Annual Analysis of Rwanda's Agriculture Budget Expenditure 2015-2016

By

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October, 2015

Contents

1. Introduction and Background

Traditionally, agriculture has been regarded as important mainly for food security in Africa. This remains an important benefit of a robust agricultural sector, but we have to recognize that especially in Africa, the role of agriculture extends beyond food security because of its high poverty impact making it the key to shared prosperity (World Bank, 2015). A number of statistics from different sources including those of the World Bank support that growth in agriculture is the most effective way to reduce poverty, with growth in the sector reducing poverty by around 3 times as much as growth in other productive sectors (World Bank, 2015).

In Rwanda, the agriculture sector play an important role as it occupies approximately 72% of the active population especially women and contributes around 33%[1] of the national GDP, to 70% of the country's export revenue and about 90% of national food needed. Thus, the sector contributes and remains the main driver of poverty reduction as it stands enabler for more income generation and ensures food security for a large part of the population. The review of the PSTA II and the first Rwanda Comprehensive Africa Agriculture Development Program Compact (CAADP) shows that the agriculture sector has been responsible for almost 50% of the total poverty reduction of 12% points from 2008 to 2012. This resulted from increased production (productivity gains), increased sales of production, and increased interventions which drove productivity gains (yield increases up to 7 times and an average of 4 times across many crops (Austin, 2015).

Some of the key drivers to the above performance include good business enabling environment, expansion of food production, increased public investment in crop-intensification program, land use consolidation program, input subsidies on fertilizers and seeds, and other public activities to promote production of priority crops, promotion of soil conservation coverage, increased coverage of marshlands and hillside irrigation schemes, and expanded livestock intensification.

Despite good progress observed in the past, there are yet some challenges affecting famers' crop productivity and consequently their production. A recent study by the Rwanda Civil Society Platform (RCSP) (2014) substantiates that low access to finance and credits, low access to improved seeds and fertilizers, and weak technology transfer to farmers remain the challenges facing farmers towards improved crop yield and sustainable agriculture. More specifically, although the use of improved seeds and fertilizers has improved yet there is a gap to address. The Abuja declaration on fertilizers for an African Green Economy suggests 50kg/ha compared to 23kg/ha achieved in 2010 (RCSP, 2014). This constitutes one of the major reasons why potential crop yields are different from what observed. Current estimates from the ministry of agriculture show a gap between the current yield and the potentials ranging from 32% to 54% for the crops under the Crop Intensification Program (MINAGRI, 2015).

Limited access to finance and credits, lack of crop insurance, low private sector investment in the agriculture, insufficient extension services, and lack of effective risk management in the agriculture sector are the overall sector challenges. The last FinScope report shows that women (67%) are much more likely to be financially excluded than men (33%) (NISR, 2012). The same report substantiates that men are more likely to have had access to formal credits than women. Despite the structural factor that women (58%) are more than men (42%) in the total population; yet some structural challenges make them financially vulnerable. EDPRS 2 also recognizes, regardless of progress that women have not fully participated in economic development; it commits the government to mainstream gender in the planning, budgeting, and project development at the national and local levels (Randell and McCloskey, 2014). Women continue to face challenges caused by poor skills and lack of effective organizations, limited access to improvements like seeds and fertilizers to support greater productivity on small farms, soil degradation, weak coordination of agricultural actors and insufficient collaboration between farmers and researchers and extension workers (Randell and McCloskey, 2014).

1 National Institute of Statistics of Rwanda, September 2015.

The government of Rwanda is recognizant of the importance of agriculture and is committed to increasing public investment and calling for more private sectors' investment. To increase food security and reduce poverty will require rapid progress in increasing agricultural productivity. In addition, new technologies and risk management strategies are needed to increase farmer's production and resilience to shocks such as climate change effects.

The budget allocation to agriculture reflects the country's commitment to this very sector. The CAADP expenditure target of 10% budget allocation and 6% annual agriculture productivity growth remain unachievable. Information on the proportion of the national budget accounted for the agriculture sector in Rwanda shows significant fluctuation over the years. For example, in 2002 agriculture counted for 5.1%, in 2003 (3.9%). The GoR achieved the budget target of 10% in 2010/2011 and the agriculture budget stood at 10.2% and set the bar higher for growth in the agriculture sector from CAADP target of 6% to 8% /9% (Bizimana et al. 2012; Duke and Bizoza, 2012).

These achievements need to be sustainable over a long period to address food insecurity and poverty affecting the Rwandan population of which the majority is women smallholder farmers. With food security, this encompasses both quantity (calories) and quality (nutrient density) of food accessed. Household food security is defined as sustainable access to safe food of sufficient quality and quantity to ensure adequate intake and a healthy life for all members of the family (Musoni et al. 2015). Accordingly, households are only food secure when food is both available and accessible- food must not only be in the market but people must be able to afford it. Additionally, for an active and healthy life, households need enough food as well as the right balance of fat, protein, carbohydrates and micronutrients.

Currently, there 11th CAADP Platform Partnership is being organized in South Africa around the theme "walking the talk: Delivering the Malabo Commitments on Agriculture for women Empowerment and Development". The theme reflects the need to see more action, results, and impacts. Yet, some areas in Rwanda like in Muko sector are suffering from food insecurity, flooding, high unemployment coupled with extreme poverty, and chronic malnutrition.

The remainder of this paper is organized as follows. The second sub-section describes the study objective and the research approach. Section three links the agricultural growth and the overall economic performance. In section four presents the analysis of the agriculture budget expenditure as anticipated by the national development framework –EDPRS2- and the sector strategic plan (PSTAIII). Section five shows how the agricultural-led growth as the main strategy to achieve CAADP growth targets. The last section gives the current status in terms of smallholder farmers' access to inputs, credits, and extension services followed by conclusions and recommendations

2. Research Objectives and Approach

The main interest of this research is more on a critical analysis of the annual budget 2015/2016 to specifically assess what has been allocated in the agriculture sector in response to CAADP targets and come up with gaps to inform on the public financing in the agriculture sector. More specifically, the study aims at: (1) In- depth analysis of the government budget 2014/2015 to indicate exactly what goes into Agriculture and specifically for small holder farmers to cater for agriculture inputs, access to credit, agriculture extension services, agriculture research, labour and energy saving technologies), (2) Critically analyze increase/decrease in agriculture allocations in reference to the last two years (2013/2014 and 2012/2013), (3) Identifying gaps and provide recommendations for advanced engagement by policy makers, private sector, development partners, and smallholder farmers, and (4) Prepare and present the final report findings to different stakeholders in a forum to be decided between IPAR and the client.

This research integrates information from the literature review and key consultations relevant to this study's topic. The approach is mainly comparative as it compares the current budget under analysis and the previous ones. The critical comparative analysis of the budget 2015/2016 shades light on areas that require more

discussion with key informants including those from MINAGRI, MINICOFIN, MINAGRI /CAADP focal person, MIJEPROF, Ministry of Local Government and MINICOM, Parliamentarians in Agriculture sector commission and Private sector in Agriculture Chamber. Furthermore, opinions from key informants such as members of private sector, representatives of program partners involved in food security chains and poverty reduction programs have been consulted.

The literature reviews focused on budget related documents (e.g. budget related documents – national budgets and execution reports, sector-strategic documents and program evaluations) and secondary data on agriculture and budget allocation into different activities of the agriculture sub-sectors. The interest was more on areas with greater likelihood to improve smallholder farmers such as increase of arable land for farming and soil erosion control, irrigation and mechanization, agricultural productivity through land use consolidation and input use, reduce of post-harvest losses and storage facilities, livestock development, agriculture extension services access to agricultural credits, labour and energy saving technologies, agriculture feeder roads and institutional capacity development. In the second stage of this study, interviews with key partners in the agriculture sector were purposely selected and interviewed to gain more information on their activities carried out and how they affect smallholder farmers in terms of improving their food security and poverty reduction.

With regard to the analysis, the analysis carried out establishes the linkages between budget allocated to agriculture, development of the agriculture sector as part of the overall country's economic development, the planned expenditure to the agriculture sector as per national development framework namely the EDPRS and the sector strategic plan (PSTA), the analysis of agriculture budget compared to national or public expenditures, analysis of trends of agriculture expenditures and CAADP budgetary and agricultural growth targets, and the analysis of potential effects of expenditures made in agriculture sub-sectors on food security and poverty reduction in Rwanda, with focus to smallholder farmers of the rural area.

Information gathered and the analysis performed in this paper gives information on what has been achieved in terms of CAADP targets in Rwanda and what efforts needed in terms of budget expenditure and growth of agricultural productivity. The results provide also a detailed analysis of the budget highlighting key areas of increase and decrease in agriculture investments aimed to benefit mainly smallholder farmers. More attention was paid on the allocation of funds in areas of agricultural inputs, access to finance and agricultural credits, agri-business, infrastructure that is pro-agriculture such as feeder roads. Furthermore, the information gathered will enhance policy engagement on the budget allocation in the agriculture, inform the annual national dialogue meeting, which will bring together women smallholder farmers, CSOs, NGOs and Government representatives to discuss the challenges of women smallholder farmers and make recommendations for required changes to policies, procedures and services with focus to agriculture sector.

