



RWANDA



Strategic Analysis and Knowledge Support System

Trends in Key Agricultural and Rural Development Indicators in Rwanda

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Claude Bizimana, Felicien Usengumukiza, John Kalisa and John Rwirahira

About Rwanda SAKSS and ReSAKSS

The Rwanda Strategic Analysis and Knowledge Support System (SAKSS) node was established as part of the post-Comprehensive Africa Agriculture Development Programme (CAADP) compact activities to provide technical assistance to implement the country's agricultural investment plan. The Directorate of Planning of the Ministry of Agriculture and Animal Resources (MINAGRI) serves as the host of the SAKSS node but the SAKSS programme is implemented as a joint partnership between several institutions. The Rwanda SAKSS node has three specific objectives for which a scope of work is organized around: 1) Monitoring and evaluation (M&E) of agricultural policies and investments; 2) Strategic analysis to fill key knowledge gaps; and 3) Capacity strengthening and knowledge management. The Rwanda SAKSS node was established with financial support from the Rwanda Country Office of the United States Agency for International Development (USAID-Rwanda).

The Regional Strategic Analysis and Knowledge Support System (ReSAKSS) is an Africa-wide network of regional nodes supporting implementation of the Comprehensive Africa Agriculture Development Programme (CAADP). ReSAKSS offers high-quality analyses and knowledge products to improve policymaking, track progress, document success, and derive lessons for the implementation of the CAADP agenda and other agricultural and rural development policies and programs in Africa.

ReSAKSS is facilitated by the International Food Policy Research Institute (IFPRI) in partnership with the Africa-based CGIAR centers, the NEPAD Planning and Coordinating Agency (NPCA), the African Union Commission (AUC), and the Regional Economic Communities (RECs). The Africa-based CGIAR centers and the RECs include: International Institute of Tropical Agriculture (IITA) and the Economic Community of West African States (ECOWAS) for ReSAKSS-WA; the International Livestock Research Institute (ILRI) and the Common Market for Eastern and Southern Africa (COMESA) for ReSAKSS-ECA; and the International Water Management Institute (IWMI) and the Southern African Development Community (SADC) for ReSAKSS-SA.

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For more information, contact:

The Coordinator,
Rwanda Strategic Analysis and Knowledge Support System (SAKSS)
Ministry of Agriculture and Animal Resources
PO Box 621 Kigali
Rwanda
Telephone: +250 78 846 6161
Facsimile: +250 252 58 46 44
Email: cbizimana@minagri.gov.rw

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ACRONYMS AND ABBREVIATIONS

ASARECA	Association for Strengthening Agricultural Research in Eastern and Central Africa
ASWG	Agriculture Sector Working Group
CAADP	Comprehensive Africa Agriculture Development Programme
CIP	Crop Intensification Programme
COFOG	Classification of Functions of Government
COMESA	Common Market for Eastern and Southern Africa
CPAF	Common Performance Assessment Framework
EAC	East African Community
EDPRS	Economic Development and Poverty Reduction Strategy
EICV	<i>Enquête Intégrale des Conditions de Vie des Ménages</i> (Integrated Living Conditions Survey)
GBS	General Budget Support
GDP	Gross domestic product
GAFFSP	Global Agriculture and Food Security Program
GHI	Global Hunger Index
ICT	Information, communication and technology
IDSPS	Intensification and Development of Sustainable Production Systems
LWH	Land Husbandry, Water Harvesting and Hillside Irrigation Project
M&E	Monitoring and evaluation
MDG	Millennium Development Goal
MINAGRI	Ministry of Agriculture and Animal Resources
MINECOFIN	Ministry of Finance and Economic Planning
MINICOM	Ministry of Trade and Industry
NEPAD	New Partnership for Africa's Development
NGO	Non-governmental organization
NISR	National Institute of Statistics of Rwanda
NSP	National Seed Policy
OCIR-Café	Rwanda Coffee Development Authority
OCIR-Thé	Rwanda Tea Development Authority
PSTA	Strategic Plan for Agricultural Transformation
RwF	Rwanda Francs (in October 2010, US\$ 1 = RwF 589)
SAKSS	Strategic Analysis and Knowledge Support Systems
SBS	Sector Budget Support
SWAp	Sector-wide Approach
WHO	World Health Organization

EXECUTIVE SUMMARY

This report gives an account of the progress towards achieving the Vision 2020 goals and Economic Development and Poverty Reduction Strategy (EDPRS) targets, the first Millennium Development Goal (MDG1), and the implementation of the Comprehensive Africa Agriculture Development Programme (CAADP) compact in Rwanda. It is significant that these various targets have a common goal of engendering the modernization and transformation of the agriculture sector.

On the progress towards CAADP implementation, Rwanda held a roundtable meeting in 2007 which culminated in the signing of a CAADP compact between the Government of Rwanda, development partners, civil society and the private sector. In 2009, Rwanda was the first country in Africa to hold its post-CAADP compact high-level stakeholder meeting, at which all partners deliberated on the country's agriculture sector investment plan. As a result, the agriculture-led growth is viewed as a main strategy to achieve MDGs; policy efficiency, dialogue, review and accountability mechanisms are in place and the country SAKSS node is established and operational. More importantly, Rwanda allocated 10.2% of its national budget to the agriculture sector for the fiscal year 2010/11 and achieved an average annual growth of 7.4% in 2010.

The Government of Rwanda recognizes the central role of the agriculture sector both in terms of economic growth and poverty reduction. Agriculture accounts for more than 34% of the gross domestic product (GDP), provides 70% of exports, employs 80% of the workforce and provides raw materials to industries and a market for manufactured goods.

While the primary sector, boosted by continuing high growth in agricultural production, performed well in 2009, industry and services performed moderately compared to previous periods. The tertiary sector, at 46%, maintained its leading position in 2009 in the structure of GDP, followed by the primary sector (34%) and industry (14%).

Food production has improved significantly over the last two years. A remarkable increase was registered in cereals mainly due to an increase in production of maize and sorghum. However, despite the improved performance of the agriculture sector, the production of export crops underperformed mainly due to the global economic crisis which affected international commodity prices.

With respect to animal production, the number of cattle, goats, sheep, pigs and rabbits has increased significantly due to progressive modernizing of traditional livestock and the expansion of land area that is reserved for pasture. Modernizing traditional livestock refers to both the rearing methods and the type of animals kept. Due to the improvement in the breeds of cattle distributed to farmers under the One Cow Program, milk and meat production increased significantly while the production of other animal products (eggs, fish and honey) also increased, but slightly.

Increases in production have continued to have a positive impact on food security, measured in terms of availability. Most importantly, Rwanda has experienced an upward trend in kcals/person per day since 2008. However, the World Health

Organization (WHO) recommendations for lipid and protein availability are yet to be consistently met.

Based on the global hunger index (GHI), Rwanda has made good progress in fighting hunger since 1990. GHI values higher than 20 are considered to be alarming. An analysis of causes of hunger shows that inadequate dietary intake and malnutrition are closely correlated with poverty. The risk of those in severe poverty being malnourished is extremely high. Children and adults alike are vulnerable to a range of debilitating and in some cases life-threatening diseases. Figures for Rwanda indicate a GHI value of 21 in 2011 compared to 28.5 in 1990.

Although the country registered significant economic growth in the last decade, population growth, however, does not follow the trend of economic growth, resulting in a negative impact on the welfare of the population, especially in rural areas. The *Gini coefficient*, which reflects the level of inequality in the country, increased from 0.47 to 0.51 between 2001 and 2006.

CHAPTER 1. INTRODUCTION

The Trends and Outlook report serves to outline key agricultural and rural development indicators in Rwanda to facilitate monitoring and evaluation (M&E) of agricultural policies and investments. The report is articulated in the following sections: (i) agricultural policy and strategy; (ii) agricultural investment trends and opportunities; (iii) agricultural growth performance; (iv) agricultural trade performance; (v) poverty, hunger, food and nutrition security; and (vi) agricultural investment, growth, poverty and hunger linkages.

This report was generated based on secondary data already in existence within Rwanda from different institutions. It was developed by a team of experts involved in generating, managing and analysing data for monitoring agriculture and rural development indicators within the country under the supervision of the coordinator of the Rwanda SAKSS Node.

The data are aggregated at national, economic use, function and sub-sector levels. Comparisons with countries in the region are provided where possible. Public expenditures by the government are analysed using the “Classification of Functions of Government (COFOG) definition” of agriculture from the Comprehensive Africa Agriculture Development Programme (CAADP) to give a comprehensive picture of public funding of the agriculture sector, i.e. the budget allocated to the Ministry of Agriculture and Animal Resources (MINAGRI) and other public institutions involved in the agriculture sector.

The sector coverage and availability of time series were the main factors or constraints to this study.

CHAPTER 2. COUNTRY PROFILE

2.1 Macro-economic profile

The general structure of the gross domestic product (GDP) remains unchanged since 2005 with the service sector contributing 46% to GDP, followed by the agriculture at 34% and industry at 4% in 2009. The real GDP at constant prices of 2006 grew by 6% in 2009 against 11.6% in 2008. This growth was mainly due to a strong recovery in the agriculture sector which registered a growth rate of 15% compared to 0.7% in 2007, and a noticeable improvement in both the industry and service sectors which increased by 10.7% and 7.9% respectively (BNR, 2009). The secondary sector growth was driven mainly by good performance in the construction and public works sub-sectors (26%) and production of electricity (16.9%) despite a 4.1% decline in manufacturing (BNR, 2009).

