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The Status of African Agriculture and Capacity Development Challenges for Sustainable Resilience from Global Economic Shocks

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Abstract
Agriculture is one of the natural blessings and beauty as well as livelihood of Africa despite a number of worrisome agricultural characteristics and trends. The paper examines the status of production, yield, and hectarage allocation of major agricultural crops. Secondary data were used. Statistical analysis involved use of descriptive statistics. The paper shows that agriculture has contributed to food security and African export among other uses of its produce despite inadequate resource allocation. Adequate transformation is a prerequisite for agriculture to contribute to achievement of the Millennium Development Goals and objectives of other initiatives to ensure African resilience from global shocks. Capacity development challenges for African agriculture to resist shocks discussed included: providing sustainable and profitable market access to small holder producers, improvement in agricultural research and efficient technology dissemination, extension of areas under sustainable land management, irrigation and efficient water control options, re-capitalization with improved microfinance and access to agro inputs. It opined that development partners and African government should supply more fund and technical assistance for the transformation. Improvements in agricultural policy and use of political will to mobilize social energies towards the target are recommended.
Keywords: Agricultural Production, Hectarage, Yield, Capacity Development, Africa.
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Introduction

Agriculture is undoubtedly the most important sector in the economies of most non-oil exporting African countries. It constitutes approximately 30% of Africa's Gross Domestic Product (GDP) and contributes about 50% of the total export value, with 70% of the continent's population depending on the sector for their livelihood. Production is mainly subsistence in nature with a high dependence on the rain. Mitigating effects of climate change and its impacts on agriculture

through appropriate technologies are therefore very crucial to the very survival of the continent's ecosystem and its people. The continent is particularly susceptible to climate change because it includes some of the world's poorest nations who have little or no capacity to invest in appropriate technologies (CEEPA, 2002).

Growing demand of food driven by rising income, population, urbanization, de-grarianisation and greater female participation in the work force, constitutes a push for the shift to high value products as well as semi-processed and full-processed products (World Bank, 2007). Also, changes in preference and taste paired with the entry and rapid growth of supermarket chains are trends that presently open up new markets for a wide range of high value agricultural products (World Bank, 2007). The interest of farmers in participation in high value products markets is the need to increase income. The multiplier effect of investment in agricultural transformation programmes through value chain of the products to finished goods will result in improved income and welfare of stakeholders. Most high-value agricultural products can be derived from full or semi-processed dairy and meat products, cereal foods and fresh foods such as fruits/fruit juice and vegetables, which are perishable. They require agro processing machines/industries, storage facilities and functioning market infrastructures to feature in the current trend of agricultural transformation. A transfer from low value to high value markets is one efficient way of enhancing profitability within smallholder farming; but African agriculture is yet to have good flow of such value chain.

African countries do share a number of worrisome agricultural characteristics and trends. Examples include a high degree of production variability, relatively low crop yields and exports of mainly primary products with low income elasticity and high price volatility (Mkpado, 2012). Relative to other developing regions, African's agriculture is undercapitalized, uncompetitive and underperforming (CSAC 2008). The sector's relatively weak as its productivity lags behind of other regions and often declining performance is symptomatic of the myriad challenges it faces. The longer it takes to address these issues, the less competitive agriculture may become. Food security

situation in the continent shows the need for faster transformation of the sector at least to reduce the continent's net importation of food; unlike China which her agriculture has contributed to world food security by using less than 10% of the world's arable land to feed more than 20% of the world's population (CDAC, 2010). More importantly the recent economic, financial and food crises exposed the weak capacity of African Agriculture.

This calls for improvement in agricultural capacity development as one of the challenges facing African Governments. What constitute the capacity development needed to adapt to climate change and global financial crisis and deal with poverty of farmers? The broad objectives or aims of this study are to examine the status of agriculture in Africa and the capacity development challenges. To achieve these, the next section examines the situation of African agriculture, connection between agricultural transformation and capacity development, challenges for capacity development and ended with concluding remarks.

1.1 The Methodology

The study focuses on Africa. Examples were drawn from Central, East, North Southern and West Africa zones. However, references were made to specific countries within and outside Africa as well as other regions of the world where applicable and data was available. Secondary data were collected from United Nations Centre for Trade and Development (UNCTAD) database; Food and Agriculture Organisation (FAO) database and relevant literature by reputable African organizations and researchers. Descriptive statistics such as average were employed in data analysis. The use of means allows for equitable comparison of data across African zones; because the Zones have different number of countries. The performance indicators presented are common to different environmental conditions within African and world ecology.

2.0 African Agricultural situation/outlook in the world

This is presented by examining the production, hectarage allocation and yield of major crops by their classes such as cereals, roots and tubers, legumes, beverages, fibre and oil crops.

Cereals

Africa is one of the lowest producers of cereals globally (Mkpado, 2012). Cereals are more widely utilized as food in African countries than in the developed world. Cereals account for as much as 77 % of total caloric consumption by African countries (Mitchell and Ingro, 1993). Increase in cropping intensity by cultivation more than once in a year can improve African cereals production. Southern African region leads in maize production followed by North Africa, while West, East and Central African zones rank 3rd, 4th and 5th, respectively (Table 1). Generally, maize output is characterised by increasing trend which indicates the need of improved cropping system, probably by use of adequate fertilizers and climate change mitigation/adaptation practices.

With respect to hectarage allocation of maize, Southern African Region also came first while North Africa came fifth (Table 1). It may be informative to note that maize yield in North Africa is the highest. This is indicative of good potentials. The yield ranged from 2.932 to 7.20 tonnes per hectare. The most interesting aspect of the yield analysis is that it is an increasing trend. Such increasing trend is an indication of not only of a favourable climate but improvements in technology (improved seeds and cultivation practices). Similarly, Southern African maize yield shows an increasing trend but ranks 3rd. Hence the outstanding performance in output was largely a function of hectarage allocation. East African maize yield ranks second but shows a decreasing trend indicating need for improvement. West African maize output ranks 3rd. Southern African maize production ranged from 1273455 to 1741916 thousand tonnes while that of North Africa ranged from 573420.4 to 1325217 thousand tonnes and those of West Africa ranged from 144261.1 to 959930.6 thousand tonnes (Table 1). Support from government and other development partners were responsible for increases in output in maize production. For instance in 2006 and 2007, Malawi produced a quantity of maize that exceeded the country's needs due to the government of Malawi's fertilizer and seed subsidy program, introduced in 2005 and that was co-funded by the Department for International Development (DFID). In fact by 2008, Malawi had a maize surplus

of 500,000 metric tonnes (Salami, Kamara and Brixiova, 2010). Similarly, in Nigeria, the Federal Government subsidy on fertilizer was 25%; in addition, individual states fertilizer subsidy varied from 0 to 50% (Afua, Ephraim and Victor, 2009)

Facts from other parts of the world show that the United States (US) is the world's largest producer of corn, supplying an average of 40% of the world corn crop. China has been the 2nd largest producer of corn (20% of world corn production), the 2nd largest user of corn for all purposes (19%), the 2nd largest user of corn for food, seed and industrial uses (15%) and the 2nd largest user of corn for livestock feeding (22%). China was ranked 1st globally in terms corn stocks, holding an average of 37% of world corn ending stocks since 2008 - 09, which is more than the 30% held by the United States (O'Brien, 2010). Agrostats (2000) reports that in 1995, US production was 282,263 million metric tonnes and increased to 330,674 in 2009, China's production was 139,365 and 155,000 million metric tonnes for the same period, Nigeria had 7,000 and 8,300 million metric tonnes, South Africa had 6,935 and 10,500 million metric tonnes, Egypt had 5,932 and 6,300 million metric tonnes, Mexico had 19,500 and 22,500 million metric tonnes, while Vietnam had 3,818 and 4,800 million metric tonnes. Thus, African states are among the lowest con producers.