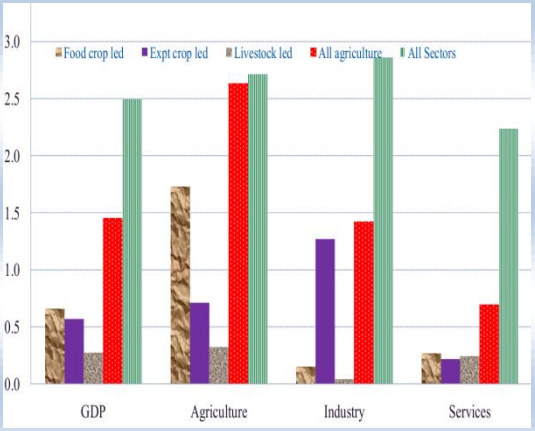
3. Agriculture Growth and Economic performance

The real GDP growth was 7% in 2014 compared to 4.7% in 2013 and is expected to grow by 6.5% in 2015. Agriculture sector itself is expected to grow by 5.2%, Services (7.3%) and Industry by 8.7% (BNR, 2015). The same BNR report sustains that the overall economic growth is 7.6% in real terms and agriculture's share is +4% during the first quarter of 2015.

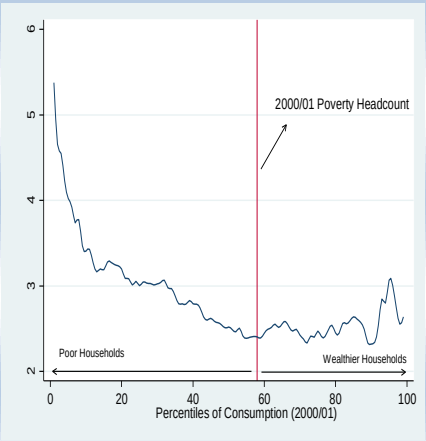
The role of agriculture in achieving the set development goals in Rwanda is capital. A number of sub-sectors contribute to the overall agriculture GDP growth which, in turn, affects also the overall economic performance. These include the food crops sub-sector, the export of crops, and the livestock. The analysis by Diao (2015) shows how the food crop is the biggest sub-sector accounting for 80% of agricultural GDP with a stronger growth multiplier effect. **A one percent annual growth in food crops generates 0.11 percent annual growth in the non-agricultural sector.** The export growth contributes mainly to the increase of foreign exchange earnings, with modest contribution to the overall growth. More than 20% annual growth rate in export crops creates 0.71 percentage point additional growth in agricultural GDP and 0.57 percentage point additional growth in total GDP. The livestock, at 12% annual growth rate targeted by the government, it

contributes to additional 0.32 percentage point annual growth to agricultural GDP and 0.27 percentage point to total GDP. If effects of all these sub-sectors are combined, additional 2.6 percentage point additional growth in agriculture create 0.9 percentage point additional growth in non-agricultural GDP. Therefore, achieving the targeted 8.5% annual growth in agricultural GDP will require not only the increase in crop yields and livestock but also a shift to higher value products.

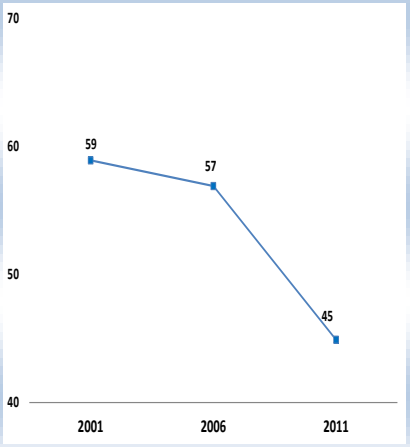
Figure 1: Agriculture Growth Scenarios



Ann. growth under alternative agriculture-led scenarios (Diao, 2015)



Annual growth in the consuption (Tom, 2015)

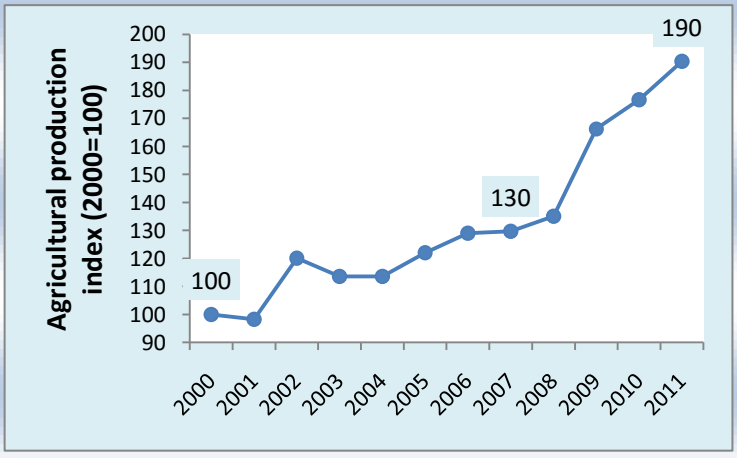


% of people under the poverty line (Tom, 2015)

Despite tremendous improvement in the agriculture sector, Rwanda still relies on food imports. For example the food imports CIF value rose in January- May 2015 compared to Jan-May 2014 mainly due to imports for sugar (+13.2%), meat and fish (29.5%), vegetables, fruits , spice (+38.3%) and salt (+13.2%). Major exports in the agriculture sector remain tea and coffee. The ample reason being less diversified agricultural products and more subsistence oriented agriculture farming than market oriented as anticipated.

Furthermore, looking ahead the role of agriculture in Rwanda's future economic growth cannot be underestimated. More employment creation is likely to come from this very sector and hence the poverty reduction. The boom in agriculture production growth observed in the last decade is explained by a sharp in agricultural productivity since 2007/2008 through the Crop Intensification Program (CIP). The following figures depict significant links between agriculture growth and poverty reduction in Rwanda (Diao, 2015 and Tom, 2015). Therefore, if Rwanda is to continue reducing poverty and improving food security, investments in agriculture must increase as well.

Figure 2: Agricultural growth and Poverty reduction

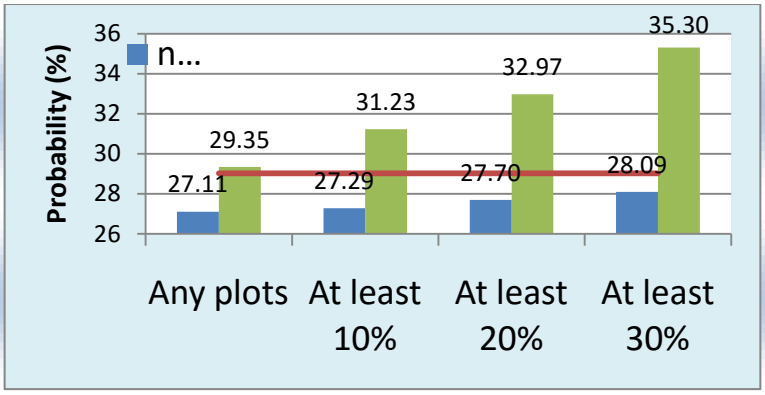


Boom in agriculture (Tom, 2015)

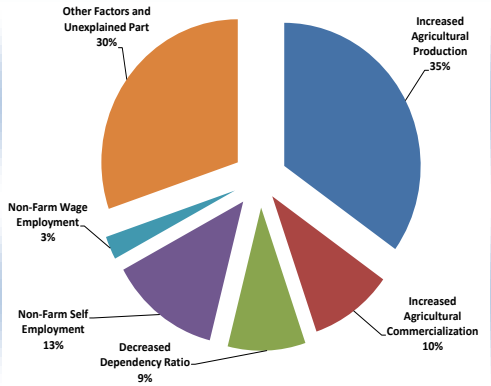
1,000 persons

	At current poverty rate	Base	Food crop led	Expt crop led	Livestock led	All ag	Ag+nonag
2011	4,774						
2017	5,569	4,297	4,161	4,221	4,251	4,045	3,720
2020	6,015	4,145	3,815	4,015	3,997	3,567	2,928

Number of the poor under alternative growth scenarios (Diao, 2015)



Agriculture and the likelihood of reducing poverty (Tom, 2015)



Contribution of various factors to poverty reductaion (Tom, 2015)

4. Agriculture's Budget Expenditure in Rwanda

The aim of this study, as already indicated, is to critically review the annual total budget to assess what resources have been allocated to the financing of the agriculture sector and the extent to which these are in response to CAADP budgetary targets as well as smallholder farmer's priorities. Findings of the analysis informs on the agriculture public expenditure and how the policy priorities address challenges faced by smallholder farmers.

4.1. Anticipated costs and Expected Contribution of Agriculture in the EDPRS-2 (2013-2018)

The allocation of overall expenditures to the agriculture sector is determined in reference to the national priorities consistent with the EDPRS and the Sector strategic Plan known as the Strategic Plan for the Transformation of Agriculture (PSTA). Rwanda is now in its third generation of EDPRS including the Poverty Reduction Strategy (PRS). The costing of EDPR2 is done through the Sector Strategic Plan (SSP) and the District Development Plans (DDP). The SSP and the DDP are developed in reference their specific needs assessment following the guidelines issued by the Ministry of Finance and Economic Planning (MINECOFIN). The purpose in costing EDPRS is to guide budget allocation and public expenditures in respect of development priorities set in EDPRS2 (2013/14 to 2017/18).

