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## **Reducing Poverty in Sub-Saharan Africa through Agricultural Development: Lessons from the Chinese Experience**

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### **Authors' contributions**

*This work was carried out in collaboration between all authors. Author JAA designed the study and wrote the manuscript. Authors JD provided guidance and overall supervision. Author EYN managed the literature searches and edited the manuscript. All authors read and approved the final manuscript.*

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### **ABSTRACT**

Improving agricultural growth and productivity can guarantee the food security and poverty reduction in much of sub-Saharan Africa. However, improving agricultural growth and productivity is not an easy task since it needs the right strategies and a strong commitment from African leaders to invest into agricultural development. The present paper explores on the agricultural and rural development of China and draws lessons for Sub-Saharan Africa. After discussing the challenges facing African agricultural development and the recent efforts to improve growth and productivity, the paper concentrates on lessons from the Chinese experience. The link between the lack of sufficient progress against food insecurity and rural poverty in sub-Saharan Africa and the weakness in local institutional structures mandated to provide services directly to smallholder farmers is the main conclusion of this study. Feasible solutions revolve around strengthening these institutions beside the recent efforts to improve agricultural growth and productivity.

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## 1. INTRODUCTION

The present paper explores on the Chinese experience of agricultural and rural development and draws lessons for Sub-Saharan Africa (SSA). Despite the relative scarcity of farmland, agriculture has made enormous contributions to food security and poverty reduction in China [1-4]. Unlike China, SSA remains the poorest developing region of the world [5]. Agricultural productivity in SSA lags considerably behind that of other continents as well as the region's own potential [6]. On the other hand, the leaders of African Union (AU) have in recent years shown their commitment to improve agricultural growth and productivity as demonstrated by their continuing support and development of the New Partnership for Africa's Development (NEPAD)-Comprehensive Africa Agricultural Development Programme (CAADP). In July 2012, the AU Assembly of heads of state and government confirmed their commitment to improve agriculture by declaring the year 2014 as the year of agriculture and food security in Africa [7]. While such commitments and efforts are laudable, past experiences tend to suggest that the lack of sufficient progress against food insecurity and poverty in SSA may not be solved by just initiating another development programme. Africa has seen no shortage of recipes for promoting development, including agriculture in the last six decades [8]. Therefore, Africa needs to take a closer look at the strategies adopted by other regions that have made great progress from similar situations confronting the continent today. It is generally agreed that the Chinese success against extreme hunger and poverty can be an example for other developing countries [9-12]. Although previous studies have discussed lessons for SSA from the experience of Chinese development [10,11], the present paper will attempt to show that a solution to the unsatisfactory progress against food insecurity and rural poverty in SSA, revolves around strengthening frontline institutions alongside recent efforts to improve agriculture growth and productivity. Subsequent to this introduction, Section 2 describes how the research is conducted. Section 3 presents a brief overview of the Chinese agrarian reform process and the outcomes. Section 4 reviews the role, challenges and the recent progress of agricultural development in SSA. Section 5 discusses the policy lessons for African agriculture and rural development. Finally,

section 6 concludes the paper with arguments for strengthening frontline institutions which are involved in the implementation of agricultural and rural development programmes in SSA.

## 2. METHODOLOGY

The paper primarily draws on a selection of peer reviewed publications in English language which are available online in four major academic article databases namely; Elsevier ([www.sciencedirect.com](http://www.sciencedirect.com)), Springer ([www.link.springer.com](http://www.link.springer.com)), Wiley Online Library (<http://onlinelibrary.wiley.com/>) and Emerald (<http://www.emeraldinsight.com>).

