REVOLUTIONISING AGRICULTURAL FINANCE IN AFRICA: OPPORTUNITIES AND CHALLENGES

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Abstract

Africa needs business models that are capable of bringing affordable, life-changing products and services in order to reduce or even eliminate poverty. These business models through appropriate and responsible funding must, as a matter of necessity, create jobs and lead directly to economic growth in Sub-Saharan Africa (SSA). This study therefore provides a detailed analysis of the different types of major agricultural financial initiatives in Africa relating them to the problems faced by small farmers in the region. We also look at innovative finance schemes that are also making inroads in the continent like patient capital, agriculture pull mechanisms, value chain financing as well as Sovereign wealth funds. We argue that these innovative schemes can make a difference in helping innovative business models that address poverty see the light of day. Thus policies that protects farmers from natural risks like drought and floods, encourage the proliferation of donors, philanthropic organizations as well as the creation of strong linkages and cooperation among all those involved in agricultural value chains are important for the development of Africa's agriculture.

Keywords: Agriculture, Finance, Innovation, Africa

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1. INTRODUCTION

The Sub Saharan Africa (SSA) continent has a total population of about 860 million people with about 65% of this population living in the rural areas and thus heavily reliant on the agriculture sector for livelihood[28]. The African continent is also endowed with about 12% of the world's arable land, 80% of it uncultivated and only 7% irrigated (Mullin, 2010). The contribution of the agriculture sector to national income (GDP) in SSA was above 15% between 2000 and 2007 and then fell to about 10.7% in 2010. Agriculture in Africa has not performed as well as expected during the past few decades. Agricultural growth rates in the region have increased modestly from about 2.6 percent a year during the period 1980 to 1999 to 3.2 percent a year between 2000 and 2010, a figure slightly higher than the annual 3% growth in population for the same period (WDI, 2012). However agriculture value added per capita for the same period averaged US$118 per year much lower than the world average of US$252, US$282 for Latin America and the Caribbean, US$403 for Europe and Central Asia as well as US$276 for East Asia and Pacific[29]. These statistics basically illustrate the need to develop the continent's agricultural sector so as to improve its contribution to growth, employment creation[30], food security and poverty reduction.

Moreover, with over 60% of the population in Sub-Saharan Africa dependent on the sector and 70% of these dependent on food production through farming and livestock rearing, growth in the sector has the best chance for producing poverty reducing effects and thus any strategy for sustained growth and poverty reduction must centre on the rapid growth of the agriculture sector (Odhiambo, 2007)[31]. One factor that has affected the growth and productivity of the

[28] At least 70 percent of the African workforce is engaged in agriculture also (WDI, 2012; Fan et al, 2009).

[29] These statistics are from the World Bank's World Development Indicators 2012.

[30] The agricultural sector employs about 65% of the total labour force (IFPRI, 2012).

[31] Odhiambo W (2007): Financing African Agriculture; Issues and Challenges Dept Of Agriculture and Industry-AfDB.

agricultural sector in Africa is its heavy reliance on traditional methods of production. Ox drawn ploughs, limited use of inputs like fertilizers, improved seeds and irrigation as well as poor agriculture extension services are some of the factors that have affected the productivity of African agriculture. Thus the adoption of modern agricultural techniques will greatly improve food security problems facing the continent and turn it from being a net food importer to a food exporter. According to United Nations Economic Commission for Africa (UNECA, 2009) strategies for transforming African agriculture have to address such challenges as low investment and productivity, poor infrastructure, lack of funding for agricultural research, inadequate use of yield-enhancing technologies, weak linkages between agriculture and other sectors, unfavourable policy and regulatory environments, and climate change. Roth et al (2011) also argue that access to finance[32] is also key to unleashing Africa's agricultural potential and for promoting the growth of the sector. Whilst it is true that food security is one of the key challenges facing the African continent, however, to get land planted and help their countries become self-sustaining, farmers need financing. The Kampala principles agreed upon at the Making Finance Work for Africa (MFW4A) Conference in Uganda in 2011 also reiterated the fact that financial inclusion is important to achieving MDGs and for Africa's agricultural development. The conference recognized that while agricultural finance is a part of the overall financial system of a country, the financial services needs of agriculture sectors in Africa are pressing, and demand special attention.

The main aim of this study therefore is to provide a critical overview of the major players in the financing of Africa's agricultural sector and also analyze the objectives of these financiers vis a vis the challenges faced by the small holder farmers who are the backbone of the sector. The study will also look at the role played by the new innovative financing schemes like Agricultural Pull mechanisms, Index based insurance, Sovereign Wealth Funds, Value chain financing and patient capital in addressing the financing challenges faced by different types of farmers in Africa. The question that we want to answer is; are these innovative schemes the appropriate alternative to the financing problems of the sector, and what are their strengths and weaknesses?

Apart from the concerns raised at the Making Finance Work for Africa (MFW4A) Conference in Uganda, there are generally quite a number of financial players in the agricultural sector in Africa but the problems bedeviling the sector appear far from being over. One wonders whether these agriculture financial initiatives are a response to the needs of the vulnerable poor farmers or they are merely servicing the interests of funders. There is also need to assess the extent of overlap in some of these funding initiatives so that mainstreaming can be done and benefits are spread across a broader spectrum of beneficiaries in the continent's agriculture sector.

This paper is organized as follows; section 2 looks at the challenges faced by farmers in Africa's agricultural sector followed by section 3 which looks at the major domestic and international organizations providing funding to the sector. The last sections 4 and 5 cover the new innovative financing schemes as well as conclusions and policy recommendations respectively.

2. AGRICULTURE AND FINANCING CHALLENGES IN AFRICA

In Africa, small farms dominate agriculture in many developing countries, and the transformation from traditional to modern agriculture is based on the efficiency of small farms and their transformation from subsistence to market-oriented production. The agriculture related challenges faced by many of these farmers basically range from lack of improved crop varieties, total reliance on rain fed agriculture, severely depleted soils, lack of irrigation and crop storage, low use of inputs like fertilizers, limited access to markets and credit as well as weak or poor management of farmer organizations (AGRA, 2013). Thus the use of farm inputs like fertilizers which enhances productivity is very low in Africa and is around 10 kilograms per hectare far much lower than the global average of 100 kg/ha and because of this, yields in most countries are far much lower than their potential (AGRA, 2013). In many places limited on farm storage leads to post harvest crop losses of up to 30% whilst limited access to credit precludes investment in small scale farms or agricultural businesses. Africa's soils are the most degraded in the world and steps must be taken on a large scale to increase fertility and encourage the use of better agronomic practices. The IFPRI (2012) report state that nearly 60 percent of the total land area in the region is marginally suitable for cultivation with soils characterized by limited organic matter and poor water-retention capacity. Added to this is the problem of low and poorly distributed rainfall patterns which is a major barrier to agricultural development in large areas of SSA. Much of Africa is too dry for the new high-yielding crop varieties that have produced well in Asia. Average rainfall in the dry semi-arid areas of SSA is less than 700 millimeters per year, and when the rain does come, the rainy season is very short.

Inefficient land tenure systems, weak extension services to train farmers, poor road infrastructure and

[32] Agricultural finance refers to financial services ranging from short-, medium- and long-term loans, to leasing, to crop and livestock insurance, covering the entire agricultural value chain - input supply, production and distribution, wholesaling, processing and marketing (Making Finance work for Africa report).

lack of or weak farmer organizations have also characterized the agricultural sector in Africa. Weak farmer organizations mean limited negotiating power of farmers and that famers can only access markets through middle men who garner a large chunk of the value of the produce sold. The development of famer organizations in SSA will enable the pooling of resources and partnerships can be forged with these farmer organizations for the supply of inputs, dissemination of technologies as well as linkages to markets. These organizations can help instill commercialization ideas in farmers, establish business clusters, strengthen the position of farmers along the value chain, assist them in increasing their profitability as well as lobby for their interests. The most important thing in Africa is to transform peasant farming into a viable commercial process. This is because farming at any scale should be a business, and smallholders and producers must be treated as entrepreneurs and that businesses need clear linkages along the value chain, from production to processing, marketing and ultimately to consumption. When all these linkages are in place, wonderful things will begin to happen (Nwanze, 2011).