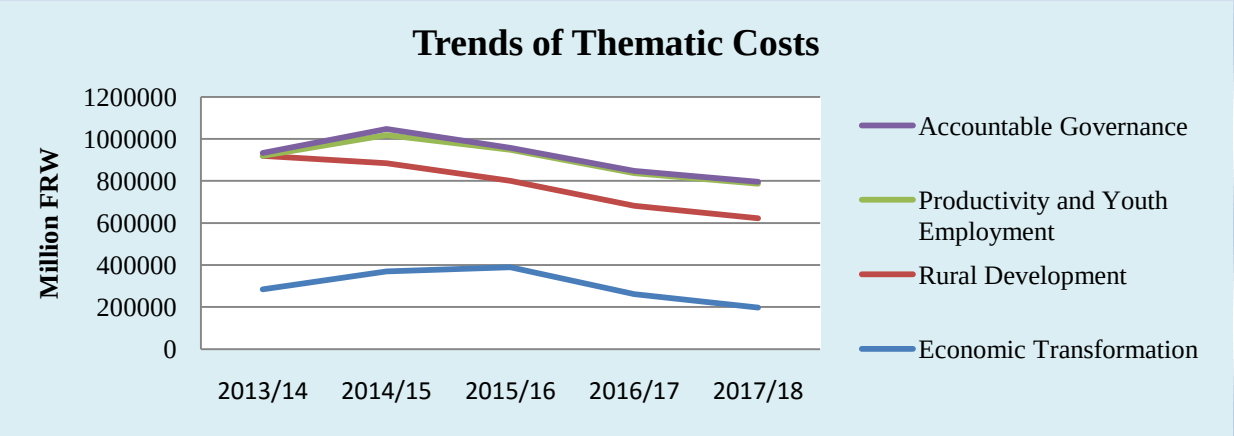
The transformative impact of EDPR2 is largely dependent to the successful implementation of programmes and projects within four thematic areas: Economic transformation, Rural Development, Productivity and Youth Employment, and Accountable governance. Table (1) depicts the respective anticipated costs for each EDPRS2- thematic area. The rural development thematic area counts about 48.6% of the total anticipated costs for 2014/2015 compared to 35% of the economic transformation. Particular to the agriculture sector, it counts about 19% of total costs for the five years and comes the second after the Education Sector (20%) of the anticipated costs for both thematic areas and foundational issues. In terms of EDPRS 2 thematic areas, the agriculture counts 56% of the total cost of rural development, 10.5% for the economic transformation thematic area, and 0.38% to the cost of foundational issues.

Table (1) Total costs by thematic area (RWF Million)

Thematic area / Fiscal Year	2013/14	2014/15	2015/16	2016/17	2017/18	Total
Economic Transformation	284,774	370,100	390,187	261,488	197,416	1,513,966
Rural Development	635,519	514,674	410,987	419,978	425,659	2,406,818
Productivity and Youth Employment	145, 383	133,104	146,845	156,517	164,424	746,273
Accountable Governance	13,009	29,151	9,605	10,178	9,028	70,970
Total	1,078,684	1,057,029	957,624	848,162	796,528	4,738,026

Source: EDPRS-2

Figure 3: Trends of EDPR 2 - Thematic costs



With regard to economic transformation, the expected role of agriculture lies in areas of external connectivity of Rwanda's economy and boosting exports. More specifically, the sector's contribution is on the outcome 2.3 of the EDPRS-2 namely 'accelerated growth of exports" through a number of interventions. These include investment in large –scale tea expansion programme, expanding the tea production area, while ensuring that farmers are able to move out of poverty, and capacity building and research in the coffee sector.

While in the rural development thematic area, the agriculture sector is expected to contribute into the second and the fourth priority areas related to productivity and sustainability of agriculture and connecting rural communities to economic opportunities through improved infrastructure. Part of planned interventions comprise development of irrigation by both the private and public sector, promote land husbandry across the country, scaling up Farmer Field schools (FFS), training of government extension workers, setting-up farmer promoters and animal health works, promote private extension /advisory services in fertilizer and seed to support privatization, implement models of bulking production, feeder road construction, and support of agriculture information systems in reach of farmers.

4.2. Snapshot of PSTAIII- 2013-2017

The strategic Plan for Agriculture Transformation (PSTAIII) is in its third generation and is aimed at facilitating the development of the agriculture in Rwanda through an approach based on resource management, human capacity, and private sector driven value chain. Four pillars are identified for rapid sector growth: land, irrigation, inputs and infrastructure; soft skills and farmer capacity; value chain and markets; and private sector investment (MINAGRI, 2013)[2]. Four strategic programmes are planned and they cluster all possible actions and interventions in the sector: agriculture and animal resource intensification; research, technology transfer and professionalization of farmers; value chain development and private sector investment; institutional development and agricultural cross-cutting issues. In terms of anticipated costs (see Table 2), the agricultural mechanization counts about 29% of the total anticipated costs for the strategic programmes, agro-chemical use and markets (12.7%), Irrigation and water use management (12%). The question is to the extent to which these activities cater for agriculture inputs, access to credits, agricultural extension services, agricultural research, and labour and energy saving technologies. Furthermore how expenditures made in these activities address issues of poverty reduction and food security.

[2] PSTA III.

Table (2). Costs of PSTA III Programmes

Strategic Programmes	Sub-Strategic Programme	Anticipated costs	% Proportion in Total Anticipated costs
Agriculture and animal resource intensification	Soil conservation and land husbandry	44,949,400	4.04
	Irrigation and Water management	134,040,300,000	12.04
	Agricultural Mechanization	328,352,850,000	29.50
	Agro-chemical use and Markets	141,947,498,628	12.75
	Seed Development	28,429,910,000	2.55
	Livestock development	95,483,304,556	8.58
	Nutrition and Household Vulnerability	35,450,000,000	3.19
Research and technology Transfer, advisory Services and Professionalization of Farmers	Research and Technology transfer	4688575700	0.42
	Extension and proximity services for Producers	8,064,088,382	0.72
	Farmers' cooperatives and farmer organizations	83,057,000	0.01
Value Chain Development and Private Sector Investment	Creating an environment to attract private sector investment , encourage entrepreneurship and facilitate market access	1,000,000,000	0.09
	Development of priority value Chain: food crops	5,000,000,000	0.45
	Development of priority value Chain: Export crops	25,602,824,589	2.30
	Development of priority value Chain: Diary and Meat	5,213,289,999	0.47
	Development of priority value Chain: Fisheries	46,150,000,000	4.15
	Development of priority value Chain: Apiculture	1,223,914,931	0.11
	Agricultural Finance	1,008,385,101	0.09
	Market oriented Infrastructure for post-harvest management system	194,212,500,000	17.45
Institutional Development and Agricultural Cross-cutting issues	Institutional Capacity Building	5,309,569,950	0.48
	Legal and Regulatory Framework	1,676,255,490	0.15
	Knowledge Management , Agricultural Statistical Systems and M&E	3,742,949,803	0.34
	Gender and Youth in Agriculture	634,896,229	0.06
	Environmental Mainstreaming in Agriculture	763,838,553	0.07

4.3 Analysis of Agriculture Budget and Public Expenditures

Rwanda has its own internally generated drive for success in agriculture, which had already manifested itself being the first country in signing the CAADP compact. In addition, there have been important several programmes and strategies in the sector (such as Vision 2020, EDPRS and PSTA I), whose conception predates the country's signing of the compact (Mutebi, 2014). The commitment of Rwanda to the agriculture has a number of justifications reducing poverty and ensuring food security being the dominant. The magnitude of the budget allocated also gives proxy demonstration of government's commitment to agricultural transformation. Thus, the government spending is very well aligned to agricultural priorities (PSTA) and to a great extent follows the approved budget.

The budget allocation and share of agriculture expenditure in Rwanda has fluctuated a lot over the last decade varying from Frw 8 billion in 2000 to Frw 23.6 billion in 2013/2014. The actual spending for 2013/2014 is more than planned by 5.1 billion (28.7 billion). Some of the achievements made because of this fiscal effort are diverse and include the following (MINECOFIN, 2014):

- Construction of ha 44,184- ha 14,932 with central government and ha 31,252 for districts with earmarked transfer funds
- Irrigation of 3,500 ha of marshland and 1,908 ha of hillside
- Increased mechanization services with 61 tractors and 5 other farm machines become operational, established 3 private companies, training of 950 farmers in mechanization systems and 46 agricultural tractor mechanics have also been trained
- Land use consolidation of 612,031 ha in Season 2014 A and 596,844ha in season 2014B
- Increased use of fertilizers in both season A and B in 2014 by 4,463.35 MT Urea
- Distribution of 37, 875 cows to poor families under the Girinka Program through earmarked transfers
- Fish production increased from 21,400 MT to 27,000 MT of which 22,696 MT of fish came from CAPTURE FISHERIES (Lakes)
- Planted coffee area reached 9,166 ha and 23,575, 000 coffee seedlings were produced and maintained in nurseries

Implications of the above achievements at farmer level are multiple but somewhat difficult to isolate and appreciate individual effects. For example, the literature and the recent experience in Rwanda have showed that some of radical terraces were constructed in the past but maintenance was beyond farmers 'abilities (e.g. Bizoza and Graff, 2010; Fleskens, 2007). This applies as well for marshland and hillside irrigation. Some farmers are only able to cater for about 4% of the total costs of establishment and maintenance (Kagabo, 2013). Despite the relevance of terraces in improving livelihoods and the resilience of a degraded environment, yet their use and maintenance require government subsidies and hence more public spending on these activities. The subsidy levels have reduced from 50 to 35 and 30 % respectively for DAP and Urea; and from 20% to 15% on NPK for season A15 (MINAGRI, 2015).

For irrigation, this is identified as a key strategic activity under PSTAII and III. The CAADP compact establishes in its pillar I on Land and Water management that the government should allocate at least 2% of public funds for irrigation development. The achieved irrigation infrastructure is expected to drive up agricultural productivity and make farmers more resilient to weather shocks and adaptable to long term shifts in seasonal rainfall (MINAGRI, 2013).

Rwanda developed an Irrigation Master Plan in 2010 with a potential total area for irrigation of 589,711 ha, now about 3% of the total identified area is irrigated both in the marshland (22,554ha), hillside (1482ha), and other small scale irrigated areas (100ha). Similarly to agriculture mechanization, about 12% of farm operations are mechanized and the target is 25% in 2017 (MINAGRI, 2013). Ssubsidy levels reduced from 50 to 35 and 30% respectively for DAP and Urea; and from 20 to 15% on NPK for season A15.