It was noted that between 2008 and 2009, the five largest nations in terms of average world corn harvested acreage were the United States (32.4 million hectares or mh), China (30.4 mh), Brazil (13.4 mh), the European Union (8.5 mh) and India (8.1 mh) (see O'Brien, 2010:2). These statistics indicate the leading positions of the United States and China in world corn production, as well as the importance of Brazilian productive land capacity with regards to corn and other competitive crops. In terms of percentage hectarage allocation for 2008/2009 farming year, O'Brien, (2010:2) reported that the U S had 21%, China 19%, Mexico 4%, Nigeria 3%, and South Africa 2% among others. Just as in production, African countries are among the least in terms of hectarage allocation. Increase in government assistance through input subsidy and release of land through improved land tenure systems can help increase African maize production.

Roots and tubers

Roots and tubers provide an estimated average of 20% of the daily per capita calorie intake for the 640 million inhabitants of Sub-Saharan Africa (SSA) (Kenyon et al, 2005; Scott, and Suarez, 1993), where with the growing population there is increasing demand for these crops both for food and for feed. The production of roots and tubers in developing countries is projected to increase by 58% (232 million tonnes) to 635 million tonnes between 2003 and 2020, with cassava increasing by 44 %, potato 29%, sweet potato 27% and yam 27% (Kenyon et al, 2005; Scott, and Suarez, 1993). Nigeria produces roughly 40% of all the root and tuber crops in Africa, being the biggest producer of cassava (35% of SSA production) and of yams (70% of SSA); while Asia is the largest producer of potatoes, contributing about 89 % of world production. Also Nigeria produces about 66% of world yam production; Asia produces 29% of world cassava and South America 17% (Kenyon et al, 2005). Given high roots and tuber production in Africa especially Nigeria the challenge will be improvement in value chain to maximize market access.

The root and tuber crops are important sources of energy in daily diets and constitute a major part of the rural African staple diet (Mkpado and Arene, 2012). MOFA, (2003) noted that with an estimated per capita consumption of 151.4 kg of cassava, 43.3 kg of yam and 56 kg of cocoyam, rots and tubers account for 58% of the per capita food consumption; while cassava alone accounts for 34% of food crop consumption per annum. Cassava is ranked the fourth world staple crop consumed by more than 800 million people (FAO, 1998). In some countries such as Northern East Brazil, Ghana, Nigeria and some islands in Indonesia and the Pacific Ocean more than 70% of calories consumed daily come from cassava (FAO, 1998; Nagib, Nassar, Hasan and Atyia, 2002). Cassava is credited with high calories productivity; biological efficiency as an energy producer, year round availability and adaptation to suboptimal soil or marginal soils (Nagib, Nassar, Hasan and Atyia, 2002; Mkpado and Arene, 2003).

In Nigeria, development of cassava and a number of crops was accelerated by presidential initiatives. The initiative provided opportunities for production,

processing and export of cassava products. Institutions involved in cassava production were given special attention by providing facilities for them to improve in delivering necessary services required in cassava production; most important was the provision of loans and assistance in trading (Mkpado, 2010). Thus, availability of improved cassava breeds and technical services provided by agricultural extension programme and adoption of recommended innovations made Nigeria the world leading cassava producer. Nigeria's success in cassava is also attributable to other supports. According to ECA (2007), 'IFAD is supporting NEPAD's Pan African Cassava Initiative (PACI) in conjunction with the International Institute of Tropical Agriculture (IITA), Ibadan, Nigeria. The organization has currently provided loans of more than US$100 million to national programmes in Benin, Cameroon, Ghana and Nigeria since 1996, directly benefiting more than 1.5 million households. The fund has developed the Regional Processing and Marketing Initiative on Cassava (RPMIC) for SSA aimed at linking IFAD-funded root and tuber projects to regional markets through the development of commodity chain'.

Cassava production was led by West African zones, her average output ranged from 973658.1 to 4244522 thousand tonnes (Table 2). West African cassava yield was also highest. It ranged from 8.612 tonnes to 11.509 tonnes per hectare. Next was performance of Central African zone and East African cassava yield which was also encouraging. But data were not available to explain North African experiences (Table 2). Historic trends of the hectare planted with cassava and yields in sub-Saharan Africa may be affected by climatic, technical, biological, economic and institutional or political factors. Dunstan (2004) showed that total production of cassava increased from about 35 million tonnes in 1965 to over 80 million tonnes in 1995, an annual growth rate of 2.9 percent, which was the same as the population growth rate. However, per capita production has increased during the last decade as total production has grown faster (3.8 percent) than in the preceding decade (2.5 percent). Dunstan, (2004) also showed that the five largest producers of cassava in sub-Saharan Africa have increased their share from about 70 to 80 percent over the last two decades. The biggest increase has been in Nigeria which increased its share from 22 to 38 percent and

Ghana which increased its share from 4 to 8 percent. The share of other producers has declined and Zaire has moved from being the largest to the second largest producer after Nigeria

Dunstan, (2004) noted that during the 1960`s the total area cultivated in South America (about 2,480,000 hectares) produced 34,400,000 tons. The productivity per hectare was approximately 14.3 tons. Brazil's contribution was 88% of the total production of South America and one third of the worldwide production. Since the beginning of 1972, productivity per hectare began to decline constantly in South America, dropping form 14.3 tonnes/ha to 11.8 tonnes/ha during the 80's. In Brazil, which the major producer all over the world, the decline was also constant during the 70's and the 80's; but it dropped from 14.6 t/ha in the 60's to 12.1 t/ha in the 80's. (Dunstan, 2004; Nagib, Hasan and Atyia, 2002).

In Nigeria, productivity per hectare in the beginning of 70s was l0.5, increased to ll.5 in the 80s, dropped to l0.5 by the end of 80s and recuperated in the beginning of 90s, reaching ll.5 ton/hectare once again by the end of 90s In India, productivity per hectare in the beginning of 70s was 9.0 increased in the 1980s to 17.7 t per hectare, and continued increasing by fantastic rhythm in the 90s to about 24.5 ton. per hectare (Nagib, Hasan and Atyia, 2002)

Potatoes

Potato production has expanded from high altitude environment into warmer drier areas such as the irrigated oases of North Africa and the warm humid tropics; however, the prevalence of pests and diseases in these areas calls for high levels of pesticide use and varieties that are resistant or tolerant to pests and diseases (FAO, 1996). North Africa has the highest output and hectarage allocation. Her output ranged from 230869.1 to 1241930 thousand tonnes, while her hectarage allocation ranged from 22222.28 to 52492.71 hectares (Table 3). This is followed by the Southern African zone whose output ranged from 113710 to 536980.0 thousand tonnes and her hectarage allocation ranged from 10622.5 to 38368.28 hectares. West African zone's output ranged from 4450.48 to 13065.4 tonnes and her hectarage allocation ranged from 514.833 to 33369.91 hectares.