Relevant articles were investigated using the following key phrases 'Chinese rural reforms and agricultural productivity growth', 'Impact of Chinese reforms on growth and poverty reduction', 'The success factors of Chinese rural reforms', 'Challenges facing African agricultural development', 'Improving African agricultural productivity growth' and 'Contributions of agriculture to food security in Africa'. Recommended articles related to selected papers were also analyzed and this made a rich contribution to the literature coverage. The Google search engine (<http://google.com.hk>) was used to provide grey literature published by international organizations, such as the United Nations (UN), the World Bank, The UN-Food and Agriculture Organization (FAO), African Union (AU)/New Partnership for Africa's Development (NEPAD), the UN –Economic Commission on Africa (UN-ECA), the African Development Bank (AfDB), the Alliance for Green Revolution in Africa (AGRA), Global Development Network (GDN) and the US Department of Agriculture (USDA). Since the literature on the process of Chinese rural reform as well as African agricultural development and food security is abundant and fast emerging, this study does not claim to have undertaken an exhaustive coverage of all relevant material. We set criteria for the selection of publications by following the example of a previous study [13] as follows: (1) Focusing on rural reforms and agricultural productivity growth (2) Examining the situation in China after the reforms in 1978 (3) Providing insights and information about the role of agriculture, challenges and efforts to improve productivity in Africa. Publications on China prior to the reforms in 1978 were only retrieved for content checks but they were not included in the

review. In addition, papers that discussed general economic situation and sustainable development processes were excluded from the review.

### 3. UNDERSTANDING RURAL REFORM PROGRAMMES OF CHINA

The history of Chinese agricultural development is as old as the civilization processes of the Chinese nation itself [14]. Independent family farms which were typically small and fragmented had been the traditional farming institution in rural China for thousands of years. Most farmers were landless peasants who rented land at exorbitant rates from individual landlords for cultivation. On the other hand, land was confiscated by the government without compensation and redistributed to peasant farmers soon after the birth of the People's Republic of China in 1949 [15]. The adoption of communism and heavy industry-oriented development strategy in the mid-1950s pushed the government to switch to the promotion of agricultural collectivization and monopolized the state procurement and marketing policies [9]. Widespread food shortages and famine that occurred in the early 1960s are widely attributed to such policies [16-21]. Collective farming system and monopolized procurement and marketing policies were so detrimental to work incentives that grain production in China could hardly match with growing population and increasing demand despite the remarkable improvements in technology and increased use of modern farm inputs in the 1960s and 1970s [9]. As a result, comprehensive policy reforms were initiated in the late 1970s in order to increase the output.

The reforms are widely acclaimed to have been successful despite the issues of distribution and equity regarding the extent of benefit to farmers

in different parts of the country [2,15,22,23]. Concerning impact on agricultural productivity, very impressive estimates have been reported (See Table 1). Cash crop production (including cotton, oil crops, and fruits) achieved notable success while the performances of animal and fishery sub-sectors were more impressive than that of the crop sector [15]. Furthermore, it is reported that the reforms imposed by the accession of China to the WTO largely favored exportable products which were negatively protected prior to the accession [2].

Apart from the variations in sector specific productivity, poorer regions did not perform well relative to the more endowed regions. For instance, the increase in the rate of agricultural output was faster than the national average in the northeastern and southern regions [15]. However, the central region as well as the northwestern and southwestern regions showed long-run growth rates, some of which vary from 8% to 15% below the national average. Unlike farmers in the more prosperous eastern and southern provinces that produce more exportable products, average farmers in many of the less developed provinces in western and northern parts of China have not gained much from trade liberalization [2].

#### 3.1 The Sources of Growth

Inspired by the impressive agricultural output following the reforms, scholars on Chinese economy have been investigating the sources of productivity growth. In one of such studies, about 78% of the farm productivity gains between 1978 and 1984 were attributed to the changes in the incentive system, resulting in a decrease in government procurement quotas which allowed farmers to sell portions of their produce in the relatively deregulated local markets. The remaining 22% came from the 1985-1989

**Table 1. The effects of institutional reforms on Chinese agricultural growth**

Source	Studied period	% Growth in agriculture attributed to institutional reforms
Lin [24]	1980-1983	62.0
McMillan et al. [25]	1978-1984	78.0
Fan [26]	1965-1985	56.0
Carter and Zhong [27]	1979-1986	19.5
Lin [18]	1978-1984	46.9
Huang and Rozelle [28]	1975-1990	35.6
Zhang and Carter [20]	1980-1985	38.0
Fan and Pardey [15]	1965-1993	18.0

*Source: Author's compilation*

market reforms which gave higher prices to producers [21,25]. The positive impact of the institutional reforms on productivity growth was mentioned in another study where 46.9% of the change in productivity growth during the 1978–84 period was attributable to the institutional changes which brought the household responsibility system. Buttressing the vital role of the institutional reforms, the increased use of traditional inputs, such as land and labor did not contribute much to the gains in agricultural output [15]. Instead the key role of the growth-promoting effects of 'getting markets right' under the market reform programmes was significant at the outset. Other studies have highlighted the significant role of exchange rate depreciation subsequent to the reforms which increased the export competitiveness of agricultural products, contributing to the rapid export growth and robust economic performance of China [2].