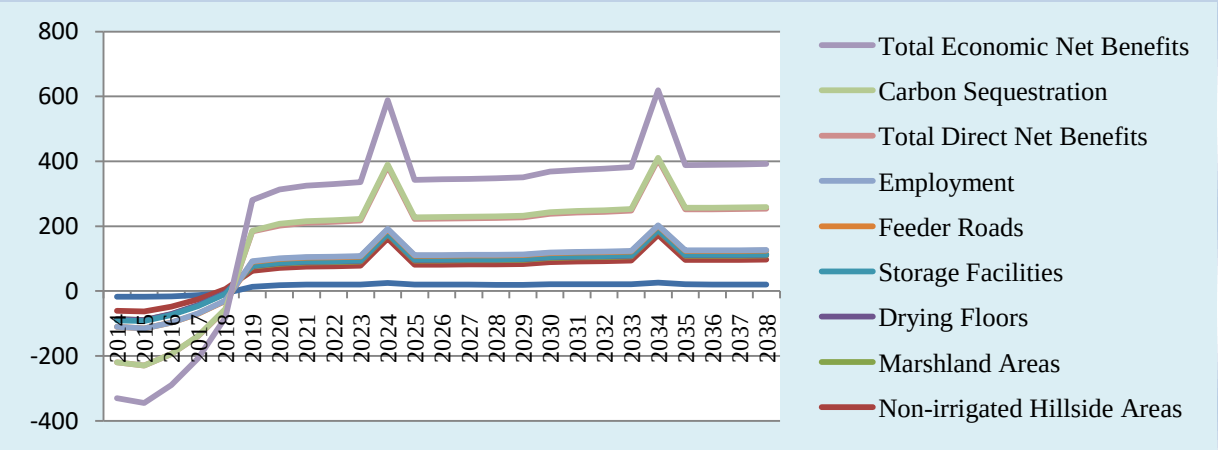
4.4. Budgetary allocation by strategic programme and agriculture sub-sectors

The CAADP budgetary allocation target in agriculture is 10% of the national total budget annually. Since 2006 to 2013/2014 the percentage expenditure in agriculture varies between 9% and 13% fairly higher compared to the 10% target. The analysis of the budget allocated to agriculture provides the proportion of the budget allocated to this very sector and this seems necessary but not sufficient. The budget review in responding to both budgetary and growth targets under CAADP should focus rather more on the types of agriculture investments with greater likelihood to impact agricultural growth and reduce poverty reduction. Alternatively, out of the total budget allocated to agriculture the interest is rather to assess the trend in budget allocation according to agriculture sub-sector outcomes with the fundamentals of maximizing agriculture

productivity, improving food security, and reduce poverty. Therefore, the sectorial priorities, targets, and policy actions form the basis for the budget allocation.

The funding of agriculture is mainly from the public and private sector spending plus donor commitments. Reference made to the Agriculture Sector Investment Plan (ASIP) (2013/2014- 2017/2018) the total public sector cost for implementation is 1,213 USD million. Out of this total costs, agriculture and animal resource intensification takes the biggest share of 52.74% followed by the value chain development and private sector investment with the total budget share of 31.52%. Irrigation and water management counts 25.09% of the total budget planned for crop and animal resource intensification (see Table 3). The cost-benefit analysis carried out in the context of the ASIP-2 shows that the total economic net benefits is negative from 2013 to 2018; positive returns on investments are expected beyond 2018 (see Figure 4). This calls for greater consideration in assessing its potential impacts in terms of food security and poverty reduction. The focus should continue to invest in agricultural staples. As already indicated, through linkages and multiplier effects, a 1 USD public spending in agricultural staples generates more than three times (3.63 USD) agricultural GDP and 0.21 USD of non-agricultural GDP.

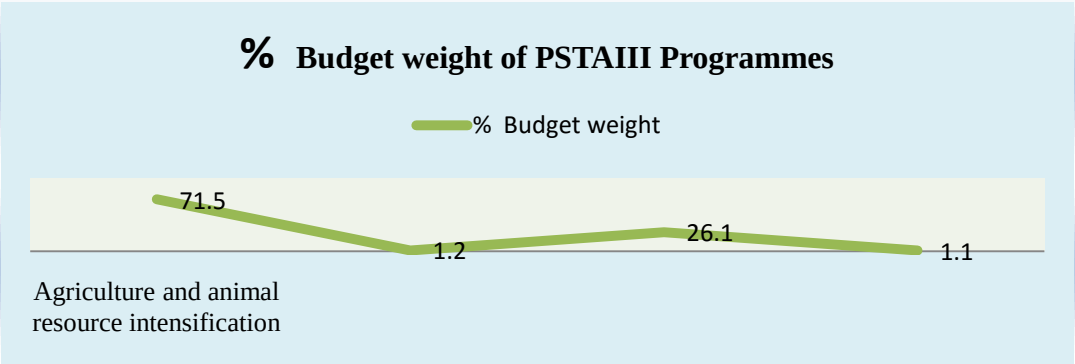
Figure 4: Total Economic Net Benefits for ASIP-2 Public Spending



Source: Generated by the Author from ASIP -2 Public costs

Once these costs are assessed at Sup-programme level, the highest portion of the budget is allocated in the agriculture and animal resource intensification with about 71.5 % followed by 26.1% allocated to the value chain development and private sector development. The proportion of the budget allocated to research, technology transfer, advisory services and professionalization of farmers is relatively small about 1.2% of the total budget (see Figure 5). The relatively high investment made in the past in crop and animal intensification has resulted in great improvement in food availability which in turn is primarily explained by increased crop yields and area expansion (Byakweli and Mutebi, 2013).

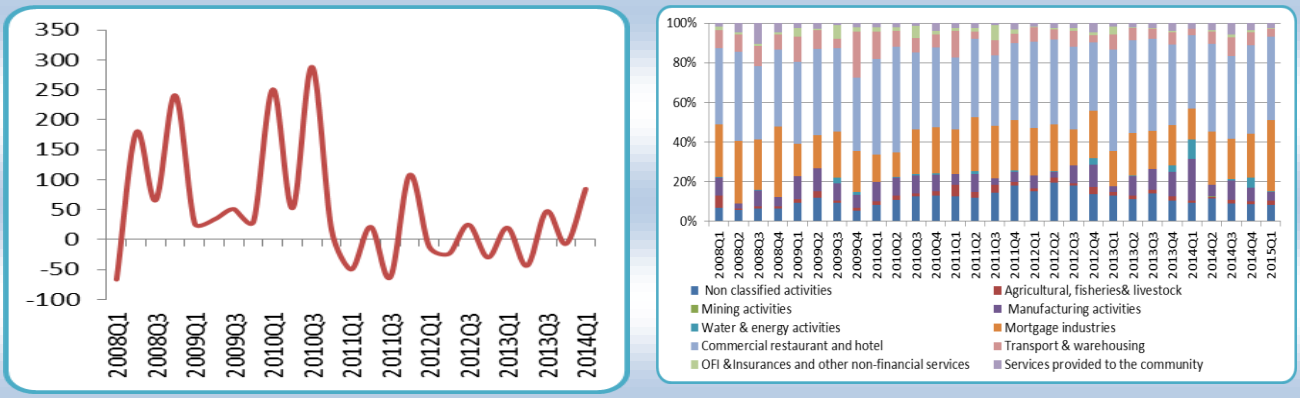
Figure (5) Budget weight of PSTAIII Programmes



Source: Generated by the Author from PSTAIII Sub-programme budget

Rwanda has prioritized the development of food crops through the crop intensification program and livestock development. A number of different programs have been launched for target crops under CIP and the livestock. Various investment scenarios, resulting from the signing of CAADP compacts, have shown that investment in staple crops and livestock development give better returns to the economy as whole while export crops tend to have higher returns on GDP growth (AU ECHO, 2014). Although agricultural growth is generally pro-poor, growth elasticities between staple crops (such as grains and roots) and agricultural exports indicate the importance of staples for poorer rural household (Diao et al 2014). **The 6% CAADP agricultural growth target is reachable if the agriculture sub-sectors reach their growth targets.** The simulation by Diao et al. (2014) gives the annual growth targets per agriculture sub-sector and their joint effects would result in an average agricultural GDP growth of 6.3% annually between 2007 and 2015. The 2015 annual projection of agricultural growth is 5.2% compared to 5% in 20014, slightly lower than the 6% target (BNR, 2015). Part of explanation for this slow and unstable agricultural growth rate could be the small proportion of agricultural loans (2%) of the total loans to private sector. The same report by BNR (2015) shows that the growth rate of loans to agriculture declined from 94% on average between 2009 and 2011 to 6% in the subsequent period (see Figure 6).

Figure (6). Evolution of new loans to agriculture



Source: Financial stability Directorate, BNR

4.5. Budget allocation using CAADP Definition (2006-2015/2016)

The issue of what to count as Public Agriculture Expenditure (PAE) has continuously been debated since the Maputo declaration. Although the note issued by the African Union for the purpose of tracking PAE (AU/NEPAD 2005) provides general guidelines but the note allows also varying interpretations when it comes to what expenditure to count towards the Maputo declaration of 10% target regarding agriculture expenditures (Benin and Yu, 2013). Information provided in the following table (5) captures the public budget allocated to agriculture compare to national budget. These trends do not consider other funds injected by other development partners in the agriculture sector. The trends show that the proportion of the agriculture budget varies between 3.3% to 6.4%. For this particular fiscal year under analysis (2015/2016), the proportion of the agriculture budget compared to the total budget is 4.3%. There is a slight decline compared to 5.2% of the previous fiscal year 2014/2015.