In recent years, the agriculture sector's contribution to GDP has fluctuated, but no trend is apparent: 38% in 2005 and 2006, 36% in 2007, 33% in 2008 and 34% in 2009. The income per capita increased, on average, by 16.5% from RwF 161,000 to 296,000 between 2005 and 2009, equivalent to US\$ 289 and US\$ 520 respectively.

National accounts

In 2009, GDP at current prices was estimated at RwF 2,992 billion. In the same year, the population of Rwanda was estimated at 10.1 million people. GDP per capita was therefore RwF 296,000 or US\$ 520 at the nominal exchange rate of RwF 568.3 to US\$ 1. In the same year, agricultural, forestry and fishing activity contributed 34% of the GDP, industry contributed 14% and services contributed 46%. Adjustments (mainly taxes on products) accounted for 6% (see Table 2.1).

Table 2.1 Macro-economic aggregates

GDP	2005	2006	2007	2008	2009
GDP at current prices (RwF billions)	1,440	1,716	2,046	2,579	2,992
Growth rate (%)	19	19	19	26	16
GDP at constant 2006 prices (RwF billions)	1,571	1,716	1,849	2,064	2,187
Growth rate (%)	9.4	9.2	7.7	11.6	6.0
GDP per capita (in '000 RwF)	161	186	214	262	296
GDP per capita (in current US\$)	289	333	391	480	520
Proportions of GDP					
Agriculture (%)	38	38	36	33	34
Industry (%)	14	14	14	15	14
Services (%)	42	42	44	46	46
Adjustments (%)	6	6	6	6	6
Memorandum items					
Total population (millions)	9	9.2	9.6	9.8	10.1
Growth rate (%)	3.3	3.3	3.3	2.9	2.9
Exchange rate: RwF per US\$	557	558	547	547	568
Growth rate (%)	-3	0	-2	0	4

Source: NISR (2010a).

Economic growth in 2009

A closer look at the GDP growth performance by type of activity, as illustrated in Table 2.2 below, shows decreasing growth rates in the agriculture sector. The growth was negative in 2003 due to poor weather conditions. A similar growth trend was also observed for the industry and services sectors.

Table 2.2 Real GDP growth rates by kind of activity

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Agriculture	8	9	17	-3	2	6	3	3	6	8
Industry	2	13	7	5	16	9	12	9	15	1
Services	11	7	12	7	10	12	13	12	15	6
Adjustments	8	9	16	-3	3	7	8	5	12	9
GDP at constant 2006 prices	8.4	8.5	13.2	2.2	7.4	9.4	9.2	7.7	11.6	6.0

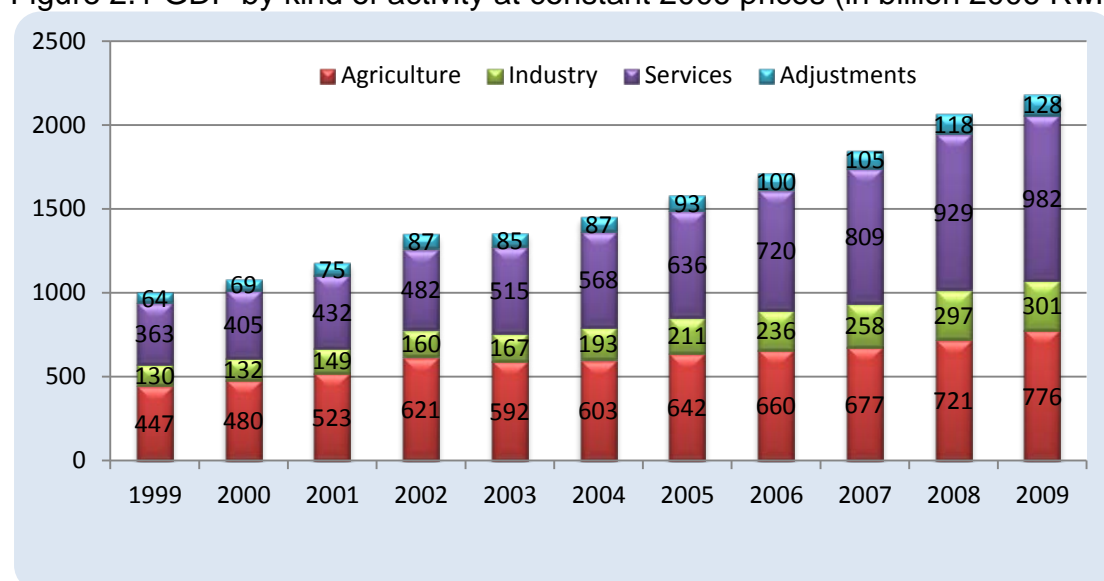
Source: NISR (2010a).

In 2009 GDP at constant prices was estimated at RwF 2,187 billion. The estimates calculated at constant 2006 prices show that GDP went up by 6.0% in real terms in 2009, following an increase of 11.6% in 2008.

This growth is attributable to an 8% growth in the agriculture sector, mainly driven by a 9% increase in food crop production and to a 6% growth in the services sector, thanks to increases of 9% in transport, storage and communication and 4% in wholesale and retail trade. Conversely, production in the industrial sector increased slightly by 1%, with construction activities 1% higher following a very large increase of 28% in 2008.

Based on 2006 = 100, the implied GDP deflator (an indicator of inflation obtained by dividing the GDP at current prices by GDP at constant prices) increased by 9.4% to 137 in 2009, after an increase of 13% in 2008 (Figure 2.1).

Figure 2.1 GDP by kind of activity at constant 2006 prices (in billion 2006 RwF)



Source: NISR (2010a).

2.2 Poverty profile

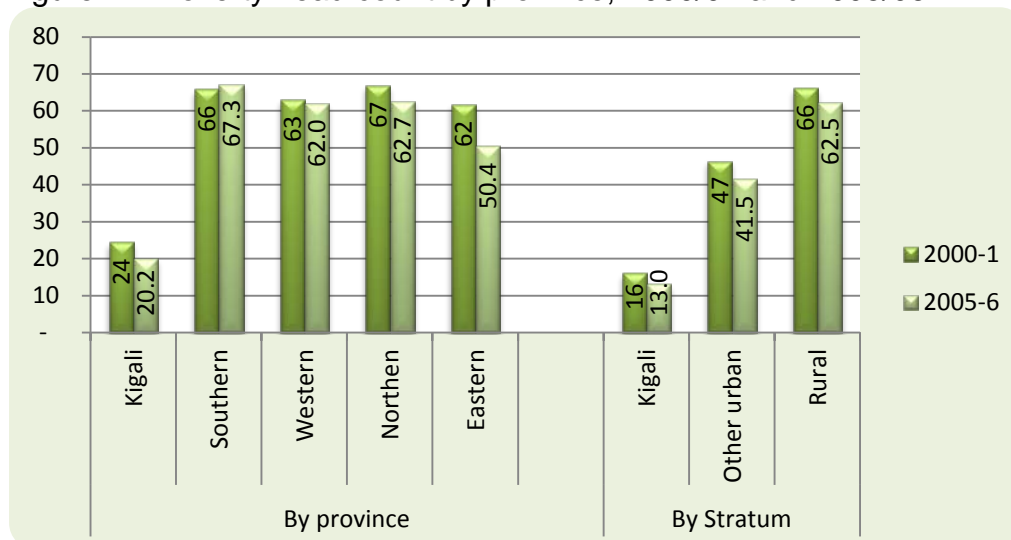
The meaning of poverty reflects its multi-dimensional character and the contextual nature of its past. Poverty is a situation whereby a person is faced with a complex inter-linkage of problems that cannot be resolved. The poor do not have enough land, income or resources and have little or no access to basic needs (Government of Rwanda, 2002). The definition of poverty in Rwanda is consistent with the generic classification of poverty, which is threefold.

The first category is income or consumption poverty, which is characterized by rigorous measurement (Orshansky, 1969). A person is poor if their income or consumption value is below a determinate threshold. A second category of definition is the basic needs approach (Streeten, 1982). In Rwanda it has translated into poor access to services and the resulting low quality of life. A third category is human poverty and deprivation (UNDP, 1990), which is a broader definition. Poverty is not about income, consumption and access to basic needs, but about lack of choice and low capability (Sen, 1985). Various social groups are afflicted by various forms of human poverty and deprivation.

The incidence of poverty (Head Count Index) was estimated to be 45.7% in 1985, 72.4% in 1995, and 64.1% in 2000 (PRSP, 2002). Today it is estimated to be 56.9%. The most recent Integrated Living Conditions Survey, known as EICV which stands for Enquête Intégrale des Conditions de Vie de Ménages (EICV, 2005/06) shows that the gap between the poor and non-poor may be widening; while the *Gini* coefficient was 0.29 in 1985, it is estimated to be more than 0.5 today.

The breakdown of the poverty head count by province, using data from EICV 1 (2000/01) and EICV 2 (2005/06), shows that the lowest levels of poverty are in Kigali City, where about a fifth of the population live below the official poverty line (Figure 2.2). The highest is found in Southern Province, where over two-thirds of the population live below the official poverty line. Growth rates in inequalities were high in the Eastern, Western and Southern provinces, but fell marginally in Kigali and the Northern Province (NISR, 2006).

Figure 2.2 Poverty head count by province, 2000/01 and 2005/06



Source: NISR (2007).