Though the impact of the reforms on productivity growth is widely acclaimed, questions have emerged since then among scholars concerning the extent of the impact attributable to the institutional and market policy reforms. In this connection, the findings of a study reveal that the direct growth promoting consequence of institutional change and market reforms may have been overstated by the earlier studies [15] since research-induced technical change has accounted for a significant share (20%) of the growth in agricultural output since 1965. More recently, the specific role of different types of governmental expenditure on growth and poverty reduction in rural China was examined [29]. The results show that governmental spending on production-enhancing investments, such as agricultural R&D and irrigation, rural education and infrastructure (including roads, electricity, and telecommunications) all contributed to agricultural productivity growth and reduced rural poverty. However, it is also noted in the study that the institutional and policy reform was the dominant factor both in promoting growth and in reducing rural poverty during the 1978-1984 period. On the other hand, public investment surpassed the institutional and policy reform and became the largest source of production growth and poverty reduction during 1985-2000.

It seems clear that the Chinese experience of agrarian reforms demonstrates the point of view where institutional factors are critical for economic growth and development [30,31]. In the subsequent sections, we turn our attention to understanding African agriculture, with respect to its role, the challenges and the way forward.

#### **4. UNDERSTANDING AFRICAN AGRICULTURE**

One of the notable features of the 21st century has been the expansion of emerging markets and the acceleration in technology development. The accompanying structural transformation of economies has seen a decline in the share of agricultural contribution to GDP [32,33]. Even though there has been a decline in the contribution of agriculture to economic activity in SSA, its role in this region is still very significant. Table 2 shows that the contribution of agriculture to GDP was higher than 20% in the top ten largest economies of SSA from 2010 to 2013 except for the Republic of South Africa and oil-rich Angola [34,35]. It is worth noting that a vast majority of the inhabitants in these regions earn their living from agriculture, even in the few countries where the contribution of agriculture to GDP is not so high [6,36,37].

Despite having the largest share of its population engaged in agriculture, Africa has been unable to feed itself for many decades now [38,39]. This state of affairs pertains despite many years of substantial socio-economic gains in many African countries in the recent past. There are projections showing that more SSA inhabitants will suffer from hunger and malnutrition in the foreseeable future [38,40]. The number of undernourished people in SSA is expected to swell from 180 million in 1995/97 to 184 million by 2015 [38]. A clear indication that most of SSA is in fact left out of the UN-Millennium Development Goal of halving hunger and poverty by 2015. These developments have left many scholars wondering whether the traditional philosophy of reaching economic prosperity by agriculture is applicable in the African situation as it is recently experienced in China and most other Asian countries [41].

##### **4.1 Interrogating the Challenges of African Agriculture**

Why has African agriculture failed to create wealth and provide enough food for its people? Scholars on African agriculture have been discussing a myriad of reasons believed to be responsible from the situation. A previous study draws attention to the peasant nature and the lack of modernization of African agriculture [36]. Despite the availability of large, suitable but uncultivated land, the average farm sizes in Africa are small [6,36]. They are typically less than 3 ha and farm sizes are on the decline as

**Table 2. The agricultural contribution of top 10 largest economies in SSA to GDP**

Country	2013 GDP (current US\$)	Agricultural value added (as % of GDP)			
		2010	2011	2012	2013
Nigeria	521,803,314,654	24	22	22	21
South Africa	350,630,133,297	3	2	3	2
Angola	124,178,241,816	10	9	7	10
Sudan	66,565,889,417	25	25	29	28
Kenya	55,243,056,201	28	28	29	28
Ghana	48,137,027,487	30	25	23	22
Ethiopia	47,525,186,490	45	45	48	45
Tanzania	33,225,037,490	28	28	29	28
Cote d'Ivoire	31,062,026,533	25	27	23	22
Cameroun	29,567,504,655	23	24	23	23