Table (5). Budget allocated to the Ministry of Agriculture and % of Total Budget allocated using CAADP definition

Fiscal Year	Ministry of Agriculture Budget in Millions	Total Budget in Millions	Agriculture Budget as % of Total Budget
2006	13.0	396.2	3.3%
2007	17.8	526.0	3.4%
2008	38.2	674.0	5.7%
2009/10	57.1	899.0	6.4%
2010/11	45.2	812.8	6%

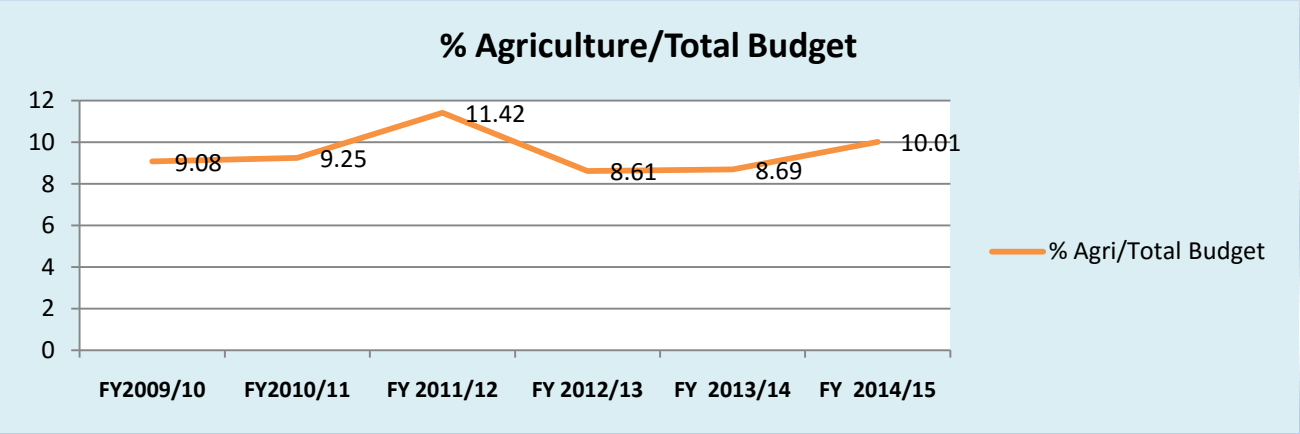
2011/12	67.6	1,116.9	6.1%
2012/13	78.4	1,549.9	5.1%
2013/14	83.0	1,653.5	5.0%
2014/15	90.3	1,753.3	5.2%
2015/16	78.4	1,815.2	4.3%
2016/17	90.05	1,998.2	4.5%

Source. Revised Finance Laws (2006-2015/16), adapted from Pamela (2014).

Looking at the estimates in the above table, they result from the assumption of what the government commits to the ministry of agriculture. But the spending in agriculture is beyond the direct government transfers to the ministry. There are also other partners involved in the sector and they also contribute in terms of the budget both at central level and at District level. Therefore, all expenditures in the sector needs to be accounted. The following Table (4) depicts the trends of public budgets for agriculture-related spending in Rwanda between 2009/10 and 2014/15[3] (in USD and in proportion to total public spending). The trend in agriculture spending compared to the national budget for the above period has remained low to the 10% CAADP target although it has been anticipated to be around 10% for the 2014/2015 fiscal year. Generally, the trend is not stable and is mostly downward to the CAADP 10% target of public spending in agriculture and this poses a development challenge if attaining food security and reduce poverty remains a goal especially for small scale farmers who are mostly in rural areas.

Table (6) Public Spending in Agriculture as per Total National Budget

Program / Sub-Program	2009/10	2010/11	FY 2011/12	FY 2012/13	FY 2013/14	FY 2014/15
Total Agriculture Budget	133, 888,349	154, 726,982	211, 702,418	217, 937,643	223, 687,839	257, 118,462
Total National Budget	1, 474, 229,055	1,673, 023,186	1, 853, 941,417	2, 531, 333,359	2, 572, 809,470	2, 568, 158,869
Agriculture Budget in % of Total National Budget	9.08%	9.25%	11.42%	8.61%	8.69%	10.01%



The budget trends are necessary but not sufficient. The most interesting part of its analysis is to demonstrate what sub-sectors receive attention in the budgeting and the potential impacts they do have in terms of poverty reduction and food security. The following Table (4) Depicts all costs as planned in the Agriculture Sector Investment Plan (2013/14-2017important/18) per agriculture sub-sectors. This shows areas that are likely to receive much budget attention than others. However, more consideration should also be put on their expected effects in terms of reducing poverty and increasing food security.

[3] Not able to find the estimates for 2015/2016

Table (7) Trends in Budget Allocation to Agriculture sub- Sectors

	ANNUAL COSTS (in USD Thousands)					Total Costs (in USD Thousands)			in % of ASIP-2 Public Costs
Project/Output (= Unit)	**2013/14**	**2014/15**	**2015/16**	**2016/17**	**2017/18**	**Capital**	**Recurrent**	**Total**	
Program 1: Agriculture and Animal Resource Intensification	**133,326**	**141,426**	**131,122**	**121,434**	**112,650**	**430,167**	**209,791**	**639,957**	**52.74%**
Sub-Program 1.1: Soil Conservation and Land Husbandry	20,519	21,852	22,424	22,874	23,311	105,982	4,998	110,980	9.15%
Sub-Program 1.2: Irrigation and Water Management	56,280	59,958	61,630	62,707	63,904	286,429	18,050	304,478	25.09%
Sub-Program 1.3: Agricultural Mechanisation	10,016	10,330	8,573	7,715	6,867	37,288	6,212	43,500	3.58%
Sub-Program 1.4: Inputs to Improve Soil Fertility and Management	18,186	24,026	16,103	8,423	1,367	0	68,105	68,105	5.61%
Sub-Program 1.5: Seed Development	13,874	10,536	7,336	4,357	1,549	0	37,652	37,652	3.10%
Sub-Program 1.6. Livestock Development	14,451	14,724	15,056	15,359	15,652	468	74,773	75,242	6.20%
Program 2: Research, Technology Transfer, Advisory Services, Professionalization of Farmers	**12,157**	**15,647**	**18,060**	**19,701**	**20,482**	**0**	**86,046**	**86,046**	**7.09%**
Sub-Program 2.1: Research and Technology Transfer	7,154	7,263	7,453	7,603	7,748	0	37,222	37,222	3.07%
Sub-Program 2.2: Extension and Proximity Services for Producers	3,837	7,129	9,247	10,638	11,234	0	42,084	42,084	3.47%
Sub-Program 2.3: Farmer Cooperatives and Organisations	1,166	1,254	1,359	1,460	1,500	0	6,740	6,740	0.56%
Program 3: Value Chain Development and Private Sector Investment	**65,075**	**70,046**	**74,915**	**84,099**	**88,360**	**202,608**	**179,888**	**382,495**	**31.52%**
Sub-Program 3.1: Private Investment, Encourage Entrepreneurship, Facilitate Market Access	600	914	625	638	650	0	3,426	3,426	0.28%
Sub-Program 3.2: Development of Priority Value Chains: Food Crops	14,500	14,722	15,107	15,410	15,705	0	75,444	75,444	6.22%
Sub-Program 3.3: Development of Priority Value Chains: Export Crops	16,650	16,905	17,347	17,695	18,033	0	86,631	86,631	7.14%
Sub-Program 3.4: Development of Priority Value Chains: Dairy and Meat	1,200	1,218	1,250	1,275	1,300	0	6,244	6,244	0.51%
Sub-Program 3.5: Development of Priority Value Chains: Fisheries	250	254	260	266	271	0	1,301	1,301	0.11%
Sub-Program: 3.6. Development of Priority Value Chains: Apiculture	120	122	125	128	130	0	624	624	0.05%
Sub-Program 3.7: Agricultural Finance	1,195	1,213	1,245	1,270	1,294	0	6,217	6,217	0.51%

	ANNUAL COSTS (in USD Thousands)					Total Costs (in USD Thousands)			in % of ASIP-2 Public Costs
Project/Output (= Unit)	**2013/14**	**2014/15**	**2015/16**	**2016/17**	**2017/18**	**Capital**	**Recurrent**	**Total**	
Sub-Program 3.8: Market-oriented Infrastructure	30,560	34,698	38,955	47,418	50,978	202,608	0	202,608	16.70%
Program 4: Institutional Development and Agricultural Cross-Cutting Issues	**18,831**	**20,186**	**21,079**	**21,980**	**22,941**	**0**	**105,018**	**105,018**	**8.65%**
Sub-Program 4.1: Institutional Capacity Building	1,615	1,742	1,683	1,717	1,750	0	8,506	8,506	0.70%
Sub-Program 4.2: Decentralisation in Agriculture	1,065	1,437	1,683	1,982	2,291	0	8,459	8,459	0.70%
Sub-Program 4.3: Legal and Regulatory Framework	100	305	365	319	325	0	1,413	1,413	0.12%
Sub-Program 4.4: Agricultural Communication, Statistical Systems, M&E and MIS	1,400	1,421	1,459	1,488	1,516	0	7,284	7,284	0.60%
Sub-Program 4.5: Gender and Youth in Agriculture	320	325	333	340	347	0	1,665	1,665	0.14%
Sub-Program 4.6: Environmental Mainstreaming in Agriculture	115	117	120	123	125	0	600	600	0.05%
Sub-Program 4.7: Nutrition and Household Vulnerability	14,215	14,839	15,436	16,011	16,588	0	77,089	77,089	6.35%
TOTAL	**229,389**	**247,305**	**245,175**	**247,215**	**244,433**	**632,775**	**580,742**	**1,213,517**	**100.00 %**
thereof: CAPITAL COSTS	114,901	120,492	124,913	134,124	138,345	632,775	0	0	52.14%
thereof: RECURRENT COSTS	114,488	126,813	120,262	113,091	106,088	0	580,742	0	47.86%

Source: MINAGRI (2015)

5. Smallholder Farmers, Food Security, and Poverty reduction

5.1. Access to Agricultural Inputs

The current agriculture outcomes features around increased productivity and sustainability of agriculture and livestock, enhanced food security and nutrition, transformed research and extension services, increased export promotion and enhanced agribusiness environment. Ample evidence in the literature suggests that the agricultural growth in Rwanda is mainly driven by smallholder farmers, contributing up to 90% of the total agricultural output.