Vulnerability, that is, the risk of slipping into absolute poverty and deprivation, was highest after the 1994 war and genocide with 1 out of 3 people displaced, 130,000 imprisoned, more than 30% of households headed by women and 80,000 headed by children (UNICEF, 1998; Poverty profile, 2002). The number of the vulnerable may have decreased since, but it is still high with women-headed households still above 20% and more than 11% of the population landless (Musahara, 2005). Other forms of vulnerable groups whose numbers are not ascertained include the disabled, handicapped and divorced. A recent survey revealed several causes of poverty, as listed in Table 2.4.

Recent poverty indicators are partly attributed to the 1994 genocide. In the period after the conflict Rwanda embarked on an ambitious plan to turn the country into a knowledge-based economy and reverse the poverty trend. Table 2.3 provides a summary of socio-economic conditions in 2000 and the targets over the next 20 years.

Table 2.3 Rwanda Vision 2020 targets

Indicators	Situation in 2000	Indicators in 2006	Target in 2010	Target in 2020
1. Rwandan population ('000)	7,700	8,200	10,200	13,000
2. Literacy level	48	-	80	100
3. Life expectancy (years)	49	49	50	55
4. Women fertility rate	6.5	6.1	5.5	4.5
5. Infant mortality rate (0/00)	107	86	80	50
6. Maternal mortality rate (0/00.000)	1070	846	600	200
7. Child malnutrition (insufficiency in %)	30	152	20	10
8. Population growth rate (%)	2.9	2.6	2.3	2.2
9. Net primary school enrolment (%)	72	92	100	100
10. Growth in primary school enrolment (%)	-	24	100	100
11. Secondary school transitional rate (%)	42	-	60	80
12. Growth in secondary school enrolment (%)	7	23	40	60
13. Rate of qualification of teachers (%)	20	-	100	100
14. Gender equality in tertiary education (F %)	30	-	40	50
15. Gender equality in decision-making positions (% of females)	10	47.5	30	40
16. HIV/AIDS prevalence rate (%)	13	3.0	11	8
17. Doctors per 100,000 inhabitants	1.5	3	5	10
18. Nurses per 100,000 inhabitants	16	22	18	20
19. Laboratory technicians per 100,000 inhabitants	2	-	5	5
20. Poverty (% <1 US\$/day)	64	-	40	30
21. Average GDP growth rate (%)	6.2	5.6	8	8
22. Growth rate of the agriculture sector (%)	9	2.8	8	6
23. Growth rate of the industry sector (%)	7	6.0	9	12
24. Growth rate of the service sector (%)	7	18	9	11
25. Gini coefficient (income disparity)	0.454	-	0.400	0.350
26. Growth national savings (% of GDP)	1	-	4	6
27. Growth national investment (% of GDP)	18	-	23	30

Indicators	Situation in 2000	Indicators in 2006	Target in 2010	Target in 2020
28. GDP per capita in US\$	220	250	400	900
29. Urban population (%)	10		20	30
30. Agricultural population engaged in the agriculture sector (%)	90	86.6	75	50
31. Use of fertilizers (kg/ha per year)	0.5	-	8	15
32. Access to clear water (% households)	52	69	80	100
33. Agricultural production (kcal/day per person; % needs)	1612	-	2000	2200
34. Availability of protein/person per day (% of needs)	35	44	55	65
35. Road network (km/km ²)	0.54	-	0.56	0.60
36. Annual electricity consumption (kW/inhabitants)	30	-	60	100
37. Access to electric energy (% of population)	2	3.5	25	35
38. Non-agricultural jobs	200,000	-	500,000	1,400,000

Source: MINECOFIN (2006).

A recent participatory survey on the causes of poverty in Rwanda established a comprehensive list and the share of the population for each cause reported. This is summarized in Table 2.4.

Table 2.4 Major causes of poverty identified

	Share of respondents (%)
Lack of land	49.5
Poor soils	10.9
Drought/weather	8.7
Lack of livestock	6.5
Ignorance	4.3
Inadequate infrastructure	3.0
Inadequate technology	1.7
Sickness	1.7
Polygamy	1.2
Lack of access to water	1.1
Population pressure	0.7
Others	10.6
Total	100.0

Source: MINECOFIN (2007).

Based on the causes of poverty established above, the following sub-categorization (Table 2.5) was done by the Ministry of Finance and Economic Planning (MINECOFIN) and the proportion of the population within each identified.

Table 2.5 Own distribution of poor by categories

Category	Share of respondents (%)
Destitute	18.0
Poorest	52.5
Poorer	9.8
Poor	7.1
Vulnerable	4.8
Surviving	1.1
Others	6.8
Total	100.0

Source: MINECOFIN (2007).

2.3 Overview of the agriculture sector in the Rwandan economy

As already highlighted, agriculture is the main driver of Rwanda's economic growth since it contributes 34% to the GDP (2009) and employs most (80%) of the Rwandan population (NISR, 2009). The transformation of agriculture therefore will have the greatest impact on the economy in terms of poverty reduction and wealth creation in the country. Table 2.6 gives the total arable and cultivated areas from 2005 to 2010.

Table 2.6 Total arable and cultivated areas, 2005–2010

Year	2005	2006	2007	2008	2009	2010
Total arable land ('000 ha)	2,294.38	2,294.38	2,294.38	2,294.38	2,294.38	2,294.38
Total cultivated area ('000 ha)	852.26	868.31	846.42	1,715.64	1,735.03	1,755.32

Source: NISR (2010b).

In Rwanda, like in much of the developing world, small-scale subsistence farmers produce most of the agricultural output. Agricultural exports represent over 70% of the total value of exports; coffee and tea are the two main export crops and the most widely cultivated cash crops. The Government of Rwanda has also made efforts to diversify the country's exports by investing heavily in horticulture geared towards exports. The country produces several products as staple foods: maize, sorghum, rice, wheat, beans, soya beans, Irish potato, sweet potato, cassava and bananas. Table 2.7 shows the trend of the agriculture sector and how it contributes to GDP.

Table 2.7 Real agriculture growth rate (5-year averages in %)

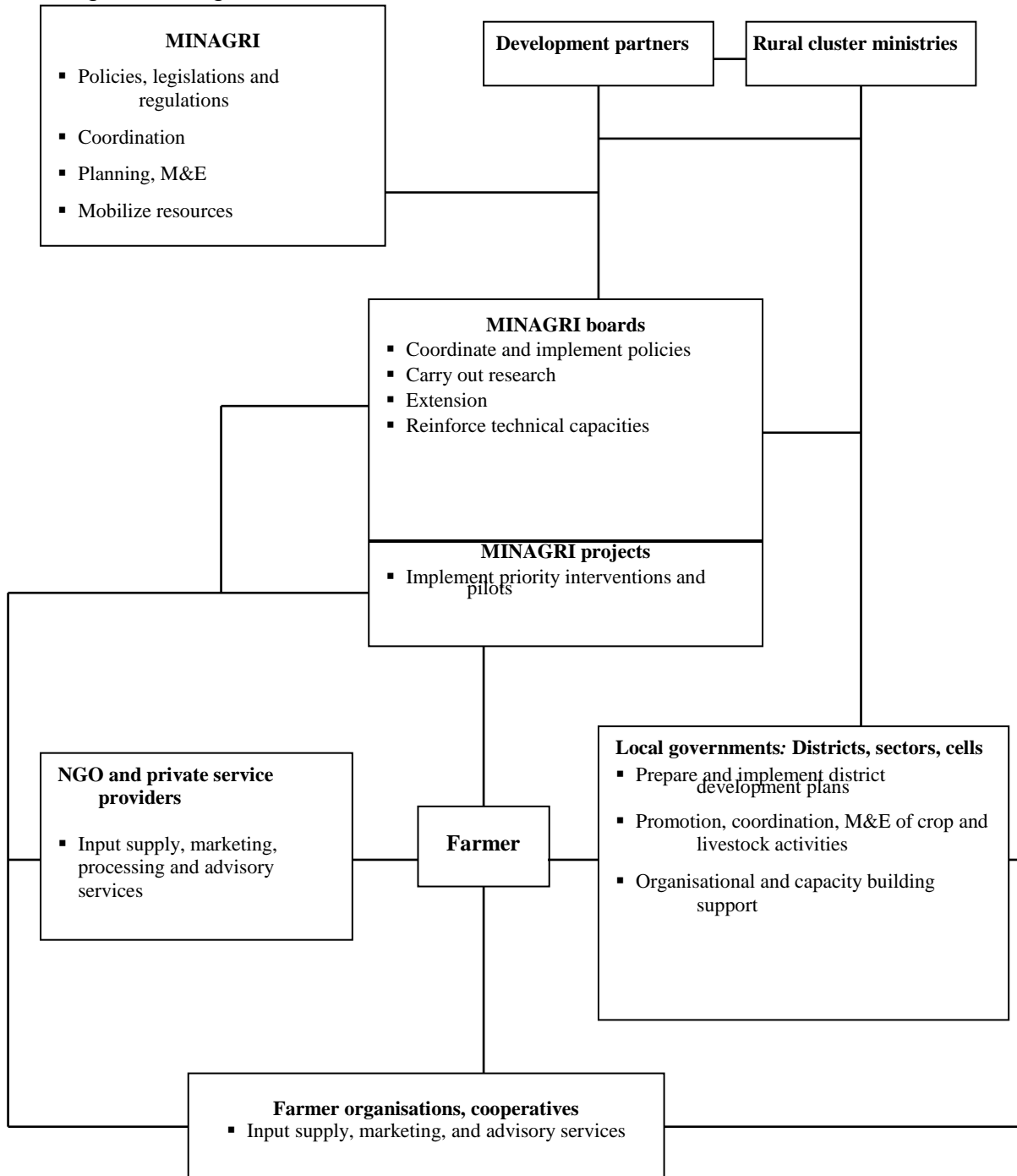
	Share of total GDP		Average growth	Annual
	1996–2000	2001–2006	1996–2000	2001–2006
Gross domestic product (GDP)	100.0	100.0	10.8	6.4
Agriculture	37.7	36.4	9.5	4.8
Food crop	31.9	31.4	9.9	5.1
Export crop	1.0	1.1	11.7	6.3
Livestock	3.0	2.2	7.8	3.5
Forestry	1.5	1.3	10.7	3.7
Fisheries	0.3	0.4	29.9	3.7

Source: USAID (2009).