*Source: Compiled by the authors from World Bank data*

pressure from urbanization and rising population become more intense. Most agricultural tools used are basic and hand-held, tractors are rare and purchased external inputs, such as fertilizer, chemicals used for crop protection, improved seeds are sparingly used [6,36]. The access to high quality, locally adapted, improved seeds at affordable prices has long been recognized as an essential ingredient to boosting agricultural productivity [6]. When fertilizer is used in combination with improved planting material, yield gaps among smallholder farmers of SSA are reduced significantly [42]. This suggests that adequate and efficient use of fertilizer is critical for achieving food security. Unfortunately, the intensity of fertilizer use in SSA is still very low, averaging just around 10 kg/Ha, whereas it has reached 222 kg/ha in Asia, 160 kg/ha in Oceania and 138 kg/ha in South America [43].

The lack of modernization of African agriculture is not only limited to the use of traditional low yielding varieties and basic farm implements, but also related to the reliance on natural rainfall [36,37,44,45]. Despite the evidence indicating that irrigation offers the best opportunity for increasing food production and improving food security, only a small fraction of African farmland is irrigated [46]. As a result, much of African crop production is left to the mercy of nature's rainfall which is highly unreliable. These and other natural hazards, such as pest and disease attacks as well as poor soils are detrimental to agriculture [36,37].

While the productivity of African agriculture lags far behind that of the rest of the world [41], population growth rate is faster than that of the rest of the world. It is intriguing that SSA is projected to lead the world in population growth beyond 2050 [47] even though its population size

doubled in the last 30 years [37,40]. Such a high population growth rate has left the nature dependent peasant agriculture struggling to provide enough food for the inhabitants of SSA. Moreover, there is a growing disease burden in the region where nearly 1 in every 20 adults lives with HIV, accounting for 71% of the people living with HIV worldwide [48].

Another major problem for the lack of progress in the living standards of people in SSA is the inability of farmers to link up their production to markets. The lack of efficient storage facilities and the non-availability of inventory finance which limit the capacity of rural assemblers to absorb surpluses at harvest are identified [6]. The arbitrary political borders inherited by African countries is another source of drawback; hindering agricultural trade and dampening incentives for farmers and agribusinesses to invest in many of the regional bread-basket zones of Africa [49]. Without sure outlets for marketing their produce, there is little incentive to produce more than what is required for subsistence and a little more for sale to buy basic necessities [50,51]. Furthermore, there are some recent developments affecting African agriculture like the widespread dissatisfaction among developing countries with the framework for international, agricultural trade agreements [52]. In particular, the access to developed country markets has not been achieved to the promised extent and many developing countries have experienced import surges following trade liberalization.

Failures of the institutions as well as failures of leadership have also contributed to the agricultural problems in SSA. They have failed to provide the enabling environment in the form of agricultural R&D, rural infrastructure, the access

to markets and financial services as well as policy support. Having received much attention from African governments, donors and the international community during the 1960s and 1970s, African agriculture suffered from funding cuts in the 1980s and 1990s [32,52].

The long neglect and underinvestment for agriculture and agricultural R&D in SSA over a decade have left many African countries with the struggle with more challenges, such as declining soil fertility, water scarcity, the ease of spreading plant and animal diseases/pests, large but aging rural populations and climate change [40].

Without doubt, land is one of the most critical resources for agricultural development. Proper management of land is vital for improved agricultural productivity. As discussed in the Chinese experience, switching from the collective system to the system of household responsibility greatly improved agricultural productivity. The interrelated problems of rural poverty, poor agricultural performance and low levels of economic growth have been attributed to the persistence of farming systems based on customary tenure [1,6,53].