Therefore support to African agriculture should be directed at addressing some of these challenges faced by farmers and governments. Availability of finance is crucial in this regard. However, private sector financing of agricultural activities in Africa has been difficult because of so many problems. Arunachalam (2011) cited a number of constraints to agricultural financing and these are high transaction costs for both (borrower) producers and lenders; high risks faced by both parties especially covariance risk for agriculture; lack of reliable production/financial data regarding rural households engaged in agriculture and finally the problem of financial products that are ill suited to the cash flows and livelihoods of the borrowers.

Most rural households have little or no income or collateral and therefore find it difficult to access funding from institutions. Accessing funding from banks involves costs and this can be a huge setback for rural farmers and ultimately impacts negatively on their yields. Hess *et al* (2001) pointed out that households and companies in rural areas have low asset base and hence little access to developed insurance and credit markets. The other problem is that in Africa and other places in the world economies depend on weather conditions for their yields. Inevitably, this means that the economies face a host of risks among them drought, floods and windstorms. These adverse conditions affect households and agribusinesses operating in the same area and at the same time and hence result in private financial institutions being reluctant to lend to these individuals. Another problem is that financial institutions are ready to extend funding to well established farmers and agribusinesses whose production capacities are known including their financial status. In most rural areas there is little information regarding the number of smallholder farmers, the types of crops they are engaged in as well as their financial statuses. This information asymmetry means banks and other financial intermediaries cannot risk their funds in activities without known statistics. Lastly some financial products do not match the cash flows of smallholder farmers and this can be a serious drawback on accessing funds. This is normally a result of financial markets that are not sophisticated enough (something common in Africa) to give a wide range of financial products to carter for various types of borrowers.

3. EXTERNAL FINANCING OF AFRICAN AGRICULTURE

Although external financial resources are important for economic and social development in Africa, especially agriculture, this assistance has been declining since the 1980s (Odhiambo, 2007). The inflows of aid flowing into Africa or Sub Saharan Africa in particular have been increasing though marginally between 2006 and 2010 (see table 1, below). Another interesting feature is that from 1973 to 2009 the Agriculture Orientation Index (AOI)[33] for Sub-Saharan Africa has been lower than that of the developing world as a whole, implying that ODA allocated to agriculture represented less of a share of total ODA than agriculture represents in the total economy (Lowder and Carisma, 2011).

[33] AOI equals the agricultural share of ODA divided by the agricultural share of GDP. An AOI less than one indicates that ODA allocated to agriculture represents less of a share of total ODA than agriculture represents in the total economy.

Table 1. ODA to Agriculture by all Donors (Gross Disbursements) in USD Millions

Region	2006	2007	2008	2009	2010
Africa	1279.183	1632.931	1875.141	2412.938	2648.613
Africa, South of Sahara	1148.452	1497.195	1682.709	2196.949	2330.861
South & Central Asia	473.275	476.811	840.881	1197.489	1338.500
South America	263.553	394.984	405.112	426.770	346.249
Asia	1101.526	1173.004	1540.028	1859.782	2228.842

Source: OECD CRS dataset, 2012

According to Odhiambo (2007) a number of other agencies active in African agriculture such as the European Commission (EC), DFID[34], Japanese International Cooperation Agency (JICA)[35] and US Agency for International Development (USAID)[36] have also prioritized agriculture as part of the poverty reduction efforts as evidenced by their recent policy strategies. OECD-DAC statistics, (2012) show that in 2010, members of the Development Assistance Committee (DAC) contributed about 6.9% of total aid to agriculture, forestry and fishing, whilst European Union institutions as well as the World Bank International Development Association (IDA) came in with 10.3% (see Figure 1 below). Total multilateral aid to agriculture in 2010 amounted to 8.1% of total aid.

The launch in July 2009 of the L'Aquila Food Security Initiative (AFSI) with total bilateral aid commitments of USD 20 billion over three years is expected to significantly boost Official Development Assistance (ODA) destined for the agricultural sector (Bickel and Klein,2010)[37]. According to the Muskoka G8 Interim Report (2010), as of April 30, 2010, the AFSI has disbursed USD 6.5 billion and remain committed to allocate the full amount of individual commitments by 2012. There are about 24 African countries that are currently benefiting from the AFSI (see table 7 appendix). The projects funded by donor countries under the L'Aquila Food Security Initiative are so diverse and most of them are related to the challenges faced by many African countries in the agricultural sector highlighted in section 2 above. They range from supporting climate change adaptation, setting up of Index based livestock insurance (to protect small farmers' livestock against drought in Kenya and Somalia), improving agriculture productivity through the use of improved seeds, drought tolerant crops, irrigation development, use of fertilizers, capacity building at various levels (line ministries and farmers associations), the provision of extension services as well as improvement of transport infrastructure. Other programs include the promotion of commodity chains, supporting micro and rural financing and facilitating the use of contract farming or out-grower schemes. Although the nature of programs implemented by donors under the L'Aquila initiative in these African countries speak to challenges the countries are facing, the concentration of donors and the implementation of programs is however not consistent. Some countries appear to attract more funding and hence more projects compared to other countries. For example there are six countries actively involved in Kenyan Agriculture and five in Ethiopia compared to an average of two in other remaining countries. The pattern is still the same even when comparing the amount of funding flowing into these countries. The ideal approach probably would be to identify common fundamental agriculture problems in African countries and then implore donors to tackle such challenges first so that development of the sector is not severely skewed in favour of some countries. For more on the projects funded under the L'Aquila initiative, see table 7 appendix.

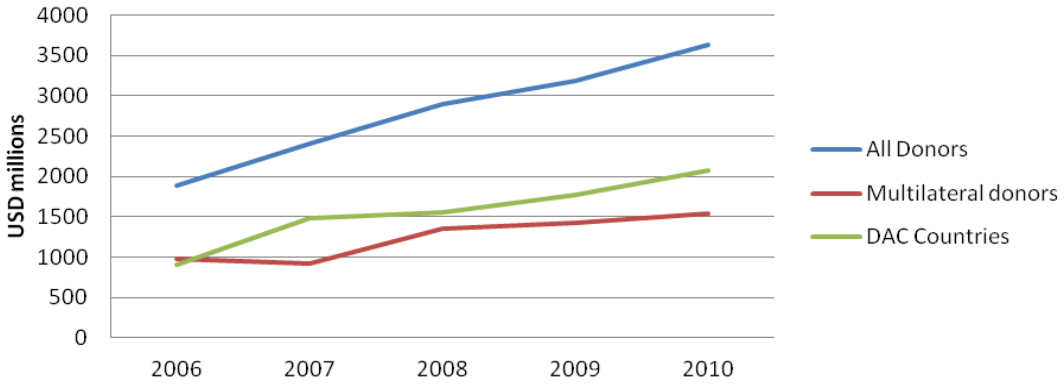
[34] Two interesting initiatives by DfID are the North South Transport Corridor and the 'best bets' approach to agriculture. The "best bets" approach for agriculture will see funding going to "the innovations with the greatest potential to lift poor people out of poverty, and to getting these into widespread use." These include tackling new pests which attack crops (will cost 20 million pounds), breeding drought resistant maize for Africa (will cost 60 million pounds) and improving the vitamin content of staple crops (will cost 80 million pounds) [Eliminating World Poverty: Building our Common Future white paper, 2009]

[35] JICA is building a new development model to encourage increased agricultural production in Africa, both to help prevent another global food crisis and to deter a land grab by foreign enterprises across the continent, according to Senior Vice President Kenzo Oshima (JICA Press Release 17 March 2010)

[36] As East Africa struggles with skyrocketing food prices and the region's worst drought in 60 years, the U.S. Agency for International Development, together with six partners, announced a first-of-its-kind effort to invest $25 million in small and medium sized enterprises. The African Agricultural Capital Fund (AACF) which will deliver much needed growth capital to boost the productivity and profitability of Africa's undercapitalized agriculture sector (USAID Press Release September 2011)

[37] Rethinking rural and Agricultural Finance-the African Case (2010)

Figure 1. ODA to Agriculture in Africa



Source: OECD statistics, Creditor Reporting System, 2012

The pledges made through L'Aquila Food Security Initiative also led to the establishment of the Global Agriculture and Food Security Program (GAFSP), a multilateral financing mechanism, held in the World Bank, to assist in the implementation of the pledges made at the L'Aquila Summit. The GAFSP has a public and private sector window of financing. The private sector window managed by IFC provides long and short term loans, credit guarantees, and equity to support private sector activities to improve agricultural development and food security. The public sector window on the other hand is intended to mobilize and consolidate grant funding that is additional to current programs and support strategic country-led or regional programs that result from sector-wide country or regional consultations and planning exercises, such as the Comprehensive African Agriculture Development Program (CAADP) in Africa. By February 2013, the funds received from donors amounted to about US$ 783 million through the public sector window and US$153 million through the private sector window representing 69% of the total pledges. There are about 11 African countries in which GAFSP is currently active and eight of these countries also benefit from the L'Aquila Food Security Initiative (IFC, 2012)[38]. Most of the projects under GAFSP are to support water and land management as well as market access in these selected countries and the degree of projects overlap is not huge (see table 8 appendix for more).