Agriculture is not only one of the most important sectors of Rwanda's socio-economic environment; it is also one of its most challenging. As early as 1984, a World Bank study of the country's farming systems stressed the need to increase agricultural productivity and reduce soil erosion and land degradation (John and Egli, 1984).

Apart from MINAGRI, the sector has many stakeholders whose actions affect and facilitate the activities of the ministry. Of particular importance within the Government of Rwanda are: the Ministry of Local Government, MINECOFIN, the Ministry of Infrastructure, Ministry of Trade and Industry (MINICOM), the Ministry of Natural Resources, Meteo Services, Rwanda Bureau of Standards (RBS), National Bank of Rwanda (BNR), National Institute of Statistics of Rwanda (NISR), and Rwanda Revenue Authority (RRA). Other important actors are local governments, the private sector and non-governmental organizations (NGOs). MINAGRI holds regular meetings with these agencies to ensure good collaboration. In many instances MINAGRI works in collaboration with other organizations to deliver projects and services. MINAGRI has made special efforts to ensure that the efforts of the NGO sector inform planning and decision making by the ministry. Figure 2.3 gives summarizes the main responsibilities of the actors in the sector and shows the relationships between the different stakeholders.

Figure 2.3 Agriculture sector institutional framework



2.4 Aid coordination in the agriculture sector

Agriculture Sector Working Group

The Agriculture Sector Working Group (ASWG) is chaired by the MINAGRI Permanent Secretary and co-chaired by the World Bank, the lead donor in the sector. This group coordinates development issues in the sector, provides a forum to discuss Common Performance Assessment Framework (CPAF) indicators and policy actions, and feeds into the Joint Budget Sector Review (JBSR). Topics covered in the ASWG have included:

- Approval of all CPAF/Economic Development and Poverty Reduction Strategy (EDPRS) policy actions such as the Post-Harvest Handling and Storage project and the Rural Finance Strategy
- Consultations on the National Strategy for Climate Change and Low Carbon Development
- Discussions on Zero Grazing and the Dairy Marketing Value Chain Analysis

Sector-Wide Approach Group

The Sector-wide Approach (SWAp) Group has played an instrumental role in discussing issues related to budget support in the agriculture sector. The background to this group has been the SWAp Memorandum of Understanding that was signed in November 2008 with a statement of principles:

- Alignment with the Strategic Plan for Agricultural Transformation (PSTA) II
- Promote national ownership and strengthen national capacities
- Rwanda's hierarchy of aid delivery preferences (2006 Aid Policy)
- Harmonization with M&E/Public Finance Management (PFM) Systems
- ASWG as forum for dialogue

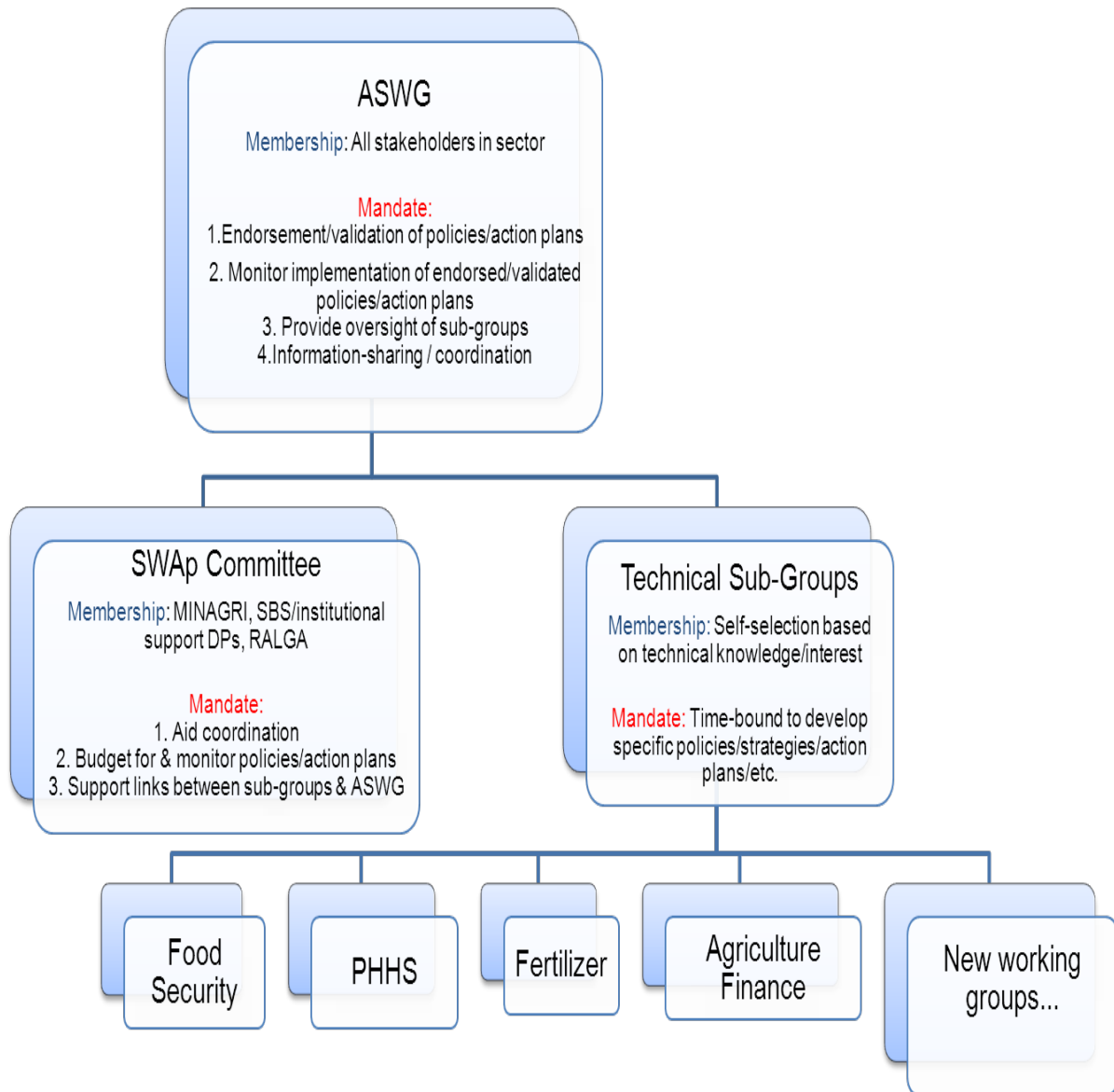
The SWAp was then developed through a post-CAADP Compact high-level stakeholder meeting in December 2009 and a Food and Agriculture Organization of the United Nations (FAO) technical support mission in February 2010. SWAp is not an aid instrument but a modality of operation. The group is chaired by the MINAGRI Permanent Secretary and co-chaired by the World Bank. The institutional arrangement of the SWAp process is outlined in Figure 2.4 below.

The objectives of the SWAp group are to:

- Improve aid coordination with a focus on budget support (General Budget Support (GBS)/Sector Budget Support (SBS)).
- Respect and adhere to the principles of the SWAp Memorandum of Understanding.
- Assist in the preparation and follow of the joint sector reviews.
- Support and complement the Planning Unit's capacity including supporting budget and planning, expenditure tracking, and M&E.
- Ensure that the linkages between the ASWG and sub-committees are functioning.
- Combine the skills of the group (human and financial among others) to improve the setting up and implementation of SBS/GBS.

- Report to the ASWG on matters that relate to SBS/GBS and general issues of aid coordination.
- Provide an appropriate forum for budget support donors to meet their fiduciary oversight requirements.

Figure 2.4 SWAp process in MINAGRI



CHAPTER 3. AGRICULTURAL POLICY AND STRATEGY

3.1 Introduction

Agricultural policies and strategies have been integrated into the national development planning process anchored on the Vision 2020. The EDPRS (2008–2012) set targets for the agriculture sector. The National Agricultural Policy adopted by the Government of Rwanda in 2004 aimed to ensure sustained economic growth, contributing to poverty reduction in the rural sector and increasing farm income. To achieve the sustainable growth and development in the agriculture sector, the Government of Rwanda stressed the essential nature of strong strategic plans that are aligned with CAADP which is at the heart of efforts by African governments under the African Union (AU) and the New Partnership for Africa's Development (NEPAD) initiative to accelerate growth and eliminate poverty and hunger among African countries.