Clearly, the list of challenges militating against African agricultural development is quite long; there isn't a simple solution. Rightly, African leaders through NEPAD –CAADP initiative have outlined a complex set of challenges that needs urgent attention to attain a productive and profitable agricultural/agro-industrial sector including:

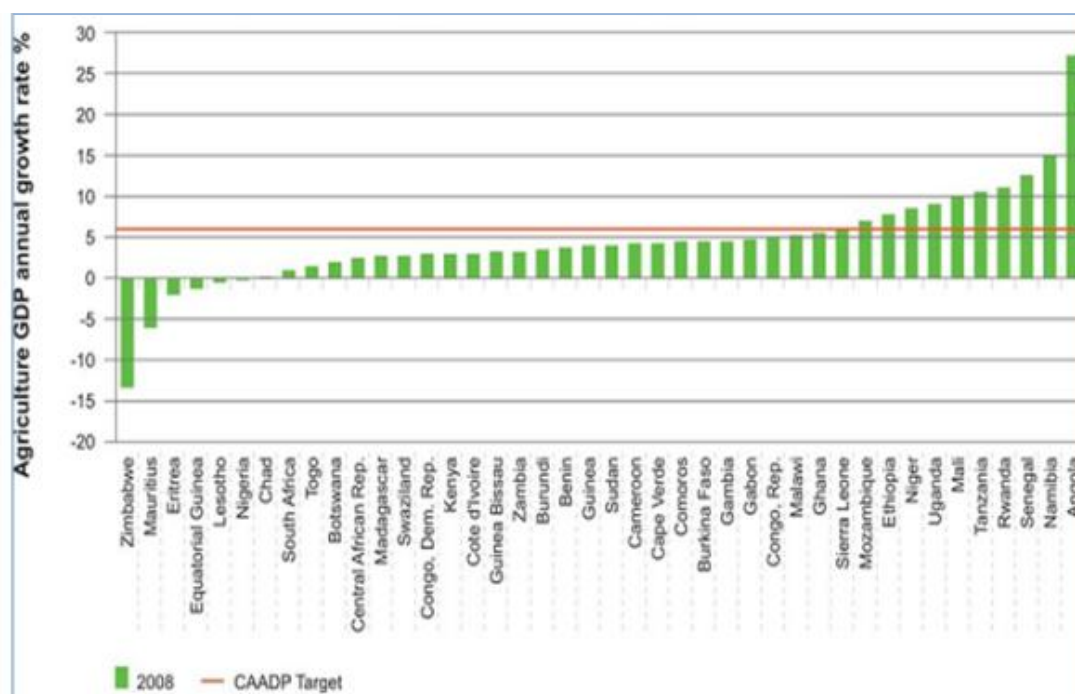
- Low domestic demand due to poverty;
- Poor and unremunerative external markets (with decreasing and unstable commodity prices and severe competition from the subsidized farm products of industrial countries);
- Vagaries of climate and consequent risk that deters investment;
- Limited access to technology and low human capacity to adopt new skills;
- Low levels of past investments in rural infrastructure (such as roads, markets, storage, rural electrification, etc.) and
- Institutional weaknesses for service provision to the entire agricultural chain from farm to market

#### **4.2 Recent Progress in the Agricultural Development of SSA**

While acknowledging numerous challenges facing the agriculture of SSA, recent trends in

some countries illustrate that it is possible to achieve the agricultural growth rate of 6% of NEPAD-CAADP per annum. In this respect, a set of factors seems to be working in favour of Africa [50]. Firstly, price incentives for producers have improved as a result of unified exchange rates, lower industrial protection and sharply reduced export taxation. Secondly, higher, international commodity prices create growing opportunities for import substitution and regional agricultural trade. Lastly, African governments, regional institutions and development partners show strong commitment to agricultural and rural development. While some countries appear to have taken advantage of these positive developments and have recorded agricultural growth rates well within the NEPAD-CAADP's target of 6% per annum (Angola, Namibia, Ethiopia, Senegal, Tanzania, Mozambique, Sierra Leone, Ghana, Republic of the Congo and Malawi), others show agricultural growth rates far less than the targeted 6% which is needed to make an impact on poverty and ensure food security (Fig.1). Longstanding factors, such as the persistent HIV/AIDS crisis, armed conflicts, the lack of improvement in governance and decentralization, inadequate fiscal commitments to agriculture and rural development by national governments and slow progress in infrastructure linking landlocked countries and remote regions to the centers of demand and harbors have been cited for unsatisfactory progress in most countries [50,54].

