical challenges.

#### 3.2.1. Weak Synergy with Comprehensive Regional Development

Although agriculture serves as a critical foundation for economic and social development in most African countries, playing a pivotal role in poverty alleviation and food security, and China-Africa agricultural cooperation has achieved mutual benefits to a certain extent[41,63], the overall scale of this cooperation remains modest, and there are still critical shortcomings in its capacity to drive comprehensive regional development.

Many agricultural aid projects predominantly focus on specific facets of agricultural improvement, such as enhancing agricultural technology, increasing farmers’ productivity, and boosting food production[17,64,65]. These initiatives, while beneficial in their targeted areas, may overlook how such cooperation can promote overall regional development on this basis. According to the author’s interview, a Chinese government official who has long been involved in China-Africa agricultural cooperation stated, “The absolute volume of our agricultural cooperation with Africa is continuously increasing, but the relative proportion has not changed significantly”. The scale of cooperation projects is relatively small. While they may have a positive impact at the village level, achieving a scale effect still requires further exploration. Promoting the integration of African agriculture with other industries remains a direction we need to strive for in the future”.

While agriculture is the foundation of Africa’s development, progress in Africa cannot rely solely on enhanced agricultural productivity. How can gains in agricultural productivity be translated into wider economic and social benefits[10]? Critical issues for China-Africa agricultural cooperation, and broader China-Africa development cooperation, include how to leverage development in agriculture and other primary industries to improve labor quality[21], how to provide better raw material support for the industrial and service sectors, and how to foster the accumulation of human capital in Africa.

#### 3.2.2. Scrutiny and Controversy over Developmental Impacts

The structure of agricultural trade between China and Africa reveals a pattern where China predominantly imports primary agricultural products such as timber, cotton, oil crops, and tobacco from Africa; in contrast, Africa imports industrial finished products, including machinery, transportation tools, and building materials from China, where trade pattern reflects the differing industrial structures and resource endowments of the two regions[22]. However, this dynamic has sparked concerns about the sustainability and fairness of China-Africa trade, particularly regarding its impact on agricultural development and food security in Africa. Some critics argue that the trade structure between China and Africa remains a traditional and extractive international trade model, where one party supplies raw materials and the other supplies manufactured goods. This structure

has not disrupted the international economic order and is relatively unlikely to have a structural impact on Africa's development[66].

The focus on cash crops for export to markets like China can skew local agricultural priorities, potentially detracting from food production. This shift raises substantial concerns about food security in Africa, as local farmers may prioritize cash crops that are economically lucrative over staple food crops that are vital for local consumption. In contrast, providing better conditions for agricultural export along with some moderate restrictions on the export of natural luxury goods can increase the incentive to develop sectors with higher growth potential in African countries[36,67]. The phenomenon where local production is geared toward international markets rather than domestic needs has led some observers and stakeholders within Africa to question whether the benefits of trade with China truly support agricultural development and food security[68,69]. Moreover, the trade relationship has been scrutinized under the lens of "neo-colonialism" and "re-source grab" debates. Critics have argued that the pattern of trade where African countries export raw materials in exchange for finished goods from more industrially developed partners like China could perpetuate economic dependencies and underdevelopment[19,24,70,71]. Such critiques suggest that rather than fostering equitable development, the current trade structure might limit Africa's economic sovereignty and ability to develop a more diversified and self-sufficient industrial base.

Some scholars argue that the trade relationship between China and Africa exemplifies a typical asymmetrical trade model, where Africa exchanges raw materials for China's value-added industrial products. This trade pattern is criticized for failing to promote adjustments or transformations in the global economic structure and lacking a substantive positive impact on local industrial development[48,72].

Some studies have raised critical concerns from an African perspective, particularly regarding China's resource acquisition in Africa. For instance, survey data analyses indicate that some African populations perceive that Sino-African trade may not contribute positively to Africa's development. China's large-scale extraction of energy and resources has generated dissatisfaction among local communities, especially in countries that prioritize human rights and governance, where China's role is viewed less favorably[73,74].

Furthermore, scholars have critiqued the Chinese government's active promotion of agricultural trade, aid, and investment in Africa, arguing that these initiatives have not fundamentally altered the imbalanced trade dynamics between China and African nations. Despite China's significant resource extraction from Africa, these efforts have not delivered genuinely constructive outcomes for African development[75,76]. Critics emphasize that China's agricultural cooperation with Africa should prioritize long-term sustainability and substantially contribute to local economic and social development rather than focusing solely on short-term resource gains.