3.2 Rwanda: Major policies and strategies in the agriculture sector

The National Agricultural Policy relies on the following four strategic axes:

1. Transformation and modernization of agriculture
2. Agriculture value chains development
3. Promotion of competitiveness for agricultural products
4. Development of entrepreneurship spirit

Its specific objectives are to:

- i) Enable rural communities to develop a sense of responsibility as actors in agricultural development
- ii) Increase agriculture, animal and fish production as a result of improvements in productivity
- iii) Increase revenue as a result of diversification of economic activities in the rural sector
- iv) Strengthen the linkages between production and market
- v) Ensure the sustainable management of natural resources

The key policy initiative has been the four-year PSTA I and PSTA II. PSTA I was adopted in 2004 and ran from 2004 to 2008 while PSTA II was adopted in 2008 and runs from 2008 to 2012.

The PSTA in Rwanda developed its PSTA 2004–2008 using participatory methods and it is in line with the poverty reduction strategy paper and Vision 2020. This strategy had four interrelated programmes:

1. Intensification and development of sustainable production systems
2. Support to the professionalization of producers
3. Promotion of chains and development of agribusiness
4. Institutional development

The PSTA II updates PSTA I by bringing it fully into consonance with recent national strategies such as EDPRS, the national investment policy and strategy, and the decentralization policy. The decentralization policy seeks to involve local administration more directly in the development process.

The government launched the Crop Intensification Program (CIP) during a Cabinet meeting held on 14 September 2007. CIP was launched as a pilot programme whose main goal was to increase agricultural productivity in high potential food crop areas to ensure food security and self-sufficiency.

The main components of CIP were incorporated in the Integrated Development Program under eight pillars. These pillars are: land use consolidation; proper management and use of agricultural inputs, such as fertilizers, in bulk; fertilizer and improved seeds purchase and distribution through the private sector (enterprise or farmer cooperatives, using auction and vouchers); extension services; capacity building; access to finance; post-harvest handling and storage, and marketing.

Land use consolidation is the process whereby agricultural production efforts of individual landholdings or land tillers are integrated, coordinated or facilitated to achieve a unified production situation (MINAGRI, 2008b). This is characterized by collaboration in types of crops grown, sale of agricultural products, processing of agricultural products, and/or distribution and marketing of agricultural products.

In a bid to improve land productivity and land management, Cabinet adopted the land use consolidation programme to speed up the development of the country towards Vision 2020. Coupled with other policies, the land use consolidation programme allowed the agriculture sector to reach a two-digit GDP growth of 11.4% in 2008; this had not happened before.

The National Seed Policy (NSP) contributes to the consolidation of past achievements and lays the foundations of an organized and strong seed commodity chain in response to the challenges of intensification and promotion of other agriculture chains (MINAGRI, 2008c). It adapts to the new context characterized by the necessity to support agricultural development to support the country's economy and ensure national food security.

A sustainable increase in production and productivity depends, to a large extent, on the development of high yielding varieties. It also depends on establishing an efficient seed supply system, which gives farmers easy access to quality seeds.

Seeds are an important factor of production. Without them, no other input or investment can have significant value. The demand for seeds must therefore be met in response to different intensification schemes in various agro-bioclimatic regions of the country.

The NSP promotes the emergence of a strong and efficient private sector. This integrates the activities related to production, distribution and marketing of seeds, which allows the government to focus on coordination, regulation and quality control activities.

Finally, agriculture continues to be characterized by very low levels of input use, especially mineral fertilizers and seeds of poor quality. Before this decade, the national rate of fertilizer use per cultivated hectare remained in the neighbourhood of 4 kg, far below the average of 9 to 11 kg/ha for sub-Saharan Africa, which still has the lowest fertilizer utilization rate of any region in the world. Similarly, the use of improved plant seeds remains low, with only 12% of households reporting use of improved seeds in 2005. Other farm inputs follow the same pattern as fertilizer and seed.

3.3 Progress towards Vision 2020 and EDPRS goals

Vision 2020 goals and achievements

The agriculture-specific targets for Vision 2020 and the actual achievements in 2009/2010 are shown in Table 3.1. Growth was estimated at 7.7% for 2009 and the crop assessment for seasons 2009A and 2009B both showed positive increases on the previous year.

The agriculture sector has made good progress towards achieving the Vision 2020 goals and has, in some cases, exceeded them. The sector is only below its targets for coffee output and export earnings from tea and coffee.

Table 3.1 Vision 2020 goals and achievements

Indicator	2000	2010	Actual June 2010	2020
Agricultural GDP growth (%)	9	8	7.7	6
Agriculture as % of GDP	45	47	33.8	33
Land under "modernized" agriculture (%)	3	20	18	50
Fertilizer application (kg/ha per annum)	0.5	8	19.9 k	15
% banks' portfolio to agriculture sector	1	15	-	20
Soil erosion protection (% total land)	20	80	80.9	90
Coffee exports (tons)	19,000	44,160	15,935	-
% of coffee production fully washed	1 (2001)	63	35	-
Coffee export earnings (US\$ millions)	22.0 (2002)	117.1	37.3	-
Tea export earnings (US\$ millions)	26.8 (2003)	91.0	48.2	-

Source: MINECOFIN (2009).

The main driver for meeting these targets has been the integrated approach of MINAGRI to food security and income generation—agricultural development through irrigation and land husbandry; crop intensification drive; post-harvest handling and storage improvements; integrated livestock management; export and value-addition promotion. Below, we highlight the results and achievements of these interventions.

The EDPRS priorities for MINAGRI are:

1. Availability of and improved access to inputs
2. Soil conservation and water management (including irrigation)

3. Increased access to improved breeds of small and large livestock
4. Extension services and research for development

To give context, the most important agriculture sector EDPRS indicators are given in Table 3.2. Some of these are some of the EDPRS targets that have been revised from those of 2007 since many of the target expectation were too low or too high. Nonetheless, over the past few years MINAGRI has been on target for the EDPRS indicators.

Table 3.2 EDPRS goals and achievements

Indicator	Baseline 2007	Actual 2011 (January)	Target 2012*
Agricultural land protected against erosion (%)	40	80.9	95*
Area under irrigation (ha)	15,000	18,000	23,200
Area under irrigation which is under hillside irrigation (ha)	130 (2006)	580	3,200
Reclaimed marshland (ha)	11,105	17,420	20,000
Production of key food security crops (tons)	1,611.8	3,000	3,235*
Mineral fertilizer used (tons)	14,000	30,000	47,600*
Fertilizer application (kg/ha)	4	25	12
Inorganic fertilizer use (% households)	11	25	21
Improved seed use (% households)	3	34	20
Rural households with livestock maintained in intensive system (% of total)	16	60	60
Ratio of extension agents to farm HH	1:3,000	1:1,460	1:1,000*
Coffee production (tons)	26,000	20,000	23,000*
% of coffee production fully washed	10	29	100
Tea production (tons)	73,008	90,950,00	115,646*
% of proportion of high quality tea made	70	89	80

*2012 targets have been revised compared with EPDRS logframe.

For the inputs, MINAGRI has continued to import and organize auctions for fertilizer and in 2010 tested a new voucher system to ensure that subsidies were correctly targeted. A plan has also been put in place to gradually withdraw from fertilizer subsidies in the next three years without risking fertilizer uptake. Finally, a new Belgian funded project was started in 2009 to address seed production and shortage in Rwanda, by supporting private sector development.

Good progress has been made in soil conservation and water management, with just over 80% of land now sustainably managed. MINAGRI accessed a grant of US\$ 50 million through the Global Agriculture and Food Security Program (GAFSP), administered by the World Bank. The grant is being used to expand the Land Husbandry, Water Harvesting and Hillside Irrigation (LWH) Project.

A project focused on small livestock health, productivity and expansion now complements the One Cow Program to ensure that even the poorest households benefit from the MINAGRI programmes. Furthermore, the One Cow Program received a boost late in the financial year through fundraising activities, where private individuals with more than one cow were encouraged to donate a cow to the programme.

Commodity chain and agri-business development has become a high priority, as a result of the bumper harvests achieved both in 2009 and 2010. MINAGRI has therefore appointed a post-harvest handling and storage taskforce, to address the most pressing issues.

Following CAADP Pillar 4, sub-Programme 2.3 of the PSTA II adopts a holistic approach to research and extension.

The pillars of action of SP2.3 are:

- Participatory research on farmers' plots.
- Permitting farmers to help set research agenda in regional research stations.
- Implementation of a competitive research funding mechanism.
- Giving priority to applied, adaptive research.
- Promoting researcher participation in national alliances; participatory fertilizer trials, cassava value chain, appropriate mechanization, greenhouse trials, and training of extension agents.
- Adopting a holistic approach to research and extension.

3.4 Harmonization of agricultural policies and regulations at regional and international level

Regional integration is one of the pillars of Vision 2020 and Rwanda plays a major role in this process, especially within the framework of NEPAD and the Common Market for Eastern and Southern Africa (COMESA). Moreover, Rwanda recently joined the East African Community (EAC) and is already involved in the efforts to harmonize agricultural policies and programmes through regional programmes like the Policy Analysis and Advocacy Programme (PAAP) initiative of the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA).

The harmonization will especially allow the development of an important regional agricultural market and facilitate the seed import/export and exchange of varieties. This regional market will attract investments from large seed industries in the region. The harmonization will also generate economies of scale, especially within the framework of variety development, seed trading and marketing activities.