Despite the slow progress in the agricultural growth of SSA, there is presently no better alternative for improving the welfare of the vast majority of Africa's poor [6,32,41,53,55,56]. According to FAO, given rate of GDP growth due to agricultural growth reduces poverty five times more than an identical dose of GDP growth due to non-agricultural growth in resource-poor countries. However, this type of agricultural growth is 11 times more effective in SSA [56]. Furthermore, emerging trends do not give any hope to African industries to make any meaningful contribution to poverty reduction and food security in the near future. The small and poorly performing industrial sectors face increasing competition from large, emerging economies like those of China and India which may undermine any attempts to develop labor-intensive manufacturing sectors [41]. On the other hand, there will be a time when the emphases in Africa will naturally shift to secondary and tertiary sectors just as it happened in China [10]. However, a strategy



**Fig. 1. Agricultural growth rates compared to 6% target of CAADP, 2008**

Source: [57]

which is based on agriculture must be at the center of any effective policy to fight with poverty and food insecurity.

## 5. KEY LESSONS FOR AFRICAN AGRICULTURAL DEVELOPMENT FROM THE CHINESE EXPERIENCE

Given the challenges facing the agricultural sector of SSA, the renewed commitment from African leaders to fight with poverty and hunger through agricultural development is refreshing. The NEPAD/CAADP focuses on investments in three, key "pillars", believed to have a potential of making the earliest difference to the agricultural crisis of Africa. The three pillars are: 1) extending the area under sustainable land management and reliable water control systems 2) improving rural infrastructure and trade-related capacities for market access 3) increasing food supply and reducing hunger.

While such commitments and efforts are laudable, African people cannot afford to ignore valuable lessons from other regions that have made great progress from similar problems confronting them today. The success of Chinese rural reform programmes obviously provides great opportunities for learning. It will surely be

strange if the fundamental differences between China and Africa are not recognized. Notable among these differences is the fact that China is one, big country while Africa is comprised of several independent countries with different political structures and leadership styles. Certainly, the constraints, such as economic integration and policy coordination in Africa will be different from those in China [10]. However, a number of policy messages worth considering in an African context can be gleaned from the Chinese experience in fighting with extreme poverty and hunger. A previous study [29] provides us with the first hint of policy direction. According to this study, the effects of governmental investments were inhibited by policy and institutional barriers before the Chinese rural reforms began. The reforms reduced these barriers, enabling investments to generate tremendous economic growth and poverty reduction. China is noted for the old, established tradition of building and maintaining strong and accountable governmental institutions at all levels. The strong, institutional, administrative capacities especially in rural areas were very instrumental at the forefront for implementing the crucial rural reforms [10,11,58,59].



In contrast, many governments in SSA have focused more on building institutional capacities at national level to the neglect of institutions and structures that deliver services directly to farmers at local levels. For example, the first two decades of work done by the African Capacity Building Foundation (ACBF) was focused on core public-sector institutions; notably ministries of finance and planning, central banks, internal revenue authorities, the offices of prime ministers and auditor generals, courts of accounts, offices of national statistics and think tanks [60,61]. As a result, frontline institutions that implement policies and provide services directly to smallholder farmers have remained largely ineffective [50,62]. This has left smallholder farmers poorly organized with hoarse or no political voice compared to urban dwellers [63]. The consequence is “urban bias” which makes African agriculture to starve for the required fiscal resources [50,64]. For example, despite pledges at the 2003 Maputo conference to spend at least 10% of their government budget on agriculture by 2008, the evidence suggests that 39 countries either failed to meet that target or experienced a decline in the share of agricultural spending between 2003 and 2009 [63]. Besides, administrative and fiscal decentralization continue to lag far behind political decentralization in most of the Sub-Saharan countries in spite of nearly three decades of decentralization policies [65-68]. On the other hand, resources meant for rural development programs have persistently and largely suffered from mismanagement because of the weak instructional structures at the local level [69]. To buttress this point, a statement made by a newly appointed management board which was tasked to restructure a poorly performing agricultural /rural development institution in Ghana can be recalled:

*... “the institution was not built basically. A consistent management of information systems did not exist, financial accountability was weak and the size of professional staff was inadequate to deliver on the mandate. The institution was simply not in a position to manage large scale contracts effectively”* [70]. Given Ghana’s international acclaim as a beacon of good governance on the African continent, this state of affairs highlights a critical missing link in Africa’s quest to achieve food security and reduce rural poverty “Institutions rule” [30].