Other major external sources to finance agriculture in Africa include Kofi Annan's Alliance for a Green Revolution in Africa (AGRA).[39] AGRA seeks to promote smallholder farmers by providing them with high yielding seeds, improving the quality of degraded soils, providing them with better access to markets, transport and financing as well as strengthening the capacity of farmers organizations. These are basically the same activities that the L'Aquila Initiative is also involved in its selected African countries. AGRA works in 13 countries in Africa and five of these are also covered by GAFSP. According to AGRA, the selected countries have land areas of significant size with relatively good soil, reliable rainfall, basic infrastructure is already in place, and there are active smallholder farmers in addition to the fact that these are countries that have shown a commitment to agricultural development. All countries under AGRA are also part of the L'Aquila Initiative and it also appears that there are five African countries that are benefiting from the three programs: GAFSP, AGRA and the L'Aquila Initiative (AFSI).

4. DOMESTIC FINANCING OF AGRICULTURE IN AFRICA

Recognizing the importance of agriculture to the economies of its member states and the many challenges faced in reducing poverty and enhancing food security on the continent, the African Union (AU), together with the New Partnership for Africa's Development (NEPAD), created an agricultural initiative called the Comprehensive Africa Agriculture Development Program (CAADP) in 2003. The main goal of CAADP is to help African countries reach a higher path of economic growth through agriculture-led development that eliminates hunger, reduces poverty, food insecurity and enables expansion of exports (NEPAD 2005a). Through this program African governments committed themselves to allocating 10% of their national budgets to agriculture sector within a 5 year period as well as increase agricultural productivity by 6% annually through 2015. According to FAO (2012), government expenditure on agriculture is positively and highly correlated with capital formation and also has a significant positive impact on productivity, rural

[38] The countries currently benefiting from GAFSP are Burundi, Ethiopia, The Gambia, Liberia, Malawi, Niger, Rwanda, Senegal, Sierra Leone, Tanzania and Togo. For projects funded under these countries see table 11

[39] AGRA works in 13 countries in Africa namely Burkina Faso, Ethiopia, Ghana, Kenya, Malawi, Mali, Mozambique, Niger, Nigeria, Rwanda, Tanzania, Uganda and Zambia.

household income, rural household consumption and rural poverty reduction. Research has shown that increasing public spending on agriculture by 10 percent leads to a 0.34 percent increase in a country's agricultural total factor productivity (FAO, 2012). Fan et al (2009) also argue that for each unit of local currency spent on the agricultural sector, on average ten local currency units are returned in terms of increased agricultural productivity or income across several African countries.

Despite these potential benefits from agricultural spending, only a handful of countries in Sub-Saharan Africa have made significant progress towards achieving the CAADP goals. The CAADP (2009) policy brief states that the number of countries spending more than 10% increased from 11% in 2003 to 22% in 2006 and that the 2007 AU/NEPAD survey found that 50% of the countries spent less than 5% of their national expenditure on agriculture development, reflecting a decrease from 57% in 2003. The recent CAADP (2010) report state that so far eight African countries have exceeded the 10% target and ten countries have met the 6% target and another 19 have achieved productivity growth of between 3% and 6%.

The IFPRI Statistics of Public Expenditure for Economic Development (SPEED)[40] database which provides more current information on public spending on agriculture in selected countries show that generally the amount allocated to the agricultural sector has been low in Africa (see table 2 below).

These trends in government spending for countries in Sub-Saharan Africa indicate that government budgets have afforded less priority to agriculture than have governments of other regions. At country level, no country has consistently allocated at least 10% of its national budget to agriculture. After the 2003 Maputo Declaration, it appears that Zambia and Ethiopia are the only countries in this sample that have been trying to meet the CAADP 10% goal (see table 2 above). Table 3 statistics show that Sub Saharan Africa also spends about 0.81% of GDP on agriculture higher than other regions like Europe & Central Asia (0.61%), Latin America &Caribbean (0.31%) and South Asia (0.71%). Based on selected SSA countries, the share of agriculture expenditure as a proportion of total expenditure was on average 4.3% far much lower than what was agreed under the Maputo Declaration in 2003. In countries of Sub-Saharan Africa the share was about 3% – 6% between 2003 and 2007; it increased substantially from 2004 to 2005 and decreased slightly from 2005 to 2007. Education and Defense are the sectors that continue to receive a relatively large share of the government budget (see table 4 below). The Maputo declaration also established the Regional Strategic Analysis and Knowledge Support System (ReSAKSS) which compiles data on government spending on agriculture for African countries; it is used as the most official source of information for monitoring the Maputo Declaration. According to Benin *et al*, (2010) ReSAKSS coordinator, only 10 out of 45 of the African countries covered by the dataset attained the 10% target agreed upon by African ministers through the Maputo Declaration. Benin also further argue that amongst the countries that have not attained the target, over the 3 most recent years, 12 countries exhibit an increase in the share of government spending on agriculture, 15 show a decrease and neither clear increase nor decrease was evident in other eight countries.

The Agricultural Orientation Index (AOI) of government spending for Sub-Saharan Africa also decreased dramatically over the time period 1980 to 2007. The Agricultural Orientation Index (AOI) for government spending is calculated as the agricultural share of government spending divided by the agricultural share of GDP. An AOI less than one indicates that government spending on agriculture represents smaller share of total government spending than agriculture represents in the total economy. The decline indicates that relatively smaller and smaller amounts of funds have been channeled to the sector. This lack of emphasis on agriculture in African countries seems inconsistent with the recognition of the importance of government spending on agriculture by African Heads of State as evidenced by their joint signing of the Maputo Declaration in 2003.

[40] It is important to note that totals do not refer to global totals, but rather totals for all countries for which data is available. The SPEED database covers 67 countries, 13 of these are High income Non-OECD countries and 54 are classified as low or middle income countries. Among the low and middle income countries, 19 are in Africa with Sub-Saharan Africa having 12 and the rest are spread across Asia, Europe and Latin America. In the years 2000 and 2007 the total population of the countries included in the database represented 50% of Africa's population.

Table 2. Share of Agriculture Expenditure (% of Total Expenditure) in selected African Countries

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Botswana	6.0	8.9	5.0	4.9	4.3	4.2	4.2	4.4	3.9	3.1	3.8	2.9	2.7
Ethiopia	9.7	10.5	8.1	8.1	11.5	6.6	4.0	7.4	5.0	5.0	15.9	16.8	14.4
Ghana	0.7	0.7	0.7	0.7	0.7	0.7	0.5	0.7	0.6	0.5	0.5	0.4	0.4
Kenya	7.0	5.5	5.0	5.4	5.7	5.5	4.8	5.0	4.6	4.2	3.9	2.8	3.4
Lesotho	12.4	10.9	10.0	5.1	4.5	3.7	4.9	3.8	4.2	4.0	3.8	2.8	3.2
Malawi	8.8	6.0	5.9	6.9	8.9	4.9	5.6	7.0	4.8	4.7	4.4	4.3	4.1
Mauritius	5.9	5.8	4.7	5.1	5.8	4.8	4.6	4.0	3.5	4.0	3.9	3.0	2.7
Nigeria	2.6	3.2	3.0	2.2	3.4	2.0	6.4	3.8	1.3	1.0	5.0	1.8	2.0
Swaziland	5.2	5.7	5.9	5.3	6.2	6.6	5.0	4.9	3.8	4.6	5.5	3.3	4.4
Uganda	1.9	1.3	1.0	0.8	1.2	6.3	4.0	4.2	4.2	2.4	3.1	3.4	4.0
Zambia	2.8	2.7	4.1	4.4	4.7	6.5	13.6	13.8	12.0	11.5	8.3	12.3	8.3
Zimbabwe	4.2	2.4	2.6	2.9	3.0	2.8	4.3	10.5	-	-	-	-	-