The regional harmonization will cover the following domains:

1. Variety evaluation, release and registration
2. Phytosanitary issues and regulations
3. Protection of variety producers' rights
4. Certification standards and agricultural laws and regulations

3.5 Relevance of CAADP framework to agriculture sector strategies and policies

In 2007 Rwanda held a roundtable meeting which culminated in the signing of a CAADP compact between the government, development partners, civil society organizations (CSOs) and the private sector. As the first country in Africa to sign the compact, Rwanda has been at the forefront of the CAADP implementation process.

In 2009 Rwanda was the first country to hold its post-CAADP compact high-level stakeholder meeting, at which all partners debated the country's agriculture sector investment plan. The investment plan details the funding allocated to the sector strategic plan (PSTA II) and the funding gaps. Several development partners pledged to contribute further funding to the investment plan, so that Rwanda would be able to achieve the overall goal of PSTA II, namely average annual agricultural growth of 8%.

The focus of the CAADP process is to strengthen and add value to PSTA under the ongoing EDPRS. In Section 3.3 of its national aid policy, the Government of Rwanda stresses the essential nature of strong strategic plans in all sectors and calls for the improvement of existing policies and strategic plans. The ultimate goal of the CAADP process in Rwanda is to answer that call for the agriculture sector by:

1. Helping define a coherent long-term framework to guide the planning and implementation of current and future EDPS/PSTA programmes under the Vision 2020 agenda.
2. Identifying strategic options and sources of poverty-reducing growth for the agriculture sector between now and 2020.
3. Developing existing and new strategy analysis and knowledge support systems to facilitate peer review, dialogue, and evidence-based planning and implementation of agriculture sector policies and strategies.

Furthermore the government intends that the national compact will provide a basis for and inputs to the formulation of a supporting regional compact.

3.6 CAADP implementation

Agriculture-led growth as a main strategy to achieve the Millennium Development Goals

As in many other African countries, agriculture contributes a significant proportion (34%) of the GDP in Rwanda (NISR, 2009) and is the main source of employment and income for over 80% of the population. It also plays an important role in foreign revenue earnings, with over 70% of the country's receipts from export crops.

Studies have shown that poverty is highest among rural agriculture-based households. Agriculture-led growth is therefore the most effective means of achieving pro-poor growth. This is enshrined in Vision 2020 and the EDPRS which describe agriculture as an engine for growth; both strategies prioritize agricultural development.

For the most effective poverty reduction, the International Food Policy Research Institute (IFPRI, 2009), among other studies, has shown that investments in staple crops and livestock development give better returns to the economy as a whole while export crops tend to have higher returns on GDP growth. MINAGRI has thus prioritized the development of food crops through the crop intensification programme and livestock development. Even with intensified production, investments have only led to a slight reduction in poverty from 57% in 2007 to 54% in 2008, due to variability and inconsistencies in production caused by several interrelated factors. The sector previously had low growth rates with an average of 4% between 2000 and 2007 due to low levels of investment. However, the budgetary allocation grew from about 3.5% in 2007 to close to 7% in 2011/12. With this increased allocation, Rwanda was able to achieve 8% growth in 2008.

Policy efficiency—Accountability, monitoring and evaluation mechanisms

Africa Joint Peer Review Mechanism

The Africa Joint Peer Review Mechanism (APRM) evaluates the performance of CAADP and the extent to which countries are on track with regard to implementing their action plans. A review by other African countries that have or are still undergoing similar challenges to those of Rwanda provides strong feedback on how best Rwanda can increase its efficiency in delivering its development agenda. Rwanda was among the first countries to complete the APRM process by successfully undertaking all five stages. The country undertook a self assessment by a team of diverse stakeholders representing different interest groups. This was followed by a peer review by an external team that reviewed the information from the internal assessment with data collected independently from other sources. The final stage was undertaken during a heads of state convention as a final review of the whole process where Rwanda was endorsed for being on track and for having made several reforms in line with the recommendations.

Private sector development

The private sector has been identified as the main driver of growth for the economy and for achieving national and regional development objectives. The government has undertaken reforms (sustained high economic growth; robust governance; investor friendly climate and access to markets) to enhance the business environment and this has led to Rwanda being the *top global reformer* in the 2010 Doing Business World Bank report. Rwanda has steadily reformed its commercial laws and institutions, introduced a new company law that simplified business start-up and strengthened minority shareholder protections. Entrepreneurs can now start a business with two procedures in three days. Rwanda has also enacted new laws to improve regulations to ease access to credit. Other reforms removed bottlenecks at the property registry and the revenue authority, reducing the time required to register property by 255 days. Overall, the country introduced reforms in 7 out of the 10 categories, rising from 143rd to 67th place in the ease of doing business rankings (World Bank, 2011).

Much potential remains for citizens and other stakeholders to increase their participation in the private sector, especially in the agriculture sector, and much still needs to be done. The agriculture sector on its part developed a more specific private sector development strategy, which is being operationalized with the goal of

providing a comprehensive private sector-friendly investment environment for the sector.

Private sector development is being undertaken as a cohesive and inclusive process that takes into account both formal and informal participants. This significantly contributes to the ease and possibility of registering and benefiting from formal facilities, including finance.

Decentralization

Decentralization has served as a tool for bringing together diverse interest groups in the development agenda and ensuring that strategies are in line with communities' interests. The country has institutionalized a participatory and consultative approach at all levels of society, with the primary purpose of allowing all Rwandans to effectively own and internalize the political, economic and social development processes of their country. The Joint Action Forum (JAF), the rural cluster and sector working groups are demonstrations of this approach. These fora comprise central and decentralized government, development partners, the private sector, civil society organizations and community representatives. The fora contribute significantly to the goals of the larger national and regional peer review mechanisms by providing a detailed and comprehensive internal review which is the basis for other reviews, analysis and dialogue.

Civic participation

Rwanda is accelerating efforts to expand the space for and increase the ease of operation for CSOs. This is because the country recognizes their importance as formal and informal organizations for sustained growth and their ability to provide checks and balances to the government in areas such as good governance and accountability. More specifically, CSOs have been integrated into the institutional arrangement of various sectors and in agriculture; they form part of the sector's institutional framework and are partners in all development initiatives. Institutionalizing the partnership with CSOs ensures that they are involved from the initial stages of the formulation of targets, and that there is mutual accountability in the delivery of agreed on targets.

Gender mainstreaming

In line with national and regional agreements and treaties for promoting gender equality and social development, Rwanda has taken a significant step forward by enshrining gender empowerment in all levels of society. The government; MINAGRI in particular, has established a framework for gender-responsive budgeting in the national gender budget initiative. Rwanda has also established a gender monitoring office comprising diverse stakeholders who monitor effectiveness of gender policies to ensure that they translate to actual empowerment and increased gender sensitive representation.

Other internal review and accountability systems

The National Dialogue Conference convenes each year and brings together representatives of state, non-state actors, international bodies working in Rwanda and the Diaspora. The objective of the conference is to hold a fully democratic "dialogue" in which participants review achievements based on performance contracts and work out solutions as appropriate to national global challenges. The

dialogue is organized around the four pillars of the government programme: good governance, economy, justice and social welfare.

The Leadership Retreat is an important annual event in Rwanda. Started in 2003, it is a forum where leaders propose solutions to hasten the country's development process-based policies and strategies integrated into Vision 2020 and EDPRS. The Office of the Prime Minister monitors implementation regularly; advises ministries and delivery agencies after analysing their quarterly reports; and assesses outputs red, amber or green (RAG Analysis) depending on their level of implementation.

Regional integration

Rwanda has taken concrete steps towards integrating with regional and global economies. Regional integration is particularly important for a country like Rwanda because it provides a much bigger market for her goods; reduces transport/freight costs; provides cheaper goods and services from companies within the region; and increases bargaining power by negotiating as a block. Rwanda has chosen to focus on the areas of comparative advantage to increase her competitive edge. This foundation has enabled the country to focus on infrastructure development, creating a conducive environment for doing business; value addition for commodities; review of custom laws; providing long-term investment frameworks and institutional strengthening among other strategic developments.

The agriculture sector exhibits a high level of dynamism, as there are no restrictions to investment in the sector. Economic operators from EAC are allowed to invest in the sector as long as they fulfil the requirements provided by the Rwanda investment code. Investors from the region, especially those from the EAC and COMESA, are given the same considerations and treatment as the local investors.

Establishment of the country SAKSS Node

Since the signing CAADP compact in 2007, the establishment of a country SAKSS in Rwanda has progressed slowly. It only became operational in May 2010 after a coordinator was appointed. The coordinator is currently in the Directorate of Planning of MINAGRI. The primary reason for this slow progress has been a lack of sufficient funding, knowledge and guidance on the nature of the scope of work required from a Rwanda SAKSS.

The principal objective for establishing a country SAKSS node is to provide strategic knowledge products (particularly relating to M&E of agriculture sector policies and investments) to facilitate better policy design and successful implementation of the country's agriculture sector investment plan. Underlying goals are to: a) provide timely and credible analysis and data to policy makers and development practitioners to strengthen the evidence during deliberations about future investments and policies; b) promote locally relevant research and analysis based on need; and c) work to strengthen local capacities for analysis and evidence-based dialogue.

3.7 Cross-cutting issues

HIV/AIDS in the agriculture sector

As over 80% of Rwanda's adult population are engaged in the agriculture sector, it represents the general population, making the impact of HIV on the sector difficult to gauge. Nevertheless, behavioural surveys and statistics suggest that HIV/AIDS is a very real issue for the rural population engaged in the agriculture sector.