North Africa also has the highest yield followed by Southern Africa and East Africa (Table 3).

Sweet potato is cultivated in over 100 developing countries and ranks among the five most important food crops produced in over 50 of these countries. World production of sweet potato was estimated at 121.8 million tonnes in 2003. The major producing regions in terms of volume were Asia followed by Africa, South America, the Caribbean and North America. Improved breeds, irrigation, extension services and other inputs are required to sustain and increase African performance. The Asian region accounted for 87% of global production, of which China's production was 95%. Next in the order were Oceania, European Union (EU) and Central America. A declining trend was observed at the global level for all producing countries except in the case of the Caribbean, North America and Oceania (Singh, Seepersad, and Rankine, 2006). In the case of producers in the western hemisphere, leading producers were the USA (722,160 tonnes), Cuba (503,400 tonnes), Brazil (495,000 tonnes), Argentina (315,000 tonnes) and Peru (225,000 tonnes). In 2003, Asia produced about 89% of world sweet potatoes while Africa produced only about 9% and other regions such as South America, North America, Oceania and Caribbean produced 1% each (Singh, Seepersad, and Rankine, 2006).

It was also note that 84,763 tonnes of sweet potato was exported in 2003, that is, less than 1% of global production. World export trade was dominated by the USA (35%) followed by China (12%), Israel (9%), France (7%), Indonesia (6%), The Netherlands (5%) and Egypt (5%). Exports from Jamaica were estimated at 4% and St. Vincent less than 1% of world trade. The major importing countries in 2003 were Canada (24%), followed by the United Kingdom (14%), France (12%) and The Netherlands (5%). Trinidad and Tobago was listed as the sixteenth highest importer of sweet potato in the world in value terms and eleventh in volume terms in 2003 (Singh, Seepersad, and Rankine, (2006).

Cotton

Cotton can remain as one of the most useful natural fibres of the world. It is a high valued crop providing income and employment. Much of the growth of cotton production since the end of the Second World War was mainly due to

improved yield, rather than to expanded area cultivated which increased by only 35% over the 1945/46-2006/07 period, expanding from 22.3 million hectares to 34.8 millions. The development of the cultivated area mainly occurred at the end of the 1940s and remained relatively unchanged since then (INFOCOMM, 2011). Specifically, African experiences are presented in Table 4.

West Africa takes the lead in cotton production in Africa. Her average output ranged from 31147.67 to 210223.2 thousand hectares (Table 4). North Africa came second with output range of 116154.2 to 332493.3 thousand tonnes, while a decreasing trend characterise cotton output from North Africa, an increasing trend characterise those of West Africa. Interns of yield, North Africa had the highest while Southern Africa ranked 2nd. Hectarage allocation to cotton was highest in North Africa and second was East Africa. Given the large hectarage available to West Africa, there is need for them to increase hectarage allocation to cotton (see Table 4). INFOCOMM, (2011) reported that in 2007, cotton was grown in 90 countries, while in 2006/07, the four main producing countries were China, India, the USA and Pakistan and accounted for approximately three quarters of world output. Global output increased by 30% between the seasons 1983/84 and 1984/85, rising to 19.2 million tonnes up from 14.5 million tonnes. Most of the growth came from China as a result of increase in production which was stimulated by Government initiative. Thus, African governments need to proactively encourage cotton production through presidential initiatives and collaboration with donor agencies to mobilize fund for training, research and dissemination, pest and diseases control as well as processing of cotton.

Cocoa

Philippe, Christophe and Laurent, (2007) noted that world cocoa production since 1960 has increased threefold, from 1.2 to 3.6 million tonnes. This growth was simulated by several jolt caused by structural adjustment policies, crop diseases and market speculation, all of which have affected production. Approximately fifty countries in the inter-tropical zone grow cocoa beans, three of which dominate world production: Côte d'Ivoire (39%), Ghana (21%) and Indonesia (13%). The

oldest of the three major production basins covers Central America and stretches across South America from the western Pacific coast to the Brazilian coastline. The second are found in West Africa, from Guinea to Cameroon where, apart from Benin, all the countries grow cocoa trees, while other African countries can produce about 7,000 tonnes per year. Indonesia is at the heart of the third basin, along with Malaysia, although its production has fallen drastically since the 1990s, and Papua New Guinea where production has been increasing (see Philippe, Christophe and Laurent, 2007).

Two-thirds of world cocoa production use to originate from West Africa alone(Philippe, Christophe and Laurent, 2007) but a shift has been made to Central Africa (Table 5). The political crisis in Côte d'Ivoire has not compromised this region's dominance. The region has been able to increase its production in the face of rising world demand, whilst the American and Asian regions were experiencing relative stagnation. From 1960 to 2006, world demand rose in step with production, reaching 3.5 million tonnes. At present, while demand is stagnating in American countries (25% of international demand) and in Europe (50%), the world's primary consumption region, it is increasing slightly in Asian and Oceanian countries (13%). West African consumption is marginal. West African production is dominated by Côte d'Ivoire (1.3 million tonnes in 2005) and Ghana (600,000 tonnes), which produce almost 60% of the world's cocoa. Nigeria (175,000 tonnes) and Cameroon (166,000 tonnes) share a production basin (Philippe, Christophe and Laurent, 2007). Africa, especially these four countries are among the world's five primary producers. Trends of African performance in cocoa are presented in Table 5.

Cocoa production has been one of crops that earn Africa with foreign exchange. Its production was led by Central Africa Zone in Africa. Her output ranged from 18425.83 to 28401.82 thousand tonnes; while her hectarage allocation ranged from 32853.11 to 35373.89 hectares. West African zone came 2nd in cocoa production; her output ranged from 113749.2 to 317508.3 thousand tonnes; while her hectarage allocation ranged from 441329.8 to 900013.8 hectares. The hectarage allocation to cocoa by West Africa was more than those of Central Africa but Central African output was higher because of her very high yield potential in cocoa production. Performance by East and Southern African zones were ranked 3rd and 4th

respectively. There was not enough data to compute North African experience in coco production. African government has over time invested in cocoa research and empowered farmers through input subsidies to increase the production as cocoa was one of the primary exports. One of the problems facing cocoa production in Africa is the development of cocoa substitutes by US. Africa needs to develop capacity to utilize cocoa produce. This will create demand for the crop which will in turn simulate increase in production (Okoye, Arene and Nwagbo, 2006).