Source: IFPRI –SPEED Database

Table 3. Share of Agriculture expenditure (% of GDP)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
East Asia & Pacific	1.16	1.21	1.12	1.30	1.16	1.13	1.15	1.18	1.16	1.30	1.13	1.26	1.20
Europe &Central Asia	0.48	0.50	0.71	0.60	0.58	0.60	0.58	0.56	0.61	0.66	0.68	0.71	0.70
Latin America &Caribbean	0.25	0.35	0.46	0.54	0.35	0.36	0.28	0.26	0.22	0.22	0.22	0.22	0.24
Middle East North Africa	1.04	1.01	1.11	1.00	0,81	0.84	1.07	1.06	0.81	0.75	0.92	0.80	0.66
South Asia	0.73	0.73	0.76	0.77	0.80	0.79	0.70	0.61	0.57	0.69	0.70	0.84	0.80
Sub Saharan Africa	0.83	0.76	0.71	0.76	0.94	0.81	1.13	0.95	0.60	0.51	1.00	0.79	0.74
ALL	0.75	0.80	0.84	0.89	0.80	0.79	0.80	0.80	0.76	0.83	0.80	0.86	0.82

Source: IFPRI –SPEED Database

Table 4. Sub Saharan Africa's Sectoral share of Expenditure (% of Total Expenditure)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Agriculture	5.0	5.2	4.3	3.8	4.9	4.0	5.1	4.6	3.1	2.9	5.5	4.5	4.2
Education	15.3	16.9	16.0	14.7	16.7	15.4	13.3	14.6	14.6	15.0	14.7	15.9	16.1
Health	5.0	5.1	5.2	5.4	5.8	4.6	5.9	6.4	6.0	6.4	6.8	6.4	6.7
Defence	6.4	6.6	6.4	7.7	9.8	11.4	8.8	9.4	7.2	7.1	7.1	6.5	5.8
Social Protection	2.9	2.5	2.9	3.1	3.1	2.9	4.8	4.6	4.4	4.9	4.0	4.2	4.4
Trans & Comm	4.6	5.5	5.3	4.9	5.3	3.4	5.2	5.5	4.6	2.8	2.7	2.7	3.2
Other	60.7	58.2	60.0	60.3	54.5	58.2	57.0	54.9	60.1	60.8	59.2	59.8	59.5

Source: IFPRI –SPEED Database

5. INNOVATIVE FINANCE MECHANISMS FOR AGRICULTURE

Agricultural Pull Mechanism (AGPM) Initiatives

In 1798 Thomas Robert Malthus predicted a grim outlook regarding the ability of the world to feed its people. He envisaged a situation where food resources would increase arithmetically and human population increasing geometrically meaning that in the long run humans would run short of food. This was, however, a narrow-minded view of the world as he never factored in the possibility of new and innovative ways of producing food. Though Malthus statement was not entirely correct his views are not to be ignored totally.

Elliott (2010) asserted that meeting the goals of feeding billions of people in the future in the face of climate change, water scarcity and land problems, declining crop yields require giant leaps in agricultural innovations. FAO (2010) report estimates that a total of about $83 billion per year is required in order to meet the food needs of people by 2050.

More food can be produced if economies can find ways to do things differently and efficiently. Doing the latter, however, requires reversing the current situation, where agricultural research and development (R&D) by the private sector is virtually nonexistent in developing countries particularly in Africa because of market failures that make it difficult for them to recoup up-front costs in developing new products (Elliot, 2010). There are a number of innovative ways that have been identified in the agriculture finance literature that can be used to encourage private sector participation as well as improve funding to the sector. These include inter-alia Agriculture Pull mechanism, Index Based Insurance, Patient Capital and Value Chain financing.

Agriculture Pull mechanisms are results-based incentives designed to overcome market failures and encourage innovation and engagement. This means, therefore, that pull mechanisms reward successful innovations *ex post*. This differs from traditional 'push mechanisms' that fund innovations *ex ante* (FAO, 2012). Pull mechanisms are best suited to projects that need to bring new products to the market that are dynamic and will also ensure quality and timeous production of agricultural products to satisfy market demands. Overreliance on traditional R&D is not to be trusted as there are principal-agent problems and in some cases interference from government officials. The expectations of funders of R&D may differ from those of the agent and information asymmetry between these economic agents means their incentives may be misaligned (Kremer and Zwane, 2004). Thus *Ex ante* research grants are not wise as incomplete information regarding performance of researcher leads to sub-optimal use of resources. There is need to complement the traditional "push mechanisms" with innovative, demand- based, pull mechanisms that pay ex post for agricultural innovations. The pull mechanism is useful in situations where the donors and researchers do not have the same information regarding expertise, timeous production of results etc. According to Elliot (2010) a number of agricultural innovations (push mechanisms) that worked well in experiments were not embraced by farmers in the field. Theile van de Fliert, and Campilan (2001) discuss a case in which technology to reduce pest-induced losses from sweet potato weevil in Uganda was met with little enthusiasm because farmers, in this case, were more interested in improved root quality. Another case is that of an improved variety of sweet potatoes that farmers in Uganda declined to adopt because the color of the plant was redder than the traditional variety. Thus creating incentives for scientists to develop products that farmers will want to adopt through push programs is challenging. Therefore by putting the onus on inventors to ensure that the final product meets the needs of the consumers, this can partially address asymmetric information problem between researchers and consumers faced by funders. According to Kremer and Zwane (2004), pull mechanisms create strong incentives for researchers to carefully select research projects, and to focus efforts on developing viable products rather than on other ancillary goals. Policy makers and funders need not themselves select the research approach that should be pursued, but only the necessary characteristics of the final product. Project selection is in the hands of those with the most information. A pull program may be most effective if donors pre-specify a desired technology and commit to paying a reward that is tied to adoption levels in the event that this technology is developed. Tying rewards to adoption may be a more effective means of inducing the development of technologies that are responsive to small farmers' needs and tastes than recommending that scientists solicit farmers' opinions about needed technologies (Kremer and Zwane 2004). However, despite these benefits of pull mechanisms, the challenge is that some small farmers or agribusinesses in Africa may not have resources to fund these innovations from their own private resources. Governments and even donors may still need to come in and inject start up capital that farmers can use to carry their pull mechanisms innovations (pushed pull mechanism).

Index Based Insurance (IBI)

Index Based Insurance (IBI) is another innovative way to ensure that risks associated with poor harvests are mitigated in order to avoid diminishing the spirit of farmers to produce in the future. IBI is the creation of insurance that is linked to certain agricultural risks such as drought. This type of insurance is different from traditional crop insurance that has been a global failure because of being plagued by moral hazard, adverse selection, and high monitoring and administrative cost (World Bank, 2005). Empirical evidence of the success of IBI is in Morocco. The Moroccan Agricultural Index Based program was basically a rainfall insurance program for certain crops and this indemnifies producers if rainfall levels fall below a specified threshold. The only challenge to these kinds of schemes is the complexity involved in drawing such contracts. The idea behind such contracts is that there is sufficient correlation between weather and yield so that the farmer can hedge his production risk by getting a contract that would pay him/her if rainfall levels fall below a selected strike. Another related insurance index was developed by the International Livestock Research Institute (ILRI) in collaboration with various partners and is called Index Based Livestock Insurance (IBLI). Its aim is to

protect livestock keepers from drought related asset losses particularly those in the drought prone arid and semi-arid lands. For pastoralists whose livelihoods rely solely or partly on livestock, the resulting high livestock mortality rate has devastating effects on asset levels, rendering them among the most vulnerable populations. Index-based insurance products represent a promising and exciting innovation that could allow the benefits of insurance to protect the climate-related risks that vulnerable rural smallholder farmers and livestock keepers face. Because index insurance is based on the realization of an outcome that cannot be influenced by insurers or policy holders (such as the amount and distribution of rainfall over a season), it has a relatively simple and transparent structure. This makes such products easier to administer and consequently more cost-effective to develop and trade. This type of insurance scheme has been tried successfully in African countries like Kenya and Somalia and Ethiopia and can be replicated in many other countries where livestock protection is important for livelihood purposes.