The sector's comparative advantage in addressing the issue lies in its expertise in supporting sustainable agricultural livelihoods and increasing productivity, which in turn enhances food security. The role of the sector is therefore to ensure that vulnerable households -affected or infected by HIV- are food secure, thus prolonging the lives of affected people and the effectiveness of any medication they may have access to. MINAGRI works closely with institutions that have the expertise to identify vulnerable groups to be able to target affected and vulnerable households.

The way the sector is organized, with networks of cooperatives and extension workers, increases the opportunities to roll out prevention and positive-living messages to the community. Furthermore, by supporting households to grow nutritious crops rich in minerals and proteins, the sector supports individuals with HIV with the ability to stay well for longer. Thus the sector can contribute to reduced vulnerability and sustainable productivity in general. MINAGRI has therefore included several activities in its action plan for 2010/11 (Table 3.3).

Table 3.3 MINAGRI action plan with HIV related activities

Sub-programme	Activity	Output	HIV NSP output result No.
SP 1.5: Supply and use of inputs	Provide agricultural inputs such as seeds and fertilizer	Vulnerable households have improved food security status	1.1.4 Households of persons affected by HIV have food security
SP 2.1: Promotion of farmers' organizations and capacity building of producers	Train vulnerable women to prepare and maintain kitchen gardens	Farmers have increased knowledge and skills for sustainable livelihoods	3.1.1.1 Increased skills and education for infected and affected persons including child-headed households
SP 2.1: Promotion of farmers' organizations and capacity building of producers	Increase knowledge of HIV/AIDS among the rural population	HIV component (information on prevention, care and impact mitigation and referrals) included in the extension workers in-service training	1.1.1.1 General population reached by HIV prevention
SP 4.1: Institutional strengthening and capacity building	Recruit and HIV focal point to coordinate, plan and report on the HIV response in the sector	Coordinated HIV response in the sector	Focal points in all sectors

Gender in the agriculture sector

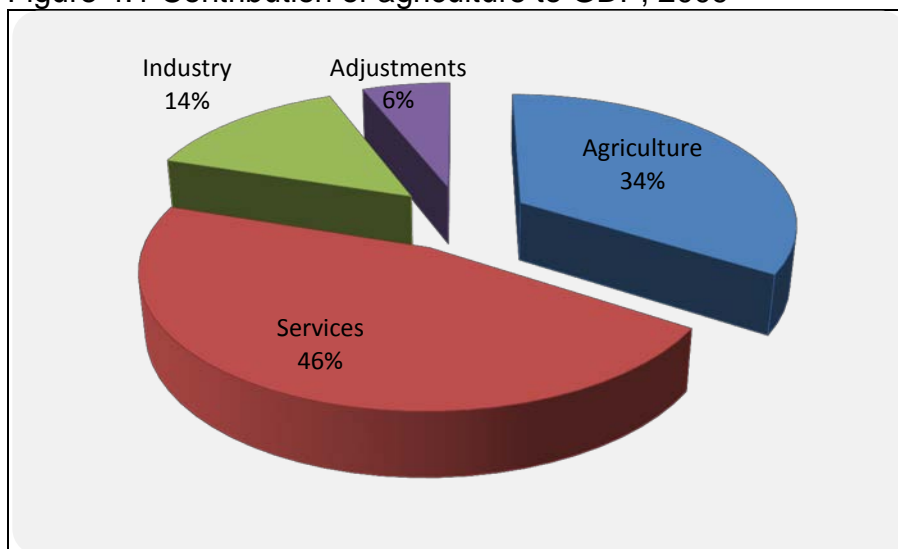
As gender is an extremely important issue in the agriculture sector, MINAGRI is one of the pilot ministry's for the Gender Budget Initiative. MINAGRI therefore submitted a separate Gender Budget Statement with its budget submission.

CHAPTER 4. AGRICULTURAL INVESTMENT TRENDS AND OPPORTUNITIES

4.1 Background

According to Rwanda's Vision 2020, the national economy is expected to shift from a traditional agricultural to a knowledge-based economy by 2020. Currently the economy is dominated by the agriculture sector (Figure 4.1), which contributed 34% of GDP in 2009 and more than 50% of exports, and employed 8 out of 10 of the country's workers (NISR, 2010a).

Figure 4.1 Contribution of agriculture to GDP, 2009



Source: NISR (2010a).

To achieve this objective, PSTA is focusing on four key sub-programmes. These are intensification and development of sustainable production systems, support to the professionalization of producers, promotion of commodity chains and agribusiness development, and institutional development.

4.2 Investment opportunities

As mentioned above, agriculture is the sector which employs most of the population. This goes hand-in-hand with investment opportunities and strategy. Apart from the aforementioned areas where government, its partners and the private sector are intervening, other areas can be included to improve the sector and to meet the targets defined in Vision 2020, Millennium Development Goals (MDGs) and EDPRS. According to the Rwanda Development Board, the agriculture sector is one of the eight key priority sectors for investment. The other key priority sectors for investment are information and communication technology (ICT), tourism, energy, mining, finance sector, infrastructure, and real estate and construction. This confirms the commitment of the government to transform the agriculture sector from a subsistence to a professional activity.

The Government of Rwanda therefore decided to privatize most of the state-owned enterprises operating in the agriculture sector. According to the privatization programme set up in 2003, nine tea factories managed by the Rwanda Tea Development Authority (OCIR-Thé) are affected by this programme. Assets

proposed for privatization include the factory, the industrial bloc, woodlots and social infrastructure. For other cash crops such as coffee and horticulture, opportunities still exist for investment to increase the competitiveness of the country in the international market.

Agro-processing, especially for cassava and maize, presents another opportunity for investors. Due to the crop intensification and land use consolidation policies, the production of these two crops has increased significantly. This requires investment in adding value to these crops for markets.

The same strategy should be applied to the dairy industry. The One Cow Program has contributed significantly to increasing animal production, especially milk production. This also presents a good opportunity for the dairy industry for both national and regional markets. Given the very large share of dairy farming in agricultural GDP and the rapid growth rate of the sector through this programme and other breeding and animal importation initiatives, it is reasonable to conclude that investment in the dairy sector creates significant job opportunities in Rwanda. Many people are employed in the wide range of enterprises involved in moving milk from the farm to the consumer, including retail outlets (such as milk kiosks), mobile milk traders in the informal sector, and milk processors and distributors in the formal sector. These people and enterprises generate indirect employment by buying services and products, such as bicycles, milk equipment repair and milk packaging material.

4.3 Agriculture planning and budgeting

Intensification and development of sustainable production systems

The Intensification and Development of Sustainable Production Systems (IDSPS) programme is focusing on relieving the physical and economic constraints to the sector's development in the areas of food and nutrition security, erosion control, water capture and management, and input use. This programme anticipates that production per hectare will expand sufficiently to achieve the production targets for food and nutrition security that will stimulate broad-based economic growth. Due to the depth of poverty, this programme is an urgent priority, to which more than half the sector's public resources will be allocated.

MINAGRI scaled-up efforts to increase agricultural productivity through increasing financing for crop intensification programmes to increase land productivity per hectare. Over Rwf 13 billion have been spent to buy fertilizers and seeds. This has been supported by land consolidation initiatives that have facilitated provision of extension services. About 254,000 ha of land have been consolidated and 30,000 tons of fertilizers used on priority crops. The resulting agricultural yield has substantially increased self-sufficiency in food production.

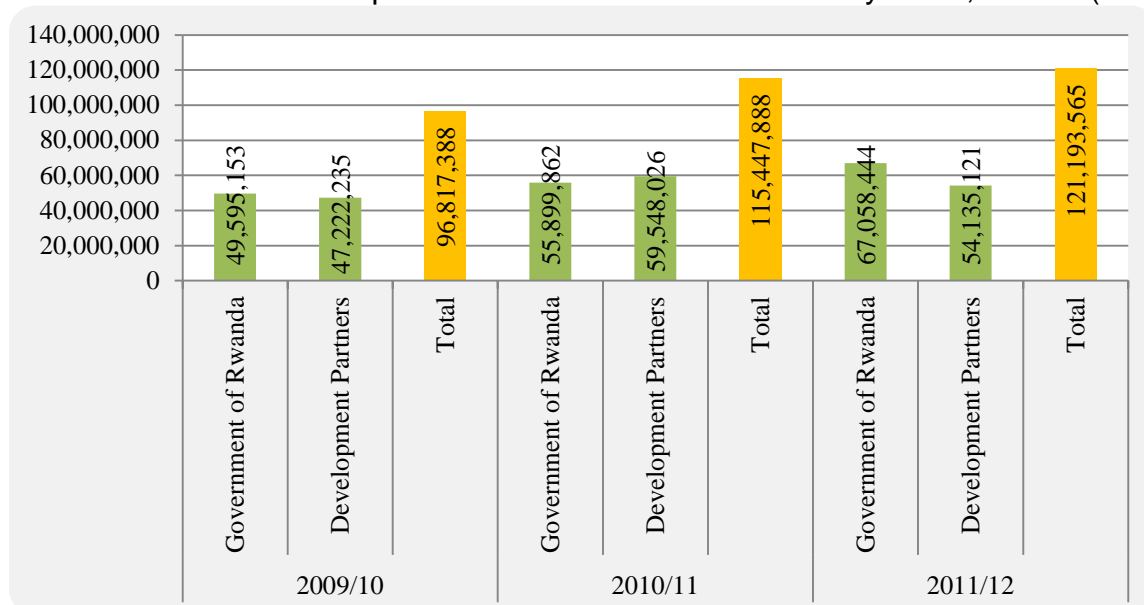
Livestock development was enhanced through the One Cow Program and this has been supplemented with the construction of milk collection centres and provision of enhanced veterinary services. A total of 10,000 poor families have benefited from the One Cow Program.