Legumes

In some countries of SSA, pulses provide more than 10% of total calorie Consumption per day; such as Niger (19%), Burundi (14%) and Rwanda (13%) (CRN India, 2001). Because of their higher protein content, pulses contribute relatively more towards total protein intake than calorie consumption. On an average pulse crops contribute 7.5% of total protein intake in developing countries as against 2.5% in developed countries. Groundnut is one of the most important oilseed crops in the world. It is grown in over 100 countries of the world and plays a crucial role in the world economy. Groundnut production has reached the mark of around 34 million tons. China followed by India is the largest producer of this oilseed crop in the world. Groundnut oil production hovers around 8 million tons annually. These two countries are also responsible for the highest consumption of groundnut and Nigeria ranked 3rd in its consumption (CRN India, 2001). Nigeria is SSA's biggest groundnut producer. Its production collapsed during the 1970s (as agriculture was neglected during the first oil boom), but there has been rapid recovery and growth since 1986, when agriculture was once again promoted as part of the country's structural adjustment efforts **(**Alabi and Chime, 2008**).**

Ground nut production in Africa is led by West Africa. Her output ranges from 131550 to 412979.7 thousand tonnes. The zone also had the highest hectarage allocation; it ranged from 174894.7 to 388352.2 thousand tonnes, while her yield ranged from 0.7025 to 1.1349 tonnes per hectare. The yield of North Africa was higher than those of West Africa; it also the highest in Africa. Central Africa came 2nd in cotton production and hectarage allocation. Her output ranged from 102553.6 to 158400.3 thousand tonnes; while her hectarage allocation ranged from 142845.1 to 212419.4 hectares (Table 6). It is grown in 25.2 million hectares with a total

production of 35.9 million metric tons (FAO, 2006). Major groundnut growing countries are India (26%), China (19%) and Nigeria (11%). Its cultivation is mostly confined to the tropical countries ranging from 40º N to 40º S. Major groundnut producing countries are: China (40.1%), India (16.4%), Nigeria (8.2%), U.S.A (5.9%) and Indonesia (4.1%) (Kees, and Vijaya, 2007).

3. Connection between agricultural transformation and capacity development needs:

Agricultural transformation refers to complete or total changes that will improve the appearance, performance and usefulness of agriculture. Agriculture as a composite word denoting science, art and business of food, fuel and raw materials production from plants and animal sources definitely requires myriad of changes to impact more positively on the welfare of those who depend on it for livelihood. Such transformation requires government, institutions and individuals' capacity development purposively designed to cause great changes in agriculture. UNDP (2008) was of the view that capacity development is much more than supporting training programmes and the use of national expertise though they are necessary and are on the increase, but it must include responses and support strategies for accountable leadership, investments in long-term education and learning, strengthened public systems and voice mechanisms between citizen and state and institutional reform that ensures a responsive public and private sector that manages and delivers services to those who need them most. Agricultural capacity development cannot be archive by a single government, non government organization, company, philanthropist or a farmer. It is a collective responsibility of every stakeholder to develop capacity in agriculture.

Change in capacity is needed to cause agricultural transformation in Africa. The existing agricultural status is a reflection of capacities supporting them. Adequate improvement in capacity will result in a targeted transformation. The need for capacity development in agriculture is to ensure that agriculture efficiently, economically, politically and socially serve its role in economic development in a sustainable manner. The efficiency is required in the inputs and output relationships, economically can refer to how to generate lucrative proceeds;

politically refer to roles governments play with agriculture while socially refers to acceptance of nature and methods of agriculture. Agricultural capacity development can be seen as the process through which individuals, organizations and societies obtain, strengthen and maintain the faculties or power (capabilities) to set and achieve their own development objectives over time in agriculture. The objectives of engagement in agriculture can better be understood by examining agricultural roles in national development. The role of agriculture has become an issue due to failure of development in other sectors to fully serve the same nitch agriculture serves in an economy. Agriculture was often viewed as the passive partner in the development process, but, it is now regarded as an active and co-equal partner with the industrial sector and more important than industrial sector in developing economies (UNDP, 2008).

3.1 Capacity development challenges for agricultural transformation for sound resilience Capacity development challenges for African agriculture was discusses across major regions of Africa emphasis will be places on specific country intervention. Specific efforts will be made to discuss the following:

Providing sustainable and profitable market access to small holder producers

African countries have embraced the global trend of trade liberalisation. This exercise has some negative implication to smallholder farmers. For instance, in Nigeria the nominal rate of assistance was 13.5 percent from 1980 – 84 as opposed to – 5.7 percent between the years 2000 – 2005 period (WDR, 2008). The issue is that there are low terms of provisions of incentives to agricultural sector; the new policy regime seems to have opened up the sector to international competitiveness without much assistance to the producers. This is confirmed in the WDR (2008) report of a negative nominal rate of assistance for Nigeria's agriculture in 2005. The issue is that many African countries are signatories to world trade organization (WTO) which requires minimum discrimination against products. Each African county should decide how to limit effects of on-going trade liberalisation on smallholders. This may call for subsidizing inputs or use of tariff to ensure that farmers gain price advantage. Markets within African counties and regions need to be developed and integrated. This includes providing enabling

environment (processing facilities) to enhance price completion of exports from Africa. CSAC (2008) noted that with full trade liberalisation international agricultural commodity prices would increase on average. It is only high quality products that will benefit from such price increases (Mkpado, 2010). According to USAID (2009) the market access can be improved through (a) improving local infrastructure such as: transportation, storage, retail facilities, information technology and supply chains; (b) improving competitiveness through sound trade policies at the national, regional and continental levels; (c) strengthening capacity to participate in trade negations and meet market access requirements for international trade (quality, grades, standards) (d) strengthening capacities of agribusinesses and facilitating linkages/ partnerships with companies in importing countries; and (e) building strategic alliances to create industry-to-industry linkages and expand domestic and foreign direct investment in agriculture.

Improving Land tenure, gender and youth involvement in agriculture

Land is a major factor determining involvement in agricultural production. Land tenure systems in African have been not given equal opportunity to youths, males and females, large as well as small holder farmers. In Nigeria for instance the land use Decree of 1978 (latter Land Use Act of 1990), allows allocation of 5,00ha and 5,000ha of arable land and grazing land, respectively to individual farmers by state governors. Effective implementation of the Act has been a problem. The government established National Agricultural Land Development Authority with a view to providing solution to the land issues but the establishment failed. In South Africa, due to slow progress with the implementation of land redistribution in the first five years after 1994, the programme has been redesigned; a new Land Reform for Agricultural Development (LRAD) programme has been designed to expand the range of support measures that will be available to previously disadvantaged South African citizens to access land specifically for agricultural purposes. One of the critical issues is that the majority of the rural poor live and farm on communal land, issues of tenure security need to be urgently addressed to provide opportunity for improved incentives and investment opportunities (Masiphula et al. 2009). Solutions to African land tenure are still a problem. African land tenure system has

been accused of not given equal opportunity to women and men. How can females gain better access to land for agricultural purposes? Youths' involvement in agriculture is another issue. The drudgery in African agriculture needs to be reduced if not possibly removed. This calls for improvement in agricultural technologies. The technology need for smallholder farmers need to be unique to their scale of operation to ensure efficiency. The challenge is developing indigenous technology to serve the purpose. In many parts of African, the school to land programme which was designed to increase youth involvement in agriculture has failed because of lack of proper technology (Mkpado and Ugbaja, 2008). Only healthy youth can be actively involved in agriculture; hence, the fight for HIV/AIDS and other deadly disease demand greater attention. Peaceful environment is a must for agricultural transformation. The incessant political, social and industrial actions in Africa definitely limits youth involvement agriculture and its sustainable transformation.