Value Chain Financing (VCF)

Value Chain Finance has become a buzzword today especially in the agricultural sector. Small to medium-sized farmers have little chances of accessing formal finance due to sub-optimal infrastructure, wide client dispersion and lack of guarantees. Other challenges faced by small-holder farmers in rural settings are that there is weak or no government intervention and that weak support services for producers dampens the enthusiasm of formal banks and other institutions to fund agricultural activities. Value Chain Financing refers to the existence of a financial relationship between two or more actors within the value chain (Neven, 2008). As such there are two types of value chain finance and these are direct value chain finance and indirect value chain finance.

A Value Chain Finance is a bottom-up approach to the growth and development of a community as it seeks to assist those at the grassroots level (farmers) to be able to produce without facing production-bottlenecks. Looking at direct value chain finance, a firm or farmer gets funding from another actor in the chain while in indirect value chain financing a farmer/firm gets funding from external sources outside the chain. According to the findings of the Inter-American Development Bank (2010) participation in a well-structured and dynamic supply chain seems to improve the chances of obtaining finance either from larger more liquid agents in the same chain or indirectly from external formal lenders.

A successful VCF scheme is found in Ethiopia and it is a Fruits Value Chain. The approach in Ethiopia is the Demand Driven Value Chain Development (DDVCD). The strategy is to maximise market opportunities for upstream actors (farmers) to better align them with market requirements. Downstream actors that comprise processors, exporters and general buyers are also strengthened in the chain. The area of intervention by an Ethiopian firm promoting VCF was introduced after having identified the constraints in production of horticultural products faced by small scale farmers. The firm intervened by providing farm management knowledge, market linkages and information about market reactions. The result was a substantial increase in marketed volumes as well as net margins for all players in the chain. According to LEDNA (2012) the farmers as well as downstream players continued to make good margins well after the disengagement of the organisation that initiated the VCF.

Patient Capital

Past experience has shown that markets alone cannot solve the problems of poverty; nor are charity and aid enough to tackle the challenges faced by over two-thirds of the world's population living in poverty. Patient capital is another type of funding that seeks to bridge the gap between the efficiency and scale of market-based approaches and the social impact of pure philanthropy. According to Friedman (2007), patient capital is long-term capital made available by the international community on concessional terms and is used to part-fund capital costs of irrigation and related agriculture supporting infrastructure. This is a kind of investment in which the investor has no expectation of turning a quick profit and must be willing to forgo an immediate return but anticipates more substantial returns down the road. It helps overcome the barriers to entry into commercial agriculture. It provides one-off support leaving a sustainable agribusiness sector that requires no further patient capital. Patient capital can be in form of equity, debt, loan guarantees or other financial instruments and needs to be long term and is suitable where a firm or company to be financed is in the early stages of existence. It is also suitable for funding of enterprises providing low-income consumers with access to healthcare, water, housing, alternative energy or agricultural inputs to small-holder farmers. The purpose of patient capital is to jump-start the creation of firms that improve the ability of the poor people to live with dignity (Novogratz, 2011). For example increasing access to affordable irrigation will bring about major improvements in crop yields and farmers' incomes. Returns on early-stage investment in agricultural irrigation will improve and therefore greater investment in agriculture is stimulated. Once commercial investment has been kick-started, agribusinesses along the whole length of the value chain are stimulated. Patient capital is by far the most cost-effective way of providing major benefits for smallholder farmers and the rural communities in which they live.

An example of a Patient Capital is the Acumen Fund. Acumen Fund sees patient capital as a debt or

equity investment in an early-stage enterprise providing low-income consumers with access to water, agricultural inputs, healthcare, housing and alternative energy. As an example a typical commitment of patient capital (*by Acumen)* for an enterprise range from $300,000 to $2,500,000 in equity or debt with payback or exit in roughly seven to ten years. The patient capital by Acumen is accompanied by a wide range of management support services nurturing the company to maturity.

In 2004 Acumen Fund invested $600,000 in Water Health International (WHI), a company that dedicated itself to bring safe drinking water to rural Indians, something long thought nearly impossible. Success came through in one year with more projects of the same nature in the area with the technical assistance of Acumen in which ten more systems were now in place and this water facility by WHI attracted interest of additional investors. Three years after Acumen's initial investment, WHI had raised $11 million in private capital and this made it possible to start negotiating with banks about financing an additional 20 systems.

Over the years WHI has developed over 275 systems that impact the lives of over 350,000 people in India. WHI now has over $30 million as a result of leveraging a powerful business model, focused leadership, and the strong support of patient capital, to create an innovative new approach to tackling India's water challenges.

Another example of patient capital in Africa is the Chiansi Irrigation project in Zambia which was set up and funded by a private firm. The model was that of facilitating large-scale development of irrigation assets that would benefit both small and large-scale producers. In addition to water provision there was also the existence of commercial and grant system as well as seed and fertilizer markets in the selected arable land. The harvests by small scale producers were for their own consumption while the produce by large-scale commercial farmers was targeted for exports at regional and international markets. The Chiansi project achieved a double-barreled objective of economic growth as well as poverty reduction among smallholder farmers and their families.

Sovereign Wealth Funds (SWFs

Sovereign Wealth Funds (SWFs)[41] are a good example of private financing schemes that are making investments in the agriculture sector in the developing world and acquiring land in the context of improving "food security" is certainly one of the more conspicuous reasons cited by these SWFs. According to McNellis (2009) Congo, Ethiopia, Madagascar, Mozambique, Sudan and Tanzania are the principal partners of these land deals in Africa. Countries that have been active in these land deals are Saudi Arabia, China, the United Arab Emirates and South Korea. The widely common investments in land may create tensions in farming communities, as experienced in Madagascar and Central America where the privatisation of previously customary lands led to a rapid land concentration, and was immediately followed by decades of conflict and civil war which greatly undermined the development of the region (Songwe and Deininger 2009). In Madagascar, for example, only 15 percent of the plots are titled. About 49 percent of the farmers are not conversant with land titling procedures (Ny Tantsaha 2008). Another example is that of pastoral land areas in Sudan, Tanzania, and Kenya, where seasonal grazing areas for pastoral populations are likely to be lost to foreign investors, putting their livestock and crop activities at risk. This process is helped by the weak tenure system in numerous African countries, where producers do not hold land titles. Under these circumstances, the rural population has no clear legal recourse in case of expropriation. African governments need to design appropriate legislations and mechanisms to benefit from foreign investment in agricultural land, while preserving the livelihoods and interests of the local population (Castel and Kamara, 2009). FAO has recognized the importance of foreign investment as a source of agriculture finance and so, together with member governments and several other international organizations, have established the Principles for Responsible Investment in Agriculture (FAO, 2011). These principles are important in protecting local communities from unscrupulous investors.

6. CONCLUSION AND POLICY RECOMENDATIONS

Africa needs business models that are capable of bringing affordable, life-changing products and services in order to reduce or even eliminate poverty. These business models through appropriate and responsible funding must, as a matter of necessity, create jobs and lead directly to economic growth in Sub-Saharan Africa (SSA). Patient capital can make the difference in helping innovative business models that address poverty see the light of day.

Best Practice Business models that benefit the marginalized people must be encouraged through appropriate legislative and policy frameworks. Innovative funding of agricultural activities where formal financing is lacking cannot be overemphasized. Economies should encourage the creation of strong linkages and cooperation among all those involved in agricultural activities from producers, marketers and consumers so that producers, large and small, are assured of a ready market for their products and services. Such value

[41] These are state-owned investment fund composed of financial assets such as stocks, bonds, property, precious metals or other financial instruments. Sovereign wealth funds invest globally. Most SWFs are funded by foreign exchange assets.

chains act as insurance for smallholder farmers that cannot access formal funding. The success of VCF also depends on the willingness by governments to support efforts of value chains. To this end, governments should commit themselves to work with participating firms in a chain and provide the necessary support in form of guarantees or otherwise.