The positive trends observed in the last decade in food crop productivity is mainly driven by increased use of inputs (fertilizers, improved seeds) on consolidate and non consolidate land use, integrated crop management, irrigation, land husbandry and water management and extension services provision, all targeting priority crops namely maize, wheat, rice, beans, Irish potatoes, cassava and banana (Byakweli and Mutebi, 2014). However, farmers are still facing challenges linked to access to agricultural inputs, access to credits, and agriculture extension services and these seem to be the major drivers of agricultural production.

Although the 4th EICV data set is waiting to be released, the 3rd EICV data show some deficiencies in access to the above. In all Rwanda, only 18.8 % have access to improved seeds (19.1% in rural); 9.3% have access to organic fertilizers (9.6% in rural); 28.9% for chemical fertilizers (30.4% in rural); 0.7% for irrigation and drainage fees (0.8%). With regard to land use consolidation, the land area affected by land use consolidation is estimated at 11.5%; 3% of land irrigated; 78.1 of land protected against soil erosion. Currently, RAB estimates 73% of national land is already protected and about 80% of potential lands for bench terraces are yet to be bench terraced compared to 25% for progressive terraces (Bizoza, 2015). Despite the slight difference in

figures but the estimates suggest that the majority of land is protected against soil erosion. The remaining challenge is to use and maintain the protected land for production purposes (Bizoza and Graaff, 2010).

The current Seasonal Agricultural Survey (2015- Season A) shows yet some limitations in access to inputs by smallholder's farmers. From table (5) bellow it is clear that access to agricultural inputs remains a challenge to both smallholder farmers and large scale farmers as they still rely mainly on traditional agriculture practices. The explanation lies in the marketing of inputs, levels of subsidies offered in the particular sector, seeds and inputs dealers, and individual farmer's capacity to afford the costs, household and farm characteristics, and inputs allocative efficiency by farmers (Bizoza and Graff, 2010, Bizoza el. 2007, Maniriho and Bizoza,2015) This has some implication in terms of crop production as far as Rwanda is mainly involved in crop intensification as means to improve the quantity produced given that increasing crop production though increased space has limitations. Therefore, achieving 8.5% annual growth in agriculture will require increase in agriculture productivity (further reforms to fertilizer policy to increase the use, reforms to seed markets to increase the use of improved seeds), enhanced research and proximity extension services for increased inputs use and agronomic practices, continued irrigation but also efficient management of the existing schemes for greater returns , land husbandry (both bench and progressive terraces) for unproductive land (MINAGRI, 2015).

Table (8). Use of inputs by smallholder and large scale farmers

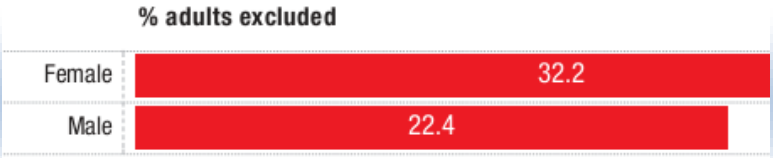
Use of Inputs	Small-Scale farmers (%)	Large scale farmers (%)
Improved seeds	15.5	22.2
Traditional seeds	84.5	79.8
Organic fertilizers	51.3	66.8
Chemical Fertilizers	21.1	54.8
Pesticides	9.1	46.7
Irrigation	1.1	24.6
Anti- erosion activities	41.3	48.7

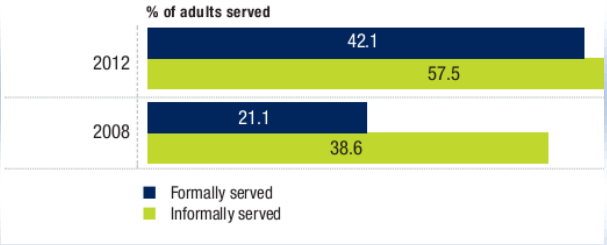
Source: Agriculture Seasonal Survey (2015-Season A).

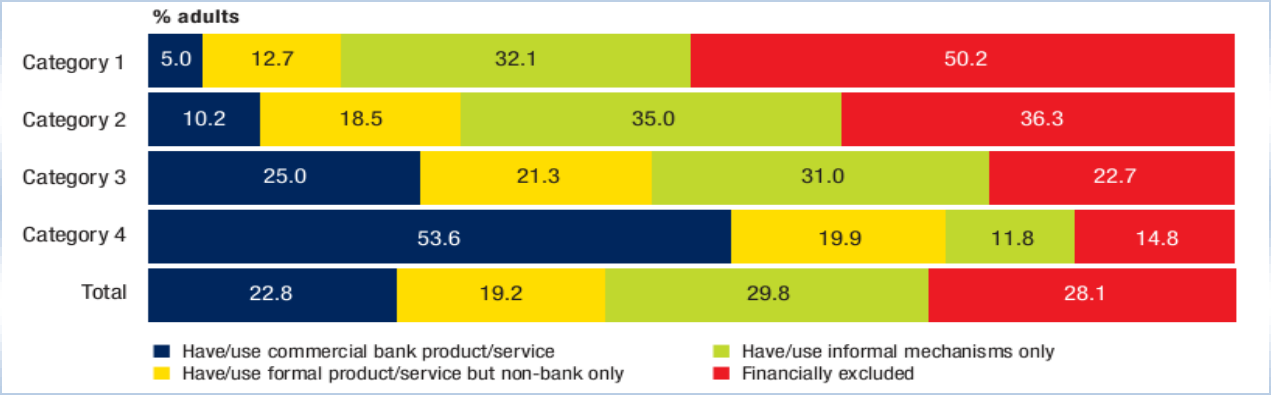
5.2. Access to Agricultural Credits

Rwanda's financial system remains dominated by the banking sector which represents 67.6% of the system's total assets. The microfinance has 5.6% and the non-banking financial institutions account for 26.7 (insurance 9.4% and pension 17.3%) (BNR, 2014). Furthermore, the World Bank Report (2015) demonstrates that the availability of the finance due mainly to the establishment of sector-level Savings and Credit Cooperatives (SACCOs) enabled the majority of people to transition from farm to non-farm activities. However, it is also well acknowledged that SACCOs remain out of reach for a large part of the rural poor due to relatively high interest , the timing of loan repayments that is not consistent with the season harvesting, and the collateral required are still seen as a barriers to access agricultural loans. All these are happening in the era of financial inclusion. The financial inclusion is effective when people have access to financial institutions, eligible to open or use a product or service, can afford to open an account, and use the financial products (Fin Scope, 2012). Using these criteria the 2012 Fin Scope shows that 72% of the adult population was financially included, leaving 28% financially excluded. Out of those excluded, the majority is from the rural areas where most of smallholder farmers reside and females when compared to males (see Figure 8). It is clear from this Figure that 32. 2 of females are excluded and 57.5% are informally served. When compared in terms of Ubudehe categories, the majority across all the four categories have used informal mechanisms to access the finance (such as microfinance, SACCOs, insurance companies, mobile money service providers, money transfer service providers such as Western Union). Although the financial inclusion is an emerging development subject; financial inclusion should be seen beyond having a financial institution and opening an account and focus more on the affordability and use of financial products and services which often requires one's financial capacity.

Figure (8). Financial exclusion and use of formal and informal mechanisms of access to finance







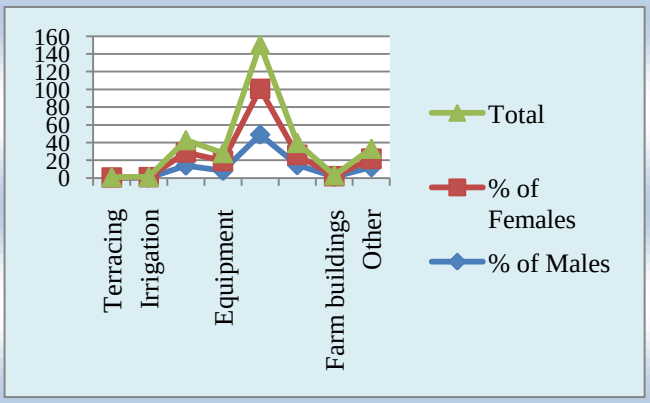
Source: Fin Scope (2012).

With respect to agricultural credit access, the EICV3 demonstrates that 7.9% have applied loans for agricultural improvements with 8.4% in rural area compared to 3.6% in urban area. About 90% of loan applications were approved. The main purposes of these agricultural loans are mainly meant to the purchase of seeds and fertilizers (49.8%) for both male and female farmers, animal purchase (14.2%), and purchase of land (13.7%) (See Table 6). Consistent with the Civil Society Platform report in Rwanda (2015), low access to financial services affects negatively farmer's investments in agricultural production. Further consideration is needed with regard to the cost of the loan that is the interest rate which remains high, issue of collateral, and more bank products adapted to agricultural farming activities. In addition, the notion of financial inclusiveness currently under consideration should also consider the decentralization of financial services especially loans that are adapted to farmer's conditions in terms of returns from their investment and reimbursement measures.