Drastic reduction in poverty of farmers and sound rural development

It is a challenge to ensure sustainable development. At the national level, trends in productivity, household income, poverty, and hunger are clearly showing improvement (CSAC, 2008). In Ghana and Uganda, there is a consistent pattern of increasing agricultural Total Factor Productivity (TFP) agricultural growth, and economic growth, increasing real household incomes and decreasing poverty and hunger. Poverty still ranks very high in Africa. Achieving the Millennium Development Goal (MDG) of halving the proportion of people living in absolute poverty by 2015 can depend on increasing agricultural productivity and rural development. As a result of increased agricultural growth in Africa rural poverty is beginning to decline. For example in Ghana the reduction of rural poverty seen over the past decade is primarily because of strong agricultural performance. Investments in small-holder and subsistence farmers are critical in a pro-poor development agenda CSAC (2008). Smallholders in rural African communities lack adequate health care facilities, good road network, good schools and good electrical power sources. For instance, the number of tractors per thousand hectares of arable land was nearly three times greater in Asia and eight times

greater in Latin America than in Africa. Likewise, road density is more than 2.5 times higher in Latin America and six times higher in Asia than in Africa (IFPRI, 2004). Provision of these facilities will reduce the income the people spend in search of these facilities and the unforeseen occurrences that may befall then because of inadequacy of the facilities. Thus, access to these facilities will definitely lead to improved welfare and better savings which can be used to improve investment. According to Salami, Kamara and Brixiova (2010) the focus on infrastructure is to improve market access of the agriculture sector. This will result in maximization of comparative advantages and specialization of smallholder farmers leading to economies of scale and exchange products through markets.

Improvement in agricultural research and efficient technology dissemination

The volume of investment in agricultural research and dissemination (AR&D) by African countries is small when compared with other parts of the world. Nienke and Gert-Jan (2011) noted that AR&D accounted for only about five percent of of the world $25 billion spent on public agricultural research and development. Country level analysis showed that from 2001 to 2008, Nigeria, South Africa, and Kenya invested $404 million, $272 million, and $171 million, respectively, on AR&D, whereas 11 other African countries spent less than $10 million each, all measured in inflation-adjusted purchasing power parity (PPP) in dollars. The 2008 distribution of research staff by country follows a similar pattern, with Ethiopia, Kenya, Nigeria, and Sudan each employing more than 1,000 full time equivalent (FTE) researchers, and nine additional countries employing fewer than 100 FTEs each. Nigeria, South Africa, Kenya, Ghana, Uganda, Tanzania, Ethiopia, and Sudan accounted for 70 percent of regional public agricultural research and development spending and possessed at least 64 percent of all researchers in agriculture from 2001 to 2008, they were referred to as “Big Eight”. Thus, the number of countries in Africa making relatively high investment in agricultural research and efficient technology dissemination is very small. World Bank (2007) noted that extensive empirical evidence

demonstrates that agricultural (R&D) investments have greatly contributed to economic growth, agricultural development, and poverty reduction in developing regions over the past five decades. African government need to demonstrate that generation of technologies and innovation as well the dissemination to improve agricultural productivity is a priority by increasing investment in agricultural (R&D). This is very important because African smallholders are educationally poor and need to know improved technologies for climate change mitigation and adaptation. African scientists need to respond effectively to ongoing trend to develop crop and animal species that are resistant to climate change effects.

Improvement in food supply chains, hunger reduction and level of response to emergencies

During the peak of the food crisis, many countries operated more liberalized markets and reduced trade restriction measures with a view to mitigating price increases (Mkpado 2012b). Many of these measures were for the short term, particularly those involving stock release, imports or exports, and have since been removed. For example, Nigeria gave tax holidays to rice importers during the peak price rise as a result of financial crises; most export bans were lifted (Mkpado 2012b). The issue is how to ensure uninterrupted access to food and food resources in Africa. Unbridled trade liberalization will make Africa a dumping ground and very much expose the continent to international shocks. Capacity building in terms of policy implementation and agro-industry as well as technologies for smallholders' production and storage are desired. A number of agricultural produce in Africa are wasted due to poor storage facilities.

Another source of help to build the capacity is food aids. Food aid is increasingly being used in response to emergencies. If all the food used for emergencies over a long period is all imported, the programme may not have lasting benefit to the communities. To improve the process, donors should prefer to buy locally and develop agriculture (Spore, 2010b). The initiative will help to improving capacity of local people. It should be used to provide inputs, labour and storage facilities for agriculture.

The recent global financial, economic and food crisis presented significant challenges for African countries. It showed that African capacity to cope with food crisis or to sustain food security was too small. African government were faced with different options of managing associated inflation due to the crisis; while most countries responded to the crisis by reducing interest rates, the Democratic Republic of Congo responded by raising its policy rate four times since December 2008 in an attempt to fight inflation (UNECA, 2009). Inflation rate needs to be kept at minimum in order to encourage investment in agriculture which rates of return are relatively lower than those of other businesses. According to UNECA (2009) the key challenge facing African countries is how to manage the crisis to ensure that it does not reverse progress made since the beginning of the new Millennium and reduce prospects for achieving the Millennium Development Goals (MDGs). It is because such increases in food prices could adversely affect nutrition. For instance, in Nigeria producer prices for staples (e.g. millet, maize, and sorghum) have increased by about 100 to 200 per cent over the past year (IFAD 2008) and the proportions of under-weight children of 5 years of age were 35.7, 31.0 and 25.0 in 1990, 2000 and 2007, respectively while the actual target is 18.0 in 2015 (MDG, 2007). Satisfying the nutritional need of the populace needs to be cushioned by government and non-government efforts; because good nutrition will reflect on health of the nation.

Responses in agro-food system approach should be more reflected in capacity building programmes, including not only production, but also processing and marketing, climate change and financial assistance. For instance, drought-tolerant maize varieties for Sub-Saharan Africa were developed (IITA, 2008a). Apart from maize, other food crops such as rice, sorghum, millet, cocoyam yams and cassava need to be developed to adapt to climate change. The increasing frequencies of flooding and drought in the continent are threats to agricultural development. Capacity in science, technology and innovations are required to address these issues.

Extension of areas under sustainable land management, irrigation and efficient water control options

African has great potential to increase agricultural output through irrigation. The use of irrigation has increased agricultural output in countries like Egypt and South Africa. Large mass of land in Africa especially the areas prone to drought can benefit from irrigation. Liang Zhi You (2008) noted that irrigated area in Africa slightly exceeded 6 million hectares and is about 5 percent of the total cultivated area; the gap is obvious when compared to 37 percent in Asia and 14 percent in Latin America; while IFPRI (2004) was of the view that about 7% of the arable and permanent cropland is irrigated in Africa, while in Asia it is over 40%. Both report showed the gap and need to increase irrigation in Africa. The dependence on rain fed agriculture has kept the intensity of cropping arable land once in a year. The intensity of cropping a number of food crops such as maize, millet sorghum and rice as well as vegetables including tomatoes and paper can be at least twice in a year if irrigation is used. Sustainable irrigation management in Africa amidst climate change will be powered with low carbon energy sources such as wind mills, small dams and irrigation pumps especially in developing exiting water basin resources. Rain water harvesting is another option especially for livestock farmers. This will help to make water available to farmers. Capacity development in terms of skill and technology is essential.