Yield insurance programs should be considered as one of the effective ways to minimize risks in agriculture. To this end, policies should be put in places that promote insurance products that are unique to certain agricultural yields. Index Based Insurance is the best way forward in this regard. Many farmers in rural areas face drought, flood and other types of risks and this exacerbates poverty in such areas. A policy that protects such vulnerable farmers can go a long way to alleviate poverty and uplift the spirit of rural farmers to better improve their production in an atmosphere free of anxiety.

Patient capital is a kind of funding to rural farmers which give them enough room to establish themselves before loan repayments can commence. Some projects take a while before positive net inflows can be realised and a scheme in which the lender is willing to agree to a deferment of loan-repayment is beneficial to poor communities. Patient capital also creates jobs and affordable commodity prices as a result of below-market interest rates for the loans. A policy that promotes such funding is more than welcome in many parts of the world and in particular, Africa. To this end a legislative directive that encourages the proliferation of donors, venture-like structures, philanthropic organisations and other types of patient capital investors should be in place. Donors should be those organisations without other ulterior 'neo-colonialism' motives but are coming as agents of change to better lives of many Africans as pointed out by Hallam (2009). Another issue of importance is that authorities should encourage speedy infrastructural development in form of roads, communication infrastructure as well as energy provision so as to cut down operating costs which hamper many from financing agricultural activities.

Africa is a land that has different agro-ecological conditions from other parts of the world and so requires its inhabitants to embrace innovation in order to achieve agricultural milestones. The recommendations should include the implementation of both "push" and "pull" mechanisms. There is need to understand the market needs and then *ex post* fund those innovations designed to satisfy the market both in quantity and quality. Drought has become a constant companion of most parts of the world and more so in Africa; this realization demands that we seek to develop drought-resistant crops which are less water-stressed and also strong in resisting diseases and pests.

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APPENDIX

Table 5. Agriculture Expenditure constant 2005 International dollars PP (US Billions)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
East Asia & Pacific	47	53	52	62	59	63	68	75	80	97	91	112	117
Europe &Central Asia	12	12	18	16	16	18	18	18	21	24	27	30	32
Latin America &Caribbean	6	9	13	16	10	11	9	8	7	8	9	9	11
Middle East North Africa	12	12	14	13	11	12	15	16	13	13	16	15	13
South Asia	12	13	14	15	17	17	16	15	15	19	21	28	29
Sub Saharan Africa	2	2	2	2	3	3	4	4	2	2	5	4	4
ALL	91	102	114	124	115	124	130	135	138	163	169	197	205

Source: IFPRI –SPEED Database

Table 6. Sub Saharan Africa's Sectoral share of Expenditure (% of GDP)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Agriculture	0.8	0.8	0.7	0.8	0.9	0.8	1.1	0.9	0.6	0.5	1.0	0.8	0.7
Education	2.5	2.5	2.6	2.9	3.2	3.2	3.0	3.0	2.8	2.7	2.7	2.8	2.8
Health	0.8	0.8	0.9	1.1	1.1	1.0	1.3	1.3	1.2	1.1	1.2	1.1	1.2
Defence	1.1	1.0	1.1	1.5	1.9	2.3	2.0	2.0	1.4	1.3	1.3	1.2	1.0
Social Protection	0.5	0.4	0.5	0.6	0.6	0.6	1.1	1.0	0.8	0.9	0.7	0.7	0.8
Trans & Comm	0.8	0.8	0.9	1.0	1.0	0.7	1.2	1.1	0.9	0.5	0.5	0.5	0.6
Other	10.1	8.5	9.9	12.0	10.4	11.9	12.7	11.4	11.6	10.8	10.8	10.7	10.4
Total	16.6	14.7	16.5	19.9	19.1	20.5	22.3	20.8	19.3	17.7	18.2	17.8	17.5

Source: IFPRI –SPEED Database

Table 7. Funded projects under the L'Aquila Food Security Initiative (AFSI)

African Country	Funding	Nature of Projects	Time frame	Funding Country
Kenya	Committed AU$24.75m $159.9m $121.5m $118.52m $28m E66.4m	• AusAID support hunger safety program by handing cash transfers to chronologically food insecure • Also support climate change adaptation initiative • Index based livestock insurance is a public-private program enabling Kenyan pastoralist to insure their main assts livestock against drought • Capacity Building for small holder farmers and development of irrigation schemes • Improve agriculture productivity(horticulture, dairy, maize in high rainfall areas, drought tolerant crops livestock in arid regions) • Development of private sector and agric value chains • Policy advice and sector contribution • Irrigation development, strengthen farmer organizations, seed supply, water harvesting, animal health, pasture reseeding • Agric and livestock extension, land reforms, financial services, marketing and value chains, CSO projects and environment • Increase productivity and efficiency of food systems to enhance food security targeting food insecure households		Australia Japan USA Germany Sweden EU
Somalia	AU$2.9m	• Enhance livelihoods and reduce vulnerability of pastoral populations, increase earnings from livestock • It also appears that there is a demand for Index Based Insurance. During a brief campaign there was a huge uptake of the IBLI		Australia
South Sudan and Somalia	AU$20m	• Building resilience through social protection mechanisms and climate change adaptation to reduce risk of food insecurity		Australia
Zimbabwe	AU$12.9m $39.5 million	• Promote livelihoods of the poorest and most vulnerable populations • Provide crops and livestock inputs • Increase the role of private sector through contract farming, strengthen markets, value chain, improving financial services for the poor • Reducing poverty through improved livelihoods, ensuring clean water, food security and hygiene • Provide agric inputs, promotion of conservation agriculture, formation and support to internal lending and savings clubs, cash transfers, safe water points, latrines, hand washing facilities • Improve access to financial and business development services for small and medium sized enterprises working in agric by providing production support, logistics sales and marketing. Capacity development and distribution • Financial and technical support to agric business with innovative and inclusive business models • Enabling environment for business and microfinance program so as to increase micro credit to women		Australia UK
Ghana	$53.6m $119.9m $78.7m	• Agriculture contract farming in the rubber area • Development of out-grower schemes • Support to micro and rural finance and district development • Value chain focus on key crops including rice, maize soya and marine fisheries • Contribute to the food and agric sector development Policy through refinancing policy for agric investment and technical assistance		France USA

	$116.8m	• Contribute to improved food security through improving the availability of food • Improve nutritional practices and more productive agric practices amongst small holder focusing on women		Canada
Senegal	$19.4m $560m $4.05m $5.8m $21.7m	• Irrigation infrastructure rehabilitation, creation of 5000ha for rice and other crops • Capacity building for different actors of rice value chain • Support to commercialization, processing and marketing of rice • Agriculture productivity by improving irrigation systems • Rehabilitate main conveyances and drainage canals • Secure land rights of farmers • Rehabilitate two national roads • Improve access to domestic and international markets • Agric diversification of production, food production (rice) water use, warehousing training, infrastructure, livestock • Community development projects through micro finance and technical assistance activities • Support to the national program of investment in agric, rural infrastructure, irrigation schemes , capacity development, increasing horticulture and fruit production • Strengthen production capacity of rural entrepreneurs through technical and material support, enhance linkages of producers to markets, extend microfinance services to more rural farmers and entrepreneurs		France USA Spain Italy Canada
Cameroon	$286m $126.7m	• Extension services and vocational training • Farmers association and line ministries capacity building • Micro finance in rural areas and agronomic research • Support program for sustainable management of natural resources and basket fund • Decentralization and local development assistance program • Health/AIDS program in the framework of a swap reproductive health project		France Germany
Uganda	$155.6m $100.3m $114.8m	• Capacity building for rice promotion • Irrigation development and improvement of transport infrastructure • Comprehensive value chain approach focusing on maize, beans and coffee • Expand production and sale of these crops to local and international markets • Improve private sector competitiveness • Build and enabling policy environment • Strengthen local and scientific capacity • Conduct biotechnology research • Integrate agric and nutrition programs • Food and nutrition security • Rural financing sector program, renewable energy and energy efficiency, water and sanitation, development of financial sector		Japan USA Gemany
Mozambique	$75.58m $48.9m $11 million $10.9m $37.98m	• Improving research capacity for Nacala Corridor agriculture development • Improving transport infrastructure • Improve agric productivity (oilseeds pulses, cashews and fruits) • Through the Community land use fund – secure land rights of rural people and other natural resources, facilitate equitable use of these resources for poverty reduction and growth • Through the Beira Agric Growth Corridor – reduce poverty by promoting profitable agric in the Beira corridor, guarantee social and gender equality, use BAGC to transform agric productivity with major benefits for small holder famers and local communities • Promote income generating activities of farmers, support agric production and marketing through capacity building, improve sustainable management of natural resources • Increase fishermen income by increasing fish production and marketing, strengthen fishermen associations • Improve institutional capacity in the fisheries sector and develop fishing techniques and the marine park • Strengthen capacity, extension services, implement food production action plans, improve commercialization and market access, support vulnerable populations to achieve food security and improve incomes.		Japan USA UK Italy Canada
Tanzania	$121.9m $139.1m	• Capacity development for planning and implementation of agriculture development and transport infrastructure improvement		Japan