Table (6). Agricultural loans and the purpose

Purpose of the agricultural Loan	% of Male	% of Female	Total
Terracing	0.4	0.3	0.3
Irrigation	0.3	0.6	0.4
Animal Purchase	14.1	14.6	14.2
Equipment	8.1	11.1	9
Seeds and Fertilizer	49.1	51.6	49.8
Purchase of land	14.5	11.5	13.7
Farm buildings	1.3	0.7	1.1
Other	12.2	9.5	11.4

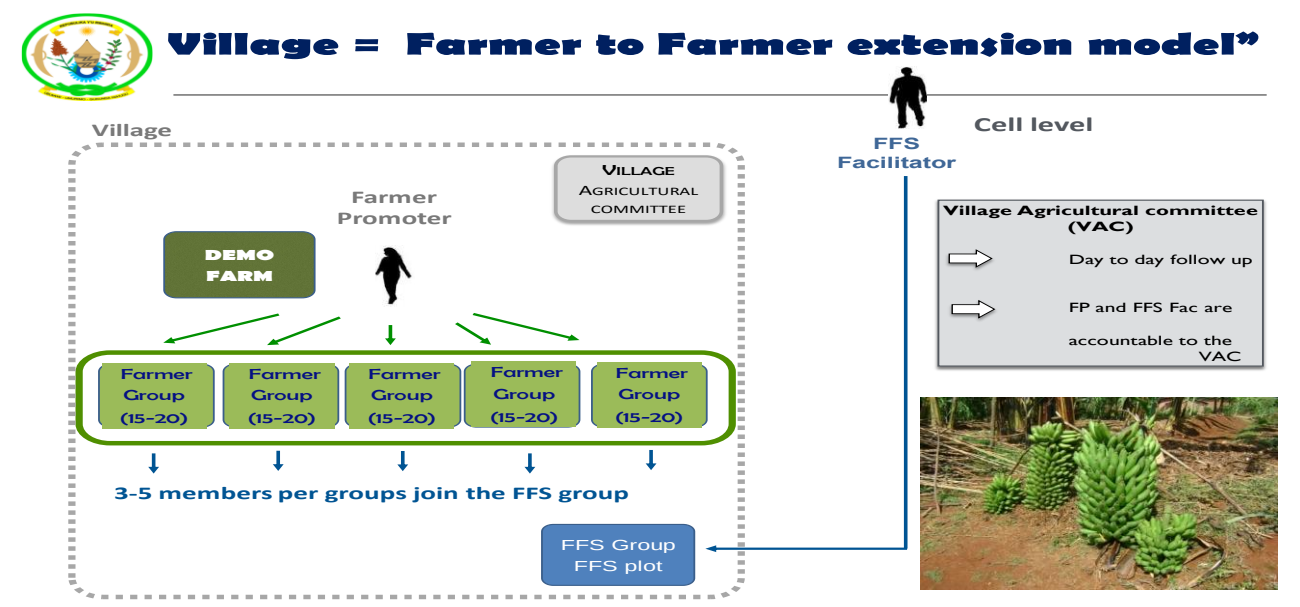
Source. EICV 3- Gender Thematic Report, 2012.



5.3. Access to Extension Services

The current strategy for extension services and farmers mobilization aims at delivering an extension system that reaches all farmer categories. This is strategically done by the Ministry of Agriculture and implemented by its agencies namely the Rwanda Agriculture Board (RAB) and the National Agriculture Export Board (NAEB). The extension strategy is performed through policy guidelines (standards, strategies, and extension financing), capacity building of extension workers, and technical backstopping. Now the focus is on the promotion of the farmer to farmer extension model comprising a number of extension platforms such as "Twigire Muhinzi" and Agriculture Advisors (ADAs) at village level (See Figure 9).

Figure (9). Farmer to Farmer Extension Model

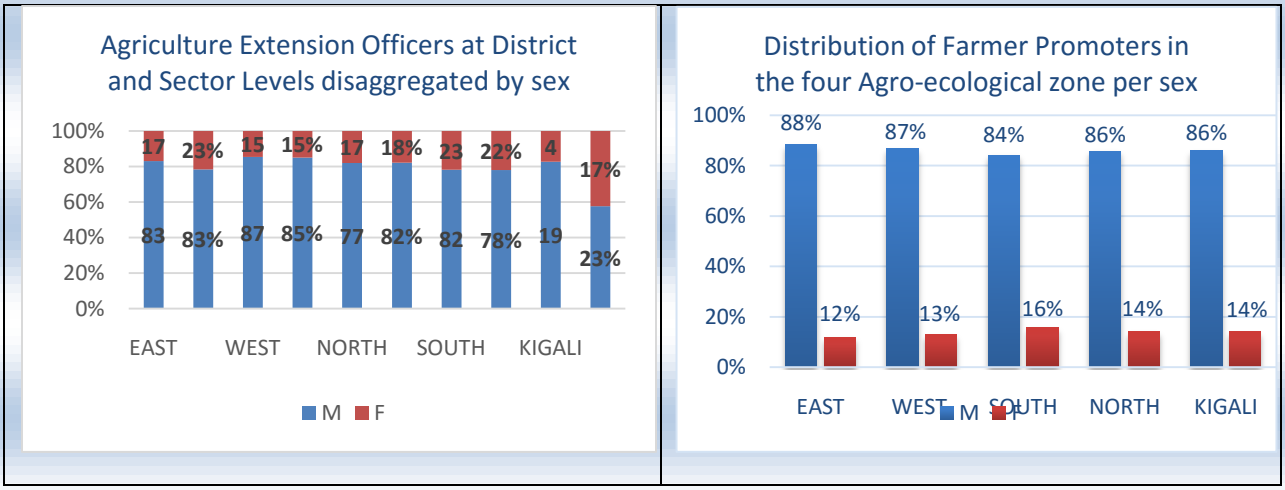


Source: MINAGRI (2015).

The extension services tend to be more supply driven in Rwanda. Earlier findings postulate that 79.8% of farmers do not demand for extension services in Rwanda (Rwanda Civil Society Platform, 2015). This contradicts the current orientation reason why there is an understanding of the need of professionalization of farmers through reorientation incentives in agricultural extension, privatization and extension to cover business advisory services and marketing assistance. A number of sub-programmes have been identified to ensure research and technology transfer, advisory services and professionalization of farmers (MINAGRI, 2013). Considering the gender aspect, female are less represented in the extension schemes as extension officers at District and Cell levels as well as farmer promoters in the four Agro-ecological zones (See Figure 10). Despite the fact that Farmer Promoters are very instrumental in the dissemination of extension services, agricultural good practices and technology innovations, women are not well

represented in these platforms. This is likely to affect the ratio of women farmers receiving farming advice (GMO, 2015)[4].

Figure (10). Farmer extensionists and promoters



Yet, access to extension services remains a challenge for many farmers. One of the reasons is limited number of researchers compared to the total population. For example, in 2011 full time expert researchers per 100,000 farmers was estimated at 4 (Country STAT). Due to lack of sufficient resources, extension agents in Rwanda use both group and individual methods of extension in communicating new ideas to farmers. Current methods used to introduce new technologies/ ideas include arranging meetings at specified place and time through local leaders, through farmer promoters, setting up of Farmer Field School in villages and Field Exchange Visits (see Figure 9 above). In this context it is even very difficult to monitor the extent to which farmers have received the extension and advisory services and integrate these in their farming practices. Thus, this has some effects in terms of technology transfer to increase agricultural productivity. The study by the Civil Society Platform in Rwanda (2015) substantiates that about 76.1% of sampled farmers claimed low satisfaction of responses from the agriculture development advisors partly due to their limited knowledge in the farming practices. The current estimate of the ratio of extensionnists to farmers is 1/750[5] compared to 1/600 anticipated in the EDPRS2. The current estimate of the budget allocated to the programme 2- Research, technology Transfer, Advisory services and professionalization - is 7.09% of the total budget for the ASIP-2. Therefore, to optimise the effect of technology and new ideas transfer to farmers, the budget allocated to extensions needs to be revisited. This will allow more training of extenssionnists for adequate dissemination of agricultural and marketing information.

[4] Gender Profile in the Agriculture Sector in Rwanda.

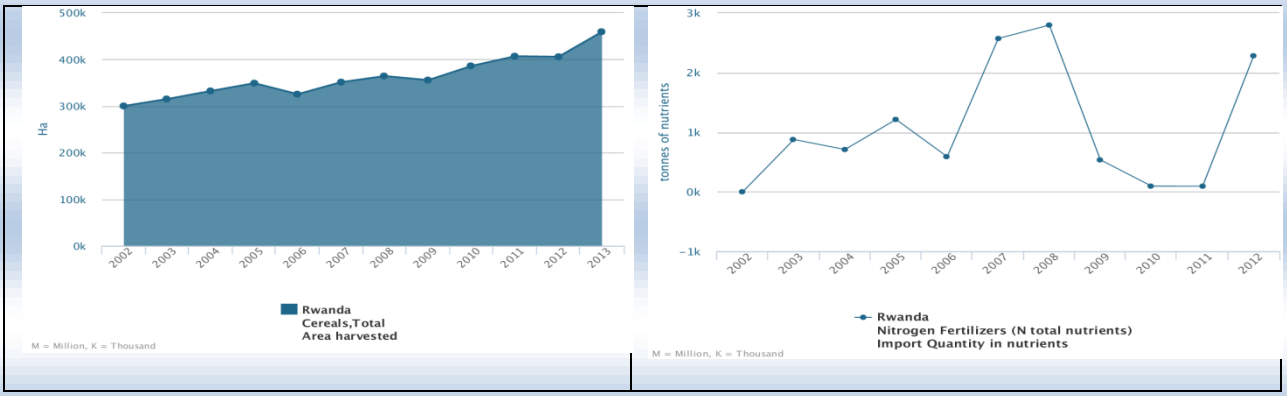
[5] RAB Estimate- from individual Consultation.