Re-capitalization, improved microfinance and access to agro inputs

The need for improved capitalization can be seen in NEPARD recommendation of investing at least 10 percent of annual budget in agriculture (CSAC 2008, ECA, 2007). According to IFPRI (2004:2) "The main result of past policy and institutional failures is the considerable undercapitalization of African agriculture". African leaders should provide funds and ensure that institutions are powered to deliver appropriate service to the people. The capitalization is required among other to improve irrigation, inputs and provide machineries. For example, fertilizer use per hectare of arable land in Africa stands at only 8% and over 15% levels are reached in Latin America and Asia respectively. Besides, the number of tractors per thousand hectares of arable land is nearly 3 times greater

in Asia and 8 times greater in Latin America than in Africa (IFPRI, 2004). Samuel, Adam, Melissa and Linden (2011) noted that in the 1980s and early 1990s, total official development assistance (ODA) to agriculture experienced a declining trend. For Africa as a whole, total average ODA per capita increased from $38.23 in 1995-2003 to $48.70 in 2003-09. The recent increase in total ODA to African countries has not affected the regions uniformly. Sub-Saharan Africa has seen per capita ODA levels raised from an average of $38.42 in 1995-2003 to $45.75 in 2003 to $53.05 in 2003-09, with western, central, and eastern Africa the greatest beneficiaries of the increase. For Southern Africa, ODA per capita has stagnated since 1995, with a large annual loss of 11.9 percent over the 2003-09 periods. Northern Africa has seen ODA levels fall dramatically from the 1990s through 2009; the most recent period recorded an average annual 19.7 percent reduction in ODA for this region. Every region experienced a percent loss in annual average ODA in the most recent period, driven by the significant decrease in ODA between 2008 and 2009. FAO (2003) opined that declining trend has been noted in 1990s, even though total ODA increased, disbursements to agriculture declined by nearly 50 percent. Attraction and sustenance of ODA is a challenge. Africa needs to have strong base and dynamic agricultural insurance policies and programmes. The new trend against climate change risks is weather index insurance. Many African countries apart from Ethiopia perhaps have not led good foundation to implement it. Generally, agricultural insurance just like extension services is poorly priced in Africa and at present mainly financed by governments. Development of strong microfinance services including insurance call for private sector participation in African agricultural micro finance services especially insurance.

Maximizing differences in the natural/physical resource base to mitigate climate change

The climate in Africa is predominantly tropical in nature, which is broadly classified into three main climatic zones: humid equatorial, dry, and humid temperate. Within these zones, altitude and other localized variables also produce distinctive regional climates. The climate also varies cyclically over

periods of decades, centuries, and millennia as well as from year to year. Climate change, especially indicated by prolonged drought is one of the most serious climatic hazards affecting the agricultural sector of the continent. As most of the agriculture activities in African countries hinges on rain fed, any adverse changes in the climate would likely have a devastating effect on the sector in the region, and the livelihood of the majority of the population (CEEPA, 2002).

Though changes in the climate may affect the whole continent, its distribution may vary across the continent. Climate change in the already arid northern sub-region of the continent is expected to enhance desertification and bring a gradual decrease in forest cover (Mkpado, 2012). CEEPA, (2002) reported that in the Sahara and Sahel sub-regions, rainfall is predicted to drop, resulting in soil degradation and an increasing number of dust storms. In northeast Africa, more intense dry periods and shorter wet seasons are expected to affect even huge river systems such as the Blue Nile, leading to serious water shortages and adverse consequences for the agriculture and forestry sectors throughout the region. East and Central Africa will also see its agricultural capacity decline. In West Africa, more frequent and longer dry periods are expected, again threatening crop failures. Coastal areas may also be affected by rising sea levels and intrusion of salt water into inland freshwater resources. Southern Africa also faces similar threats. The staple food for the region, maize, is particularly susceptible to drought (CEEPA 2002). Wetlands which are getting international importance and wildlife are also under threat from drought in Southern Africa. Climate change, therefore, is expected to worsen the food supply, hence, exacerbate the widespread poverty in the region.

The sustained population growth have altered factor ratios and sub-Saharan Africa might be in the mid of a transition from abundance in land to abundance in labour. This reduces the cost of hiring causal and permanent wage labourers. The possibility to increase production through labour intensive measures is greater today than previously. This suggests that support to small-scale agriculture is more valid today than before. The role of cash crop production as source of income seems to be on decrease in favour of off-farm activities. This may also account for agricultural release of labour. It indicates

that the opportunity costs of employing family labour might have remained fairly high and that access and control of additional labour is still a major challenge for small-scale farms (Green, Ellen and Mattias, 2011). Given different population densities in Africa, the challenges of policy makers include provision of enabling environment to put the workforce to good use. Granted, labour mobility in Africa may not be a major challenge because of regional integration policy but intuitional frame-work for sustainability development in agriculture is very much need.

- **Improvement in agricultural productivity**

Large gaps in productivity, with current farmers achieving less than 30 percent of potential yields as found in most of Sub-Saharan Africa. This was attributed to deficiencies in technology, capital markets, infrastructure, or public institutions, including property rights, the interest in Africa is high (Klaus et al, 2011). Specifically, for rice, In 1982 USA rice production was 6,969 thousand tonnes on 1,320 hectares; by 1994 they had a yield of 6.7 thousand tonnes per hectare, an output of 8,972 thousand tonnes on 1,336 hectares. Italy produced 1,008 thousand tonnes of rice on 177 hectares in 1982 but by 1994 they produced 1,324 thousand tonnes on 238 hectares with a yield of 5.5 thousand tonnes per hectare (Dat Van, 1997) North African rice yield was comparable to performance in many parts of the world while other regions of Africa had very poor rice yield. In Nigeria, average output of upland and lowland rain fed rice in Nigeria was 1.8 ton per hectare, while that of irrigation rice was 3.0 ton/ha (PCU, 2002). The difference was much when these data are compared with 3.0 ton/ha from upland and lowland systems and 7.0 ton/ha from irrigation system of other African countries like Côte d'Ivoire and Senegal (WARDA and NISER 2001). Generally, average productivity of agricultural land in Africa was estimated be be only 42% of that in Asia and 50% of that in Latin America. Similarly, the productivity of labour in agriculture in Africa stood at less than 60% of that in Asia and Latin America" IFPRI (2004:2). Improvement in agricultural productivity is desirable in Africa because it can encourages broad entrepreneurial activities through diversification into new products, growth of rural service sectors, provide raw

materials for agro-processing industries, and the exploration of new export market (Salami Kamara and Brixiova, 2010),

5. Conclusion

The uncertain outlook for economic growth in the world and Africa has generated concerns about the prospects for continued reduction in poverty and improvements in other measures of development. Agricultural development is a key to poverty reduction and wealth creation, economic transformation, food security, political recognition, and international relations within and outside Africa. Nature has bequeathed to African a treasure in agriculture by providing the relatively conducive environment to grow a lot of agricultural crops and rear certain kinds of livestock. This variety offered through agriculture should not be taken for granted. It is the function of African government to mobilize all hand on to improve in development of agricultural enterprises their ecology supports. African agriculture has scored certain points especially of certain agricultural crops especially cassava. The prospects and fruitages of agricultural transformation are already been experienced in Africa. For example decreasing poverty rate in Ghana, and support for many initiatives to increase agricultural production and improve livelihood and general welfare of farmers. Africa has abundant land and human resources for this transformation. Development partners and African government are supply fund and other assistance for the transformation. Some of the challenges include improvement in agricultural research and technology, farm size, food supply chains, hunger reduction climate change adaptation and mitigation amid different ecology in Africa and provision of rural infrastructure to improve market access. African governments, NGOs and other institutions interested in African agriculture should fight against HIV and AIDS, and other diseases in rural areas and promote African agriculture through value chain by developing capacity of farmers. This call for improvements in policy development and coordination among African governments funding partners as well as in targeted research and investment in all aspects of infrastructure and use of political will to mobilize social energies towards the target.