### 3.2.3. Ineffective Resource Utilization in Regional Agricultural Development

African agriculture is characterized by its remarkable diversity, with over 50 countries exhibiting significant variations in climate, land resources, geographical positioning, resource endowments, and technical and market conditions[18,77]. This diversity, combined with the uneven nature of international agricultural cooperation, presents substantial challenges to the success and impact of agricultural projects[21]. Although there are numerous international agricultural aid projects and cooperation initiatives in Africa, many have failed to achieve their intended outcomes, with limited positive impact on regional development, thereby constraining the overall effectiveness of agricultural cooperation[78,79].

Despite these efforts, current agricultural cooperation between China and Africa frequently fails to effectively harness and leverage the advantageous resources available for local agricultural development. There remains a significant gap in collecting and utilizing Africa's diverse agricultural assets and integrating these with global resource and capability advantages. This shortfall has resulted in agricultural cooperation that, while beneficial in isolated instances, generally plays a limited role in catalyzing the comprehensive development of the region.

Research into Chinese governmental policies on ATDCs reveals that these initiatives were primarily established in response to direct requests from African nations. The inaugural center, constructed in Mozambique in 2007, was a direct outcome of Mozambique's acute need for practical agricultural technologies[80]. Subsequently, more than 20 other African countries have also submitted similar requests to China, highlighting a widespread demand for such infrastructure. Despite potential international criticism, China consistently emphasizes the principles of sovereignty and autonomy for recipient nations, asserting that the ultimate goal of ATDCs is for recipient countries to independently manage these facilities. For instance, the ATDC in South Africa has been transferred to the local government for full management[81].

However, due to limited capacity in some countries, most ATDCs continue to be jointly operated by Chinese enterprises, research institutions, universities, and the governments of recipient nations. For example, during a visit to the ATDC in Zimbabwe, the authors found that the local government expressed a preference for China to provide ongoing operational support for the center, believing that this approach strengthens bilateral agricultural technology cooperation and maximizes the center's positive impact. Nevertheless, this model risks fostering long-term dependency on Chinese assistance, potentially hindering the innovative and self-sustaining role of these centers[78].

#### 3.2.4. The "Resource Grab" Narrative and Its Critiques

China-Africa agricultural cooperation has achieved some positive results. However, it continues to face criticism and scrutiny from various quarters. Within the traditional framework of international relations, Africa has long been regarded as a strategic partner by European nations and the United States, playing an indispensable role in global governance. As China deepens its ties with Africa through international agricultural cooperation, some countries perceive this as a challenge to their traditional spheres of influence, leading to criticism of China's agricultural policies and practices in Africa[21,82].

Within Africa, perspectives on China-Africa agricultural cooperation are not entirely uniform. Given the historical inefficiencies of post-war Western aid and incidents of land grabbing by certain countries, African nations have adopted a cautiously optimistic stance toward China-Africa agricultural cooperation. Some critics, however, express concerns that China's agricultural investments and cooperation may involve the "appropriation" of African arable land, a viewpoint that cannot be overlooked.

China-Africa agricultural cooperation, particularly Chinese agricultural investments in Africa, often faces allegations of land grabbing and resource exploitation[75]. Moreover, despite China's active promotion of agricultural trade, aid, and investment in Africa, some scholars argue that these efforts have not sufficiently addressed the trade imbalance. They maintain that China continues to extract significant resources from Africa without yielding genuinely beneficial outcomes for African nations. Additionally, the scarcity of publicly available data on these partnerships complicates the assessment of their effectiveness and contributes to cautious or critical perspectives among some researchers regarding the impact and ethics of China-Africa agricultural investment and trade[80].

For China, these criticisms and concerns represent challenges that must be addressed as it advances agricultural cooperation with Africa. How to maintain the achievements of cooperation while effectively responding to these concerns and promoting a more equitable and transparent cooperation model has become a critical issue for China to consider in its agricultural engagement with Africa.

## 4. Discussion

The review of achievements and challenges within China-Africa agricultural cooperation underscores the need for future collaborations to establish more diversified and impactful partnerships. Such partnerships hold significant potential to advance the achievement of key Sustainable Development Goals (SDGs), particularly SDG 1 (No Poverty), SDG 2 (Zero Hunger) and

SDG 10 (Reduced Inequalities) through the implementation of constructive and mutually beneficial agricultural practices.

The experiences of major donor countries, particularly those within the Organization for Economic Co-operation and Development (OECD), reveal that reliance solely on aid rarely yields substantial results in the short term, especially in terms of accelerating the comprehensive economic and social development of recipient countries. As China positions itself as a developing country, the scale of its agricultural cooperation with Africa remains relatively modest. Within the complex global context of agricultural development and considering the unique developmental characteristics of both China and Africa, advancing the SDGs through agricultural cooperation requires addressing numerous criticisms and challenges. This necessitates the adoption of more precisely tailored and context-specific measures.