	$61m	• Improve agriculture production and processing (rice , maize horticulture) • Expand market access and promote sustainable resources management • Expand capacity building and support services, foster enabling policy environment • Water sector development programs • Rural development programs and buffer zones management in the Serengeti • Support to renewable energy		USA
Ethiopia	$121.8m $62.5m $125.8m E71.8m $75m	• Spur agriculture growth (maize, wheat, honey, coffee value chains) • Link the vulnerable to markets • Build institutional capacity • Sustainable land management including the rehabilitation of degraded areas • Support to agric development small scale irrigation • Improvement of framework conditions\ • Using the Productive Safety Nets program- provide food and cash transfers to food insecure rural people • Improve access to credit and technical services to help them build up livelihood assets and graduate from program • Strengthen agric services and systems for improved agric productivity making agric extension at woreda level more responsive to local farmer needs • Achieve food security of chronic and transitory food insecure households • Recovery of livelihoods in drought affected areas and building resiliency • Finance the productive safety nets program, rural capacity building project, agric growth program, improving productivity and market access, managing environmental resources (increased availability of agric inputs, extension services, credit, land and water management and marketing opportunities, irrigation, institutional capacity building policy development market and value chain development improved productivity)		USA Germany UK EU Canada
Liberia	$60.3m	• Improve agriculture productivity (rice cassava, vegetables, goats)		USA
Malawi	$40.1m $22milion	• Promotion of improved nutritional behavior • Investments in high potential value chains to develop markets and improve nutritional options • engagement of government to improve the policy environment • Farm input subsidy program- to improve agric productivity and food security and to achieve poverty reduction through affordable fertilizer and seeds to poor households		USA UK
Mali	$64m Funding by Germany to be finalized because of war $36.99m	• strengthen rice, millet, sorghum and livestock value chains • address high levels of nutritional deficiency • improve the enabling environment for agric trade and investment • build capacity among farmers, the private sector, civil society and public institutions • promote productive and sustainable agriculture • drinking water supply and sanitation • decentralization • reproductive health and education programs • improve sustainable agric productivity and food security		USA Germany Canada
Rwanda	$71m $22.8 m	• promoting value chains through the core investment areas of sustainable market linkages and infrastructure • link agric to nutrition and support gender equality to improve food security • invest in traditional high value exports, coffee and pyrethrum • Through the Rwanda Agric Service Delivery Grant – help government to implement the intensification and development of sustainable production systems • Support to professionalization of producers through cooperatives and farmers organizations • Promotion of commodity chains and development of agribusiness value chains, institutional capacity building across whole agric sector • Ministry of Agric to expand extension services to farmer communities, increase agric productivity		USA UK

Zambia	$43.2m	• Improve agriculture productivity (oilseeds, legumes, maize, horticulture) • FTF nutritional investments targeted at women • FTF program to promote innovation in agric technology such as drought tolerant maize, bio-fortification of maize, oranges, fleshed sweet potatoes and management of aflatoxins		USA
Benin	$137.8m	• Environmental fund to support West African savannahs foundation • Support decentralization and municipal development • Strengthen agric programs		Germany
Burkina Faso	$56.11m	• Small scale irrigation, value chains and policy advice for implementation of CAADP		
Ivory Coast	$17.03m	• Rural economic development including poultry, pig industry, rice horticulture, plantains, cocoa, rubber, palm oils or value chains • Linking vulnerable to markets • Capacity development for cooperatives and other institutions		Germany
DRC	$97.5m $5.6m	• Post conflict support • HIV and health systems • Protection and management of natural resources including water and waste water • Strengthen certified horticulture seed production centre in Kinshasa • Increase agric production and farmer income, provide technical assistance to technicians, members of the farmers association and rural leaders and other farmers		Germany Italy
Niger	$57.7m E113m	• Rural development, reproductive farming resource management, climate change agriculture irrigation, productivity promotion, capacity building, sector political support, regional planning, community development • Promotion of food security projects, provision of funding for grain purchase, monitoring and evaluation support, technical advice and rural infrastructure • Road infrastructure, improving capacity of production, management and maintenance of the roads by strengthening the different structures involved • Ensure food security by promoting sustainable agric development • Create good conditions for producers associations • Improve quality and coverage of rural financial services		Germany EU
Togo	$11.14m	• Programs to be defined		Germany
Nigeria	$3.7 m	• Improve livelihoods by facilitating growth and pro poor outcomes in agric markets • Fertilizer interventions (bottom of pyramid approach)..reached over 1 million famers using Notore. This improves declining agric yields and hence food security • GEMS program to create greater value chains in the meat and leather value chains to improve incomes of poor people in this sector		UK
South Sudan All Sudan	$10 m $19.44m	• Using the South Sudan Multi Donor Trust Fund to coordinate the reconstruction and development needs of Southern Sudan and covers infrastructure, health, water and sanitation, Agric and rural development to increase productivity of agric and forestry small holder farmers • South Sudan Recovery Fund to help transition from relief to recovery support livelihoods projects like agro pastorals skills, improved water and sanitation, capacity building, infrastructure etc • Economically sustainable rural communities • Increase agric production • Ensure market access • Improve livelihoods, support to targeted government NGOs		UK Canada
Chad	E26.8m	• Improve food security, good governance and management of biodiversity and natural resources • Prevent food insecurity during lean seasons. Reinforce resilience of targeted populations and reinforce livelihood link to farming and agriculture		EU

Source: L'Aquila Food Security Initiative (AFSI) website: http://www.feedthefuture.gov/resource/laquila-food-security-initiative-final-report-2012.

Table 8. Projects funded by Global Agriculture and Food Security Program

African Country	Funding	Nature of Projects	Funded by
Burundi	$30 million	• $30 million to improve water management and irrigation in drought-prone areas with investments in infrastructure and agricultural intensification through improved technologies, productive assets, and the establishment of farmer field schools	GASFP
Ethiopia	$51.5 million	• Funds meant to boost incomes of rural people and increase food security by developing the untapped potential of high-potential areas. • GAFSP co-finances the Agriculture Growth Program (AGP) which aims to increase agricultural productivity and market access for key crop and livestock products in targeted woredas with increased participation of women and youth. The AGP particularly focuses on developing the untapped potential of relatively well-endowed areas.	GASFP
The Gambia	$28 million	• Target three highly food-insecure regions via an integrated area development program that includes land and water management, horticultural gardens, aquaculture farming, and small ruminant and poultry farming. • GAFSP resources will focus on scaling up and expanding proven initiatives and best practices to boost household food security and nutritional levels, increase levels of sustainable production and productivity through improved land and water management technologies, and strengthen smallholder agricultural competitiveness.	GASFP
Liberia	$46 million	• Fund to enhance the income of smallholder farmers, particularly women and youth, through sustainable land expansion and land improvement, increased market access, and strengthening institutional capacities. GAFSP financing in Liberia will support the implementation of sustainable medium and long-term investments in agriculture guided by the Liberia Agriculture Sector Investment Program (LASIP).	GASFP
Malawi	$39.6 million	• The promotion of irrigated rice and horticulture production as well as crop diversification and value chain development for selected commodities. The primary objective of this project is to reduce poverty and ensure sustainable food security for Malawians at both household and national levels by increasing food production and developing high potential value chains. Main activities will support: sustainable land and water management to enhance agriculture under irrigated agriculture in selected districts, crop diversification, and value chain development	GASFP
Niger	$33 million	• Projects contribute to poverty alleviation by boosting rural production and enhancing food security in particularly vulnerable areas. GAFSP financing will create surface water harnessing facilities, structures, and irrigation works as well as implementing counter erosion measures in watersheds upstream of the structures. GAFSP activities support construction and rehabilitation of water-spreading bunds, mini dams, and irrigation areas which will help to increase the arable land area by more than 17,000 hectares	GASFP
Rwanda	$50 million	• To increase productivity and commercialization of hillside agriculture through research and extension, water and land management, agricultural value chains, and expanded access to finance.	GASFP
Senegal	$40 million	• To promote livestock and crop production in vulnerable zones, including investments focused on provision of water management systems, rural roads, and animal vaccination centers. the project will focus on livestock water points, rural roads, rural animal vaccination centers, and financing for model ruminant and poultry operations	GASFP