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APPENDIXES

Table 1: Average performance of maize/corn production in Africa by zones in tonnes

	Year	*Central*	*East*	*North*	*Southern Africa*	*West*
production	1970-1975	142929.8	273116.2	573420.4	1303711	164453.8
	1976-1980	149014.7	334761.3	672257.6	1456340	144261.1
	1981-1985	169208.9	325275.7	750445.9	1329557	209911.4
	1986-1990	198304.8	409110.9	896569.1	1483438	516523.5
	1991-1995	244422.9	410566.6	1031984	1273455	676928
	1996-2000	287567.5	403878.1	1241412	1624170	641829
	2001-2005	309102.1	504611.5	1323715	1536850	728972.1
	2006-2009	374516.3	530404.9	1325217	1741916	959930.6
	Total	1875067	3191725	7815021	11749437	4042810
Hectareage allocation	Year	Central	East	North	Southern Africa	West
	1970-1975	178133	126469.6	195520.4	969857.2	181583.9
	1976-1980	198340.1	142634.8	202233.9	949758.4	170223.2
	1981-1985	190326.5	136380.1	203759.9	983890.7	231481.8
	1986-1990	205566.7	174336.1	198141.1	1071290	528019.7
	1991-1995	269871.3	191395.3	205553.5	943724.6	659666.6
	1996-2000	290774.5	232411.4	188514.2	978384.3	583471.7
	2001-2005	317295.2	299556.3	183632.7	899392.9	627099.7
	2006-2009	363585.0	315971.2	176428.9	860762.9	834018.6
	Total	2013892	1619155	1553785	7657061	3815565
Yield	Year	Central	East	North	Southern Africa	West
	1970-1975	0.802377	2.15954	2.932791	1.34423	0.905663
	1976-1980	0.751309	2.346982	3.324159	1.533379	0.847482
	1981-1985	0.889045	2.385067	3.682991	1.351326	0.906816
	1986-1990	0.964674	2.346679	4.524902	1.384721	0.978228
	1991-1995	0.905702	2.145124	5.020513	1.349393	1.026167
	1996-2000	0.988971	1.737772	6.585244	1.660053	1.100017
	2001-2005	0.974178	1.68453	7.208493	1.708764	1.16245
	2006-2009	1.030065	1.67865	7.511337	2.023689	1.15097
	Total	7.306321	16.48434	40.79043	12.35555	8.077793

Source: FAOSTAT Data base

Table 2: Average performance in cassava production in Africa by zones in tonnes

	Year	*Central*	*East*	*Southern Africa*	*West*
production	1970-1975	1524530	538535.2	1016011	973658.1
	1976-1980	1728013	562335.6	1056240	1130759
	1981-1985	2022096	690204.7	1105588	1130391
	1986-1990	2356012	732551.6	1221574	1525890
	1991-1995	2525880	656035	1337129	2711097
	1996-2000	2332143	774717.7	2115672	3106017
	2001-2005	2213332	1037622	3293712	3647436
	2006-2009	2275338	1025197	4113428	4244522
	Total	16977344	6017199	15259354	18469770
Hectareage allocation	Year	Central	East	Southern Africa	West
	1970-1975	247705.2	93242.2	260716.7	113055.7
	1976-1980	277018.7	95287.67	257512	124920.8
	1981-1985	289855.1	91844.07	278828.4	132285.7
	1986-1990	302422.9	98039.00	296291	159888.9
	1991-1995	325052.8	98887.96	319954.8	269917.6
	1996-2000	295377.6	99255.51	368192.6	302507.6
	2001-2005	287185.3	108313.5	405658	348414.1
	2006-2009	283474.8	106217.3	432335.1	368789.7
	Total	2308092	791087.2	2619489	1819780
Yield	Yea	Central	East	Southern Africa	West
	1970-1975	6.154614	5.77566	3.896992	8.612198
	1976-1980	6.237893	5.901452	4.101712	9.051807
	1981-1985	6.976231	7.514962	3.96512	8.545073
	1986-1990	7.790455	7.472043	4.122886	9.543439
	1991-1995	7.770676	6.634124	4.179118	10.04417
	1996-2000	7.895463	7.805287	5.746101	10.26757
	2001-2005	7.706982	9.579803	8.119431	10.46868
	2006-2009	8.026597	9.651883	9.514444	11.50933

Source: FAOSTAT Data base

Table 3: Average performance in potatoes production in Africa by zones in tonnes

	Year	*Central*	*East*	*North*	*Southern Africa*	*West*
production	1970-1975	18894.22	118399.7	230869.1	113710	4450.048
	1976-1980	18011.47	159559.9	350376.3	137136.6	6160.2
	1981-1985	26852.4	183046.5	436258.4	174884.4	7998
	1986-1990	20009.93	206757.1	618195.4	205716.2	10894.08
	1991-1995	29724.63	261684.5	695122.2	229107.4	20561.6
	1996-2000	37196.5	294048.4	785441.5	399750.7	53451.29
	2001-2005	48992.47	471506.5	982605.5	462291.2	102879.1
	2006-2009	52998.42	428915.6	1241930	536980.0	130654.4
	Total	252680	2123918	5340798	2259577	337048.7
Hectareage allocation	Year	Central	East	North	Southern Africa	West
	1970-1975	5451.667	16812.94	22222.28	10622.5	514.8333
	1976-1980	5223.00	22785.9	31846.47	12790.23	806.5714
	1981-1985	9822.133	29012.43	35138.23	15120.45	1102.143
	1986-1990	6188.30	28463.53	43395.73	15152.78	1447.536
	1991-1995	8584.567	30561.86	45731.37	15664.03	2403.507
	1996-2000	9069.80	39447.71	42665.43	26300.55	14533.77
	2001-2005	13230.77	56838.0	45863	33011.62	31878.21
	2006-2009	14973.63	58296.43	52492.71	38368.28	33369.91
	Total	72543.87	282218.8	319355.2	167030.4	86056.48
Yield	Year	Central	East	North	Southern Africa	West
	1970-1975	3.465769	7.042177	10.38908	10.70464	8.643668
	1976-1980	3.448491	7.002572	11.00205	10.72198	7.637514
	1981-1985	2.733866	6.309244	12.41549	11.56608	7.256772
	1986-1990	3.23351	7.26393	14.24554	13.57614	7.525948
	1991-1995	3.462566	8.562453	15.20012	14.62634	8.554833
	1996-2000	4.101138	7.454131	18.40932	15.19933	3.677731
	2001-2005	3.702919	8.295621	21.4248	14.00389	3.227255
	2006-2009	3.53945	7.357493	23.65909	13.99542	3.915336