#### *4.1. Fully Leveraging the Diversified Functions of ATDCs*

China has built more than 20 agricultural technology demonstration centers in Africa, and each of these centers has benefited from significant investment in personnel, financial and material resources during project establishment, site selection, design, construction and operation[18]. From inception to operation, these centers have seen substantial investments—initial infrastructure costs alone range between 20 and 30 million RMB. Moreover, these centers are granted high political status by both China and the host African nations. China typically sends top-tier agricultural experts to provide technical support[12], and African countries often deliver the centers with diplomatic, economic, and trade facilitation at the national level. However, current cooperation mechanisms often fall short of fully utilizing their potential.

To better leverage these centers in the future, strategic enhancements can be considered, further harnessing their platform advantage in agricultural cooperation. First, the centers could adopt the “company + farmer” model used by other agricultural enterprises to better disseminate advanced agricultural technologies to surrounding farmers. Second, more diverse corporate operational models should be introduced that cater to local market demands in Africa for crops such as grains and vegetables while also supplying high-quality food and cash crops to both Chinese domestic and international markets. Third, enhancing the educational role of these centers by offering tailored agricultural higher education and vocational training programs can address local needs and build a skilled workforce. Utilizing these centers as platforms for talent cultivation would help in nurturing the next generation of agricultural professionals and leaders in Africa[24,82]. Fourth, the centers could serve as hubs for broader international cooperation by partnering with global organizations to import best practices and advanced technologies. This collaborative approach would facilitate the sharing of international agricultural experiences and innovations, enriching local agricultural practices and supporting sustainable development.

#### *4.2. Enhancing Support for the Development of the Entire Agricultural Industry Chain*

Although African countries have a relatively high level of participation in the global agricultural value chain, most are more involved in upstream activities such as raw material production and less in downstream activities like deep processing and distribution of agricultural products[11]. In recent years, China’s agricultural investment in Africa has boosted agricultural development in Africa to a certain extent, especially helping small farmers integrate into the global market. However, the history of China’s agricultural investment in Africa is relatively short. At present, most Chinese enterprises are still limited to crop planting, acquisition, and primary processing, and have little involvement in crop breeding, agricultural machinery, and the deep processing of agricultural products. From the perspective of development trends, there is substantial potential for China to undertake more expansive agricultural investment projects in Africa. In the future, China’s investments can be strategically aligned with the natural resources and environmental conditions of different African countries, leveraging their low pollution levels and favorable conditions for green agriculture, while avoiding negative impacts on the local ecological environment.

Furthermore, enhancing brand development is essential for promoting deep processed agricultural products globally. Strengthening branding not only improves market penetration but also supports the overall development of the agricultural value chain. However, building an agricultural value chain and establishing brand recognition are long-term endeavors that often require years of sustained effort and investment, particularly in land restoration and brand positioning—it would be beneficial to further leverage support from developmental funds[83] like the China-Africa Development Fund to provide necessary capital influx.

#### *4.3. Leveraging the Positive Role of Digital Technology in China-Africa Cooperation*

The rapid development of information technology has created more opportunities for the advancement of agricultural technologies. International organizations, such as the FAO, have initiated the promotion of “Internet Plus Agriculture” and agricultural information systems in several African countries. Expanding cooperation between China and Africa in emerging fields such as “Internet Plus Agriculture” can serve as an important lever in modernizing Africa’s agricultural systems, enhancing productivity, and opening new channels for economic development.

China, as a major exporter of electronics, machinery, and equipment to Africa and playing a significant role in infrastructure development such as communication and transportation systems, is uniquely positioned to support the digital transformation of African agriculture[24]. Leveraging the existing China-Africa trade and investment frameworks, there is a compelling case for China to provide additional support in the form of internet-based technologies and information systems[11]. This could be achieved through assistance programs or even zero-profit sales of relevant technological equipment, thereby fostering a more robust adoption of digital tools among local agricultural technicians, researchers, and small-scale farmers.

Moreover, the potential of the digital economy in facilitating the sale of African agricultural products was vividly demonstrated during the COVID-19 pandemic. For instance, a live-streaming sale facilitated by the Chinese enterprise Alibaba sold 1.5 tons of Rwandan coffee beans to Chinese consumers in a matter of seconds, highlighting the vast potential of high-quality African agricultural products in the global market[84]. This case not only underscores the effectiveness of digital platforms in connecting local producers with global consumers but also proposes a scalable model for China-Africa agricultural cooperation, whereby market opportunities can be significantly expanded through the strategic use of Internet technologies.