Sierra Leone	$50 million	• GAFSP is financing two components of the Smallholder Commercialization Program (SCP) Investment Plan, Sierra Leone's National Agricultural Investment Program (NAIP) under the CAADP process. The specific objective of the support is to promote smallholder agricultural commercialization through production intensification, diversification, value addition, and marketing, as well as developing small-scale irrigation infrastructures to boost rice production, a major staple in the country	GASFP
Tanzania	$22.9 million	• To support the rehabilitation of irrigation schemes and an input voucher scheme for rice input packages in the project zones. GAFSP funding will contribute to sector growth with a particular focus on enhancing rice production in the TARIPA-SAGCOT area in Tanzania Mainland, and in Mtwango, Kibokwa, and Ole in Zanzibar Islands	GASFP
Togo	$39 million	to support agricultural productivity growth through adoption of technology, increased value addition, and promotion of agricultural diversification. GAFSP financing will support two programs: Project to Support Agricultural Development in Togo (PADAT) and Project to Support the Agricultural Sector (PASA). GAFSP support will help in increasing productivity of small farms through adoption of new technologies, promotion of value addition, and marketing of the targeted agricultural produce. It will also support agricultural diversification through promotion of strategic food and export crops as well as freshwater fish farming	GASFP

Source: GAFSP website: http://www.gafspfund.org/.

Table 9. Green Revolution in Africa (AGRA)

African Country	Funding	Nature of Projects
Burkina Faso	AGRA	• The Alliance for a Green Revolution in Africa (AGRA) supports government initiatives such as the Agricultural Sector Investment Program outlined in the Government's Green Revolution Guide. It calls for diversification and intensification of production, and strengthening linkages between production and the market-two goals that AGRA is well-suited to address.
Ethiopia	AGRA	• Develops and disseminates improved, higher yielding, farmer-preferred wheat varieties with tolerance of wheat stem rust for smallholder farmers in marginal areas using Ethiopia Institute for Agric Research • To enhance uptake and utilization of improved seed through increased production and efficient dissemination to overcome hunger and poverty in small scale farmers in Ethiopia
Ghana	AGRA	• Helps smallholder farmers of staple crops raise their incomes through linking them to commercial buyers and producers, thereby expanding their access to markets • To improve smallholder agricultural productivity and food security in Africa by developing and strengthening regional human and institutional capacity to develop innovative and adaptable integrated soil fertility management technologies. • In March 2009, Standard Bank and AGRA signed an agreement under which Standard Bank will offer $100 million in loans to smallholder farmers and small agricultural business-$25 million. This is done through Ghana's millennium development authority
Kenya	AGRA	• AGRA and the International Fund for Agricultural Development (IFAD) provided $2.5 million each as a loan guarantee for the Equity Bank's $50 million program. The program will make small low-interest loans available to 2.5 million farmers and 15,000 agri-businesses. • Mobilizes and trains smallholder farmers to form strong business groups that will enable them to access reliable and diversified markets for cereals resulting in reduced transaction costs and increased farmer incomes. • Links smallholder farmers to more efficient input and output markets through improved market information to raise farmers' incomes • To improve smallholder agricultural productivity and food security in Africa through strengthening the human and instituitional capacity required to develop appropriate integrated soil fertility management technologies.
Malawi	AGRA	• To sustain self sufficiency in maize production, lower seed cost and improve food security among smallholder farmers in Malawi through development of high yielding, disease and pest resistant maize varieties of the mid-altitude areas of Malawi

		• Promotes and distributes improved seed varieties for use by poor small-scale farmers in Malawi • To produce well trained human resources equipped with practical skills in integrated soil fertility management practices that can contribute to improving smallholder agricultural productivity and food security.
Mali	AGRA	• Enhances productivity and incomes of poor, smallholder farm households in the Segou and Koulikoro regions of Mali through providing increased access to agricultural inputs and technologies • Develop high yielding seed varieties • Links fertilizer micro-dosing with input-output markets to boost smallholder farmers' livelihoods in the dry lands of Mali and two other countries •
Mozambique	AGRA	• Develops improved rice varieties that combine high yield, good grain quality, resistance to rice yellow mottle virus and bacterial blight, and tolerance for grain shattering and lodging for smallholder farmers • To improve food security and increase incomes of small holder farmers in Zambezia and Nampula provinces of Mozambique through promotion of Integrated Soil Fertility Management. • In March 2009, Standard Bank and AGRA signed an agreement under which Standard Bank will offer $100 million in loans to smallholder farmers and small agricultural business-$25 million using the Millennium Challenge Account in Mozambique •
Niger	AGRA	• Boosts the productivity and incomes of smallholder farmers in Niger through accelerated development and diffusion of drought-tolerant improved seed varieties. • Promotes wide-scale dissemination and adoption of fertilizer micro-dosing and inventory credit system for increased production incomes of smallholder farmers in Niger
Nigeria	AGRA	• Strengthens existing agro-dealer network and creates a new cadre of agro-dealers with the means and incentives to supply seeds and related technologies for increased productivity, household incomes and welfare of resource-poor farmers in four disadvantaged zones of Nigeria. • To increase small holder farmers 'productivity and incomes through the development and dissemination of virus resistant seeds • Soil health improvement programs
Rwanda	AGRA	• To improve food security of smallholder farmers in Rwanda through development of new, improved sweet potato varieties through farmer participation processing high yield, high beta-carotene content, high dry matter content, pest and disease resistance and adapted to different agro-ecologies of the low, mid and high altitude provinces • Produces and disseminates improved seed to poor farmers • To increase agricultural productivity and smallholder farmer incomes through improved soil health by demonstrating and promoting the wide scale use of agricultural lime in Rwanda. •
Tanzania	AGRA	• Develops a national strategy to streamline an agro dealer distribution system that will cost-effectively and sustainably make available improved inputs to smallholder farmers in rural Tanzania, thereby increasing their productivity and incomes • Ensures production of improved crop varieties adapted to smallholder farmer conditions in Tanzania • Soil health improvement program • In March 2009, Standard Bank and AGRA signed an agreement under which Standard Bank will offer $100 million in loans to smallholder farmers and small agricultural business-$25 million through the Kilimo trust • AGRA and the Financial Sector Deepening Trust (FSDT) in 2008 provided $1.1 million for a loan guarantee fund securing a $5 million line of credit from the National Microfinance Bank (NMB) aimed at farmers, agro-dealers and other agricultural businesses. NMB agreed to lend to agro-dealers at rates of 18%, compared to the typical rate of 46% charged by microfinance institutions. •
Uganda	AGRA	• Strengthens supply and demand for improved seed and other agricultural inputs among smallholder farmers through the development of an agro-input dealers' association with strong linkages to private sector importers, input suppliers, and smallholder farmers • Ensure production of improved crop varieties adapted to poor farmer conditions through advanced training • Participate in the soil health program • In March 2009, Standard Bank and AGRA signed an agreement under which Standard Bank will offer $100 million in loans to smallholder farmers and small agricultural business-$25 million through the Kilimo Trust

		• Provides support to small- and medium-sized companies that purchase raw materials from smallholder farmers
Zambia	AGRA	• Provides 91,000 smallholder farm households in remote rural Zambia with an increased range of agricultural inputs and technologies at reduced prices by extending a network of agro dealers through community agents and service providers • Increases on-farm productivity and reduces rural poverty by making available to resource-poor farmers improved maize varieties that are resistant to drought and tolerate low nitrogen • To improve soil health, food security and incomes of small holder farmers through integration of legumes in maize based cropping systems in Zambia •

Source: AGRA website: http://www.agra.org/where-we-work/.