Source: FAOSTAT Data base

Table 4: Average performance in cotton production in Africa by zones in '000 tonnes

	Year	*Central*	*East*	*North*	*Southern Africa*	*West*
production	1970-1975	48172.17	154160.5	332493.3	45069.17	31147.67
	1976-1980	46080.68	86073.17	307028.6	40589.23	42145.85
	1981-1985	55601.72	102477.6	297304.8	47281.54	47332.57
	1986-1990	62476.64	91828.03	239526.2	57842.61	88241.05
	1991-1995	86086.16	50166.33	211831.1	39806.93	117527.7
	1996-2000	127705.5	58470.8	185247.9	71908.63	168511.6
	2001-2005	143272.5	58748.87	175160.6	79687.08	210223.2
	2006-2009	126129.4	53090	116154.2	102105	164332.4
	Total	695524.8	655015.3	1864747	484290.2	8694626
Hectareage allocation	Year	Central	East	North	Southern Africa	West
	1970-1975	136404	290582.4	163739.1	82470.17	63431.24
	1976-1980	106974.4	203237.8	135629.6	58517.5	80100.53
	1981-1985	89186.0	146285.5	114244	59903.4	69145.52
	1986-1990	86515.72	112361.2	110105.2	76598.18	93672.08
	1991-1995	90392.4	75024.8	85525.65	56986.58	123909.1
	1996-2000	123377.9	90035.48	79254.25	77724.49	171916.6
	2001-2005	112277.5	83569.8	70787.45	89133.4	210171
	2006-2009	80463.4	70584.9	45652.81	9453.758	157577.3
	Total	825591.3	1071682	804938.1	510787.5	969923.4
Yield	Year	Central	East	North	Southern Africa	West
	1970-1975	0.35315805	0.530522	2.030629	0.546491	0.491046
	1976-1980	0.43076362	0.42351	2.263729	0.693625	0.526162
	1981-1985	0.62343552	0.700531	2.602367	0.789296	0.684536
	1986-1990	0.72214206	0.817257	2.17543	0.755143	0.942021
	1991-1995	0.9523606	0.668663	2.476814	0.698532	0.948499
	1996-2000	1.03507597	0.64942	2.337388	0.925173	0.980194
	2001-2005	1.27605709	0.702992	2.474458	0.89402	1.000248
	2006-2009	1.56753754	0.752144	2.544295	10.80047	1.042868

Source: FAOSTAT Data base

Table 5: Average performance in cocoa bean production in Africa by zones in '000 tonnes

	Year	*Central*	*East*	*Southern Africa*	*West*
production in '000 tonnes	1970-1975	21434.67	477.1111	543.50	126829.60
	1976-1980	18425.83	584.00	240.00	116608.70
	1981-1985	18534.66	787.1333	160.00	113749.20
	1986-1990	20142.11	1224.133	98.40	164547.40
	1991-1995	18046.40	1756.933	177.00	204123.30
	1996-2000	19704.49	2478.667	226.60	259568.80
	2001-2005	23005.09	2959.533	184.20	286251.80
	2006-2009	28401.82	5663.583	225.00	317508.30
	Total	167695.10	15931.09	1854.70	158918.70
Hectareage allocation	Year	Central	East	Southern Africa	West
	1970-1975	40645.19	1758.333	2566.667	441329.80
	1976-1980	36864.37	2329.133	1980	450453.3
	1981-1985	37551.74	2781.533	1860	450443.3
	1986-1990	38627.11	3915.667	1792.4	492479.6
	1991-1995	33225.6	5036.133	2113.2	519162.4
	1996-2000	32306.69	5901.267	2092.8	662102.7
	2001-2005	32853.11	5899.533	2161.8	778655.7
	2006-2009	35373.89	13483.25	2132.0	900013.8
	Total	287447.7	41104.85	16698.87	4694641
Yield	Year	Central	East	Southern Africa	West
	1970-1975	0.52736056	0.271343	0.211753	0.287381
	1976-1980	0.49982761	0.250737	0.121212	0.25887
	1981-1985	0.4935766	0.282985	0.086022	0.252527
	1986-1990	0.52145009	0.312624	0.054898	0.33412
	1991-1995	0.54314745	0.348865	0.083759	0.393178
	1996-2000	0.6099198	0.420023	0.108276	0.392037
	2001-2005	0.70024086	0.501655	0.085207	0.367623
	2006-2009	0.8029035	0.420046	0.105535	0.352782

Source: FAOSTAT Data base

Table 6: Average performance in groundnut production in Africa by zones in '000 tonnes

	Year	*Central*	*East*	*North*	*Southern Africa*	*West*
production	1970-1975	102553.6	125555.3	10659.33	180181.8	198939.4
	1976-1980	106378.5	148466.1	13130.88	147747.1	143757
	1981-1985	101836.0	86714.66	14707.72	99762.4	131550
	1986-1990	114996.2	76228.89	15241.6	100757.2	174479.5
	1991-1995	142491.4	86002.35	25676.88	61743.0	210987.5
	1996-2000	153205.8	142325.1	42513.24	91577.0	329466.7
	2001-2005	173880.9	137573	53027.12	91265.13	383230
	2006-2009	158400.3	119209.2	54504.8	99070.17	412979.7
	Total	1053743	922074.6	229461.6	872103.8	1985390
Hectareage allocation	Year	Central	East	North	Southern Africa	West
	1970-1975	142845.1	145964.5	7307.533	156389.1	283180.4
	1976-1980	160183.4	173525.9	9335.92	143197	192222.3
	1981-1985	160098.1	129413.9	9742.44	127044.3	174894.7
	1986-1990	168604.4	110080.2	9462.2	117824.9	175770.0
	1991-1995	200703.9	122254.3	12854.88	85466.51	239729.0
	1996-2000	189535.6	205346.0	18152.88	96540.31	323056.4
	2001-2005	203689.9	187680.4	19647.64	115099.8	337670.6
	2006-2009	212419.4	139031.1	18676.3	11874.88	388352.2
	Total	1438080	1213296	105179.8	853436.8	2114876
Yield	Year	Central	East	North	Southern Africa	West
	1970-1975	0.71793572	0.860177	1.458677	1.152138	0.702518
	1976-1980	0.6641044	0.855585	1.40649	1.031775	0.747868
	1981-1985	0.636085	0.670057	1.509655	0.785257	0.752167
	1986-1990	0.68204744	0.692485	1.610788	0.855144	0.992658
	1991-1995	0.7099583	0.703471	1.997442	0.722423	0.880108
	1996-2000	0.80832202	0.693099	2.341956	0.948588	1.019843
	2001-2005	0.85365499	0.733017	2.698905	0.792922	1.134923
	2006-2009	0.74569601	0.857428	2.918394	8.342835	1.063415

Source: FAOSTAT Data base