#### *4.4. Exploring Regional Agricultural Cooperation and Development Paths*

In reviewing the history of international development cooperation post-World War II, it is evident that traditional donor countries have undertaken numerous initiatives to aid agricultural development in Africa. Although these efforts have garnered both praise and criticism, a comparison of agricultural cooperation between Africa and other global powers, such as the United States and European countries, with China’s approach highlights distinct advantages and challenges, which can help provide a reference for formulating more effective policy recommendations.

Western powers, with their historical legacies of enslavement, colonization, and military intervention in Africa, often face skepticism and resistance from African nations. In contrast, China, which lacks a colonial history in Africa, positions itself as a more neutral and favorable partner. This absence of a colonial past enables China to establish relationships based on mutual respect and partnership, free from the historical burdens that complicate Western interactions in the region.

China’s policy of non-interference in the domestic affairs of its African partners stands in stark contrast to the Western approach, where companies and governments frequently impose political and ethical conditions as prerequisites for cooperation. Western partners, under pressure from shareholders and regulators, often demand adherence to high standards regarding human rights, environmental protection, and good governance. While these standards are important, they can sometimes be perceived as intrusive or paternalistic by African nations. In contrast, China’s non-

conditional approach provides a sense of relief to these countries, allowing for more flexible and pragmatic cooperation agreements.

Furthermore, China is playing an active role in addressing Africa's infrastructure deficit. As some traditional donor countries scale down their foreign aid budgets, China's agricultural cooperation with Africa may help fill the funding gap, while investment in infrastructure helps drive the economic development of African nations[85]. This support is crucial, as inadequate infrastructure remains a major barrier to growth and development in many African countries. However, it is undeniable that Western countries have accumulated extensive experience in their agricultural cooperation with Africa and achieved some positive outcomes both theoretically and practically. In this regard, some successful experiences of the United States and European countries offer valuable insights for China to enhance the efficiency and depth of its agricultural cooperation with Africa.

## 5. Conclusions and Future Works

This review article has examined the dynamics of China-Africa agricultural cooperation, emphasizing its alignment with Sustainable Development Goals (SDGs), particularly SDG 17. It has systematically analyzed the multifaceted nature of agricultural cooperation between China and Africa, exploring its achievements and challenges within the context of cross-border development and sustainability. It underscores the potential of enhanced Sino-African cooperation to boost African agricultural development, thereby advancing the achievement of SDG 1 (No Poverty), SDG 2 (Zero Hunger) and SDG 10 (Reduced Inequalities), among others.

This analysis has revealed how this cooperation has evolved from basic technical assistance to a comprehensive framework incorporating aid, investment, and trade, demonstrating four key characteristics. First, a macro coordination mechanism has been established through the Forum on China-Africa Cooperation (FOCAC). Second, China's agricultural assistance to Africa has shown a significant trend towards diversification. Third, China and Africa are increasingly active in agricultural investment and trade, with a growing emphasis on the development of the entire agricultural value chain. Fourth, there has been a continuous exploration of triangular cooperation models involving third-party countries and international organizations, which has been complemented by strengthened financial support mechanisms.

Despite these advancements, challenges persist, particularly in effectively integrating resources to stimulate regional growth. Projects often have limited regional impact and are sometimes misaligned with sustainable developmental goals, highlighting the critical need for a more integrated and strategic approach. Large-scale agricultural aid projects, such as agricultural technology demonstration centers, while significant, have not yet fully realized their potential in driving local agricultural innovation and broader economic development. Furthermore, the innovative triangular cooperation models, though promising, require further refinement and broader stakeholder engagement to enhance their efficacy and sustainability.

Overall, the China-Africa agricultural partnership is poised to contribute to global poverty reduction, food security, and economic development, while accumulating more effective experiences and strategies for South-South cooperation. However, cautious or critical perspectives regarding the impact and ethics of China-Africa agricultural investment and trade persist. In terms of future directions, this study advocates for continuously optimizing the China-Africa agricultural cooperation model, with an emphasis on sustainable practices. The study suggests that policymakers in China and Africa jointly establish a balanced and comprehensive framework for agricultural cooperation to address the unique challenges and opportunities in Africa. China can draw on the experiences of other global powers and integrate the strengths of different approaches to support the long-term development and prosperity of African agriculture, ensuring that cooperation projects actively contribute to the well-being of African societies and align with the SDGs.

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