5.4. Food Security and Poverty Reduction

Agriculture remains a sector with greater potentials to reduced poverty and ensures food security. Food security encompasses four dimensions namely availability, access, utilization, and stability. Household food security is therefore defined as "sustainable access to safe food of sufficient quality and quantity to ensure adequate intake and a healthy life for all members of the family" (Musoni et al. 2015). Accordingly, Households are only food secure when food is both available and accessible- food must not only be in the market but people must be able to afford it.

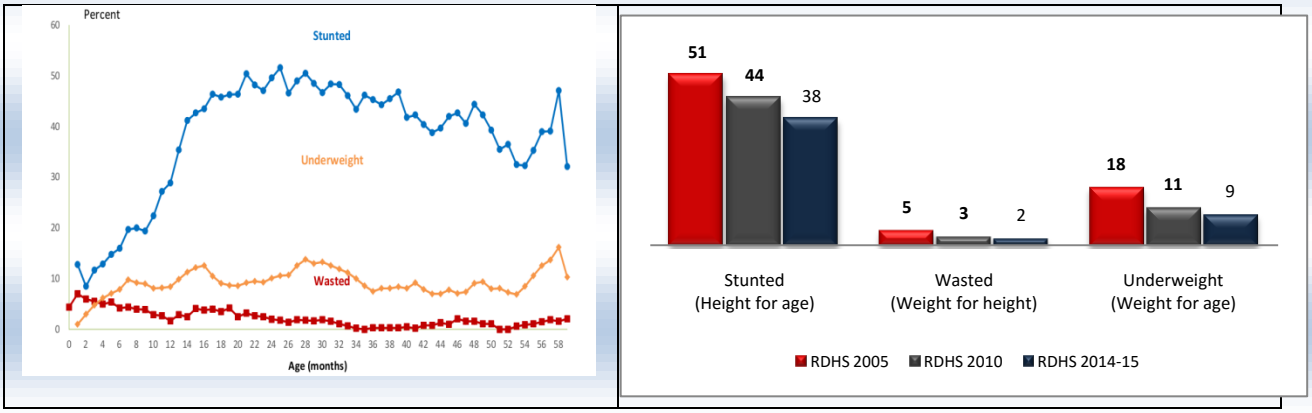
Since Rwanda embarked on CAADP objectives, food security and increasing rural household income remain key objectives the development framework namely EDPRS and Strategic Plan for Agricultural Transformation (PSTA). The goals of EDPRS and PSTA are to raise agricultural productivity and ensure food security. PSTA I concentrated on the commercialization of agriculture, PSTAII concentrated on the intensification of agriculture, and PSTAIII is focusing on increased private sector participation and development (Duke and Bizoza, 2012). Rwanda was able to achieve food self-sufficiency since 20110 due to increased production of staple foods driven by the Crop Intensification Program (CIP) and stronger regional market integration. The following Figure (11) generated from FAO STAT database depicts the trends in production of cereals and the quantity imported of nitrogen fertilizers.

Figure (11). Trends of Cereals production and Inputs imports



The food supply has increased in the last decade although household food consumption remains a foundational issue where around 38% children being stunted in 2014 compared to 44% in 2010. The recent Comprehensive Food Security Vulnerability Analysis and Nutrition Survey (CFSVA, 2012) reported that 79% of all households had acceptable food consumption while 17% had borderline food Consumption and 4% had poor food consumption; this shows some greater achievements in this area. The remaining challenge to address is malnutrition among children bellow five years old and this has to deal with the access, utilization, and stability components of food security.

Figure (12). Malnutrition status



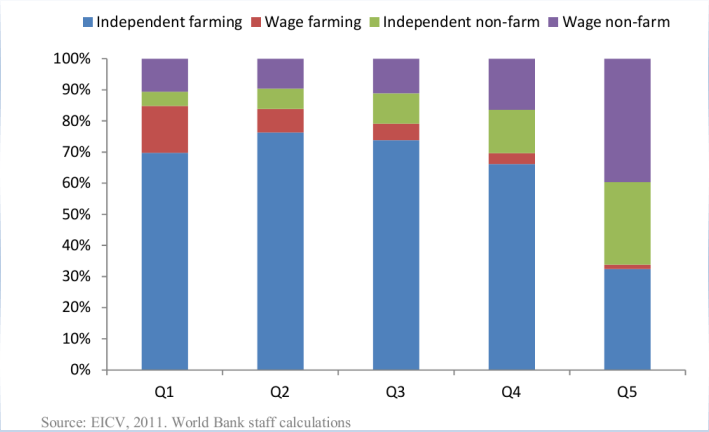
Source: RDHS 2014-2015

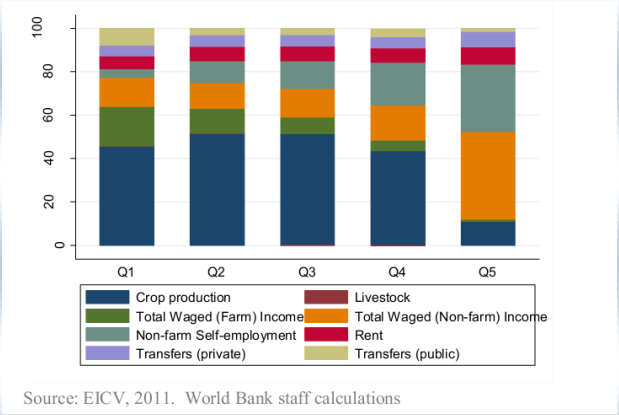
Continued access by smallholder farmers to food depends also with their purchasing power that allows them to secure food through access to markets. The study by Bizoza and Ngabo (2014) in Nyabihu District substantiates the role of access to domestic markets in improving food security. Through done at small scale level, food security is also indirectly and significantly (1% to 10% level of confidence) influenced by the distance from farm gate to domestic markets, presence of physical markets (selling points), transport facilities and annual income. Therefore, more development and policy interventions towards food security and increase household income should mot focus on food production but also creating an enabling environment for market access. Consistent with the CFSVA (2012), the food insecure were typically poor, rural households, living in small crowded homes, depending on low income agriculture and casual labour.

Poverty is predominantly rural where close to ½ of rural population lives below the poverty line compared to 22% of the urban population (World Bank Group, 2015). The same Rwanda Poverty Assessment Report by the World Bank (2015) shows how the spatial dimension of poverty is closely linked to the rural-urban divide: outside the main urban agglomeration of Kigali Province, poverty is high (ranging from 43% in the Northern and Eastern Provinces to 57 % in the Southern Province. As already above indicated, there is strong correlation between the development in agriculture and poverty reduction given that about 71% of the households in Rwanda draw their main occupation in Agriculture and this remains the main income earner (see Figure12).

Therefore, investment in agricultural sub-sectors has greater likelihood to impact food security and poverty reduction especially for the smallholder famers whose majority are women. The EICV 3 -2012) reports that almost 90% of female heads work in agriculture compared to 62% of male heads. Women are much less likely to have non-farm work opportunities as men making women highly concentrated in agriculture (82% compared to 61%). Looking at poverty status, 47% of female headed households are slightly more poor (47%) compare to 44.9% of all households (ECV3-2012). The above status supports greater linkages between agriculture, food security and poverty reduction – the two main to face to achieve the Vision 2020 and EDPRS goals. This calls for advanced engagement by policy makers, private sector, development partners, and smallholder farmers in agriculture development in Rwanda.

Figure (12) Agriculture as the main source of occupation and income for the poor





Agriculture as the main occupation for the poor

Agriculture is the main income earner for the poor

Source: World Bank Group, 2015.

6. Conclusions and Policy recommendations

Looking at the current trends of economic development in Rwanda poverty remains a rural phenomenon where about 90% of the population bellow the food poverty line ($1.25) lives in the rural areas. Since the agriculture sector continues to be the main source of employment and income earner for the majority of the population and mostly smallholder farmers; the government should continue to increase the proportion budget allocated to investments in agriculture. Further consideration should be paid on the following, among others:

1. The CAAD budgetary (10%) and agricultural growth (6%) targets are reachable if the agriculture sub-sectors reach their individual growth targets.

2. The budget allocation between and within sectors need to be well customised to the knowledge of the poverty pulling factors and to the potentials of each sector to reduce poverty and ensure food security among smallholder farmers.

3. A look at the Agriculture Sector Investment Plan for the period 2013/2014 to 2017/2017 the program on agriculture and animal resource intensification counts 52.74% of the budget of which 25.09% are for the irrigation and water management. Investments and maintenance of irrigation and mechanization structures are expensive beyond individual farmers' capacities. More investments will be needed and efficient management of the existing schemes for increased returns and benefits to the target population.

4. Strategies to reduce poverty and secure food security especially among smallholder farmers in Rwanda depend on agricultural productivity which in turn is determined by access levels on agricultural inputs, agricultural credits, and extension services. The current levels of input uses are still low (15.5% for improved seeds and 21.1% for chemical fertilizers) making the yield gaps remain high for major crops (between 35% to 54%). Thus, more investments are needed to achieve the crop intensification targets under EDPRS 2 and the PSTAIII.

5. Low access to financial services is evidenced and this affects negatively farmer's investments in agricultural production. Further consideration is needed with regard to the cost of the loan that is the interest rate which remains high, issue of collateral, and more bank products adapted to agricultural farming activities.

6. The development in agriculture will always depend on new agricultural technologies and extension packages. The relatively estimate of the budget for the ASIP (2013-2018) (7.09%) allocated to research, technology transfer, advisory services and professionalization of farmers is small to yield expected effects. More consideration on the budgetary allocation is needed.

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