Therefore, African governments should not only focus on ‘three pillars’ as outlined in the NEPAD-

CAAD document, but also ensure real empowerment of local government agencies, communities, rural and agricultural institutions for their own development through further administrative and fiscal decentralization if they want to promote agricultural and rural development effectively [71]. Merely transferring responsibilities to communities and rural/agricultural institutions without financial delegation is not sufficient for the promotion of rural development [66]. An effective delegation of financial means to support local organizations in a culture of transparency and civic engagement is necessary to assure accountability and efficient service delivery [65-67]. Certainly, it is not a lack of development ideas that has left Africa without much progress against poverty and food insecurity over the last century. Institutional factors are crucial determinants of agricultural productivity growth in several African countries [72]. Overlooking such institutions in the past often led to the promotion of rural/agricultural development policies that are ineffective in resource management and the imposition of inappropriate development policies, both of which have negatively impacted the environment and the people’s livelihoods [73].

Indeed strong institutions are so critical for unlocking Africa’s development that the first African American president of the USA in his first visit to SSA remarked that: “Development depends upon good governance. That is the ingredient which has been missing in far too many places, for far too long”- ‘Africa doesn’t need strongmen, it needs strong institutions’ [74]. The capacity of rural and agricultural institutions in Africa to own the process of policy formulation and transparently execute its implementation is particularly crucial for success against food insecurity and rural poverty. The capacity must be developed alongside other interventions as outlined in the NEPAD- CAADP strategy document if Africa is to expect good results from the new commitment of the leadership to agricultural development. When the Chinese experience is taken into account, NEPAD-CAADP certainly needs another urgent priority pillar for developing the capacities of rural and agricultural institutions at all levels. Moreover, administrative and fiscal decentralization which continue to lag far behind political decentralization need some urgent attention [50]. Institutional weaknesses for service provision to the entire agricultural chain from farm to market have been rightly identified as a challenge in NEPAD- CAADP strategy

document requiring urgent action. What is missing in that document is an immediate prioritized action to address the challenge.

## 6. CONCLUSIONS

There is evidence that the rural /agrarian reforms embarked upon by China three decades ago have contributed positively to the food security and the structural transformation of the Chinese economy as seen today. In contrast, rural /agricultural development has largely remained sluggish in SSA despite numerous intervention programmes since 1950s. The success of Chinese rural reforms is largely credited to the availability of strong institutional and administrative capacities at all levels which play a leading role in the implementation of the reform programmes. The missing link in SSA is the weak systems, practices, procedures and the general lack of capacity for institutions at local levels that are mandated to provide services to smallholder farmers.

Obviously, some scholars may want to emphasize the role of research and modern input use in improving agricultural productivity in the Chinese experience [75-78] while others have emphasized the larger role of governmental spending on production-enhancing investments, such as agricultural research and development, irrigation, rural education and infrastructure (including roads, electricity, and telecommunications) [29]. Both positions are probably right since different elements in the Chinese economic system contributed diversely to the success of the rural reform programmes. Surely, the two components are complementary, not substitutes. However, capable, reliable and transparent institutions are the key to success in the 21<sup>st</sup> century [74]. Indeed, Chinese experience clearly shows that combining pragmatic and evidence-based policies with capable institutions manned by committed leadership is the best strategy to poverty reduction [10,79]. There is evidence that the effects of government investment were rendered ineffective by policy and institutional barriers prior to the Chinese rural reforms. The reforms reduced these barriers, enabling investments to generate tremendous economic growth and poverty reduction. While strong local institutions in Africa may not be the panacea for eliminating poverty and hunger in the longer term, it is arguably the most important problem to address at the outset and that may well prove to be the ingredient for sustained progress in the long term. Reflecting

on the Chinese experience, there is reason to believe that a time will come when the emphasis in Africa will naturally change direction from improving rural and agricultural institution to production-enhancing investments, such as agricultural research and development, irrigation, rural education and infrastructure. For now, the sluggish response of agricultural growth to the first decade of NEPAD-CAADP initiative makes the critical role of frontline institutional factors increasingly difficult to ignore. There is also the need to emphasize the connections between agriculture and industry in the decentralized institutional setups advocated, partly because of the limitations of the export market and its importance.

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## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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