MINAGRI increased the coverage of irrigated land through small-scale irrigation projects, especially in the Southern and Eastern provinces by constructing 144 ponds in 8 districts. MINAGRI also implemented a post-harvest programme to ensure food security. Under this programme, farmers have been able to store 7,000 tons of maize and 3,000 tons of beans.

In the period 2009–2012, the government increased public expenditure for the Intensification and Development of Sustainable Production Systems Programme, as this budget changed from RwF 49 million to RwF 55 million and RwF 67 million respectively in 2009/10, 2010/11 and 2011/12. The contribution of development partners followed the same trend because the amount allocated to this programme increased from RwF 47 million to RwF 59 million and to RwF 54 million respectively in 2009/10, 2010/11 and 2011/12. The public expenditures basically focus on four sub-sectors namely (Figure 4.2):

1. Sustainable management of natural resources and water and soil preservation
2. Integrated systems of crops and livestock
3. Marshland development and irrigation development
4. Supply and use of agriculture inputs

Figure 4.2 Government of Rwanda and development partner expenditure for Intensification and Development of Sustainable Production Systems, IDSPS (RwF)



Source: Own calculation based on the MINAGRI Agricultural Investment Plan, 2009–2012.

As has been observed, development partners are not intervening in food security and vulnerability management. They concentrate their efforts on irrigation management, as the larger part of their contribution is allocated to this sub-sector.

The investment from the private sector in the programme of intensification and development of a sustainable production system is about RwF 18 million for the period 2009–2012 (Table 4.1). The private sector's contribution is 5.5% of what the government and development partners invest in intensification and development of sustainable production systems. This investment focuses on developing a private agro-inputs network, methane-based fertilizer production, production and

multiplication of basic seeds, and the contribution of water usage associations (WUAs) to marshland maintenance and irrigation.

Table 4.1 Private sector investment in IDSPS (RwF)

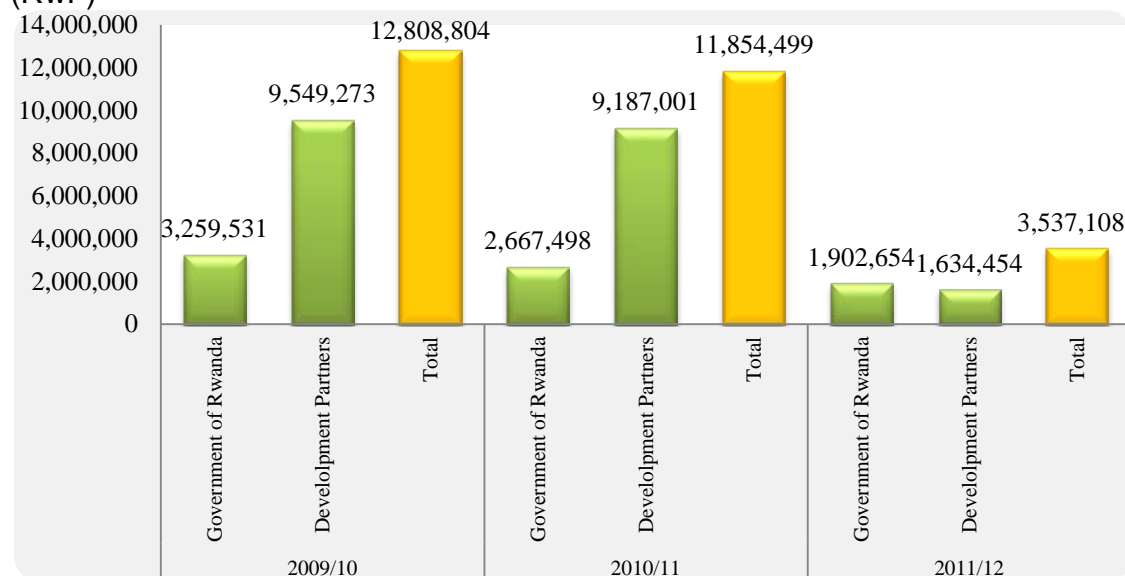
Activity	Total cost	2009/10	2010/11	2011/12
Developing a private agro-inputs network ('000)	6,300	2,100	2,100	2,100
Methane-based fertilizer production ('000)	3,000	1,000	1,000	1,000
Production and multiplication of basic seeds ('000)	3,600	1,200	1,200	1,200
Water usage associations (WUAs) contribution to marshland maintenance and irrigation ('000)	5,400	1,800	1,800	1,800
Total ('000)	18,300	6,100	6,100	6,100

Source: MINAGRI, Agricultural Investment Plan, 2009–2012.

Support to the Professionalization of Producers

The Support to the Professionalization of Producers (SPP) programme aims to acquire a high level of professionalism through client-oriented research and extension and proximity services. The related objective is to halve the number of households reached per extension agent and triple the number of farmer associations that are upgraded to cooperatives with higher commercial and technical capacities.

Figure 4.3 Government of Rwanda and development partner investment for SPP (RwF)



Source: Own calculation based on MINAGRI, Agricultural Investment Plan, 2009–2012.

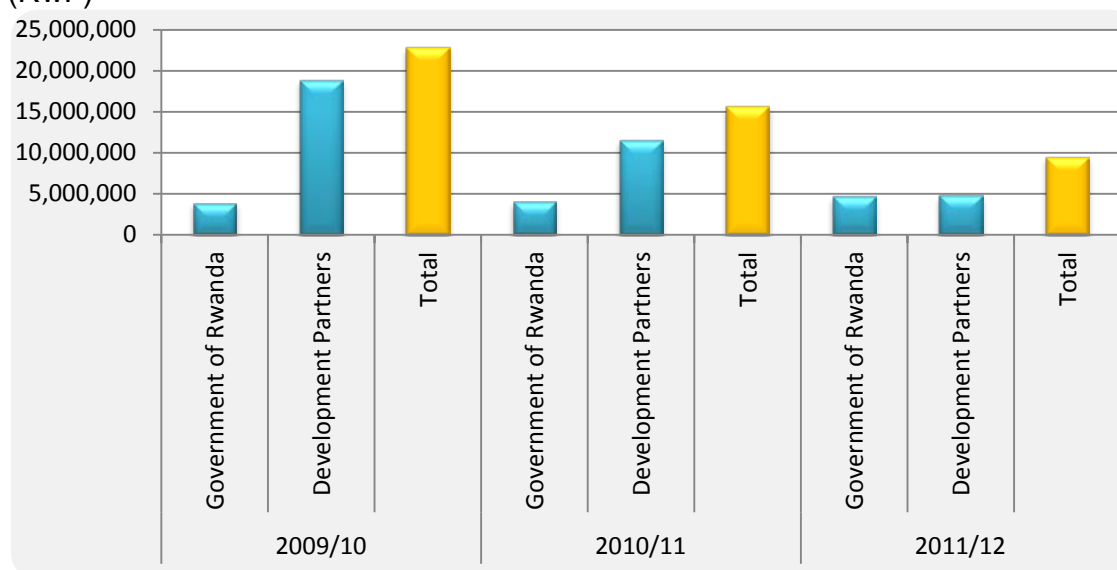
In support to the professionalization of production, the government budget allocated about RwF 7.8 million in 3 years to this sub-sector and development partners contributed more than RwF 20 million (Figure 4.3). This represents 72% of the entire investment of the government and partners in the sub-sector. The areas of intervention are promotion of farmers' organizations and capacity building for

producers, restructuring proximity services for producers, and research for transforming agriculture. The private sector contributed an equivalent of Rwf 600,000 in the three years to hire private extension agents.

Promotion of Commodity Chains and Agribusiness Development

The focus of the Promotion of Commodity Chains and Agribusiness Development (PCCAD) programme is to create the environment, infrastructure and knowledge necessary to develop a strong inputs and processing sector.

Figure 4.4 Government of Rwanda and development partner investment for PCCAD (RwF)



Source: Own calculation based on MINAGRI, Agricultural Investment Plan, 2009–2012.

PCCAD is focusing on creating an environment conducive to business and entrepreneurship development and market access; promotion and development of traditional export crops; development of non-traditional, high-value export crops; production and value-addition for domestic staple products; market-oriented rural infrastructure; and strengthening rural financial systems. Development partners contribute more than 73% of all public investment (Figure 4.4). Market-oriented infrastructure takes the major part of both the government and development partner budgets.

Table 4.2 Private sector investment in PCCAD (RwF)

Activity	Total cost ('000)	2009/10 ('000)	2010/11 ('000)	2011/12 ('000)
Flower park development	14,000	0	0	0
Fresh wholesale food market	32,000	0	0	0
PPP for juice concentrate production	4,500	0	0	0
Mukamira milk processing plant	4,500	0	0	0
Creation of coffee roasting and packaging units	535	235	150	150
Tea packaging and blending plant	900	900,000	0	0

Warehouse receipt systems	300	100	100	100
Total	56,735	1,235	250	250

PPP = public-private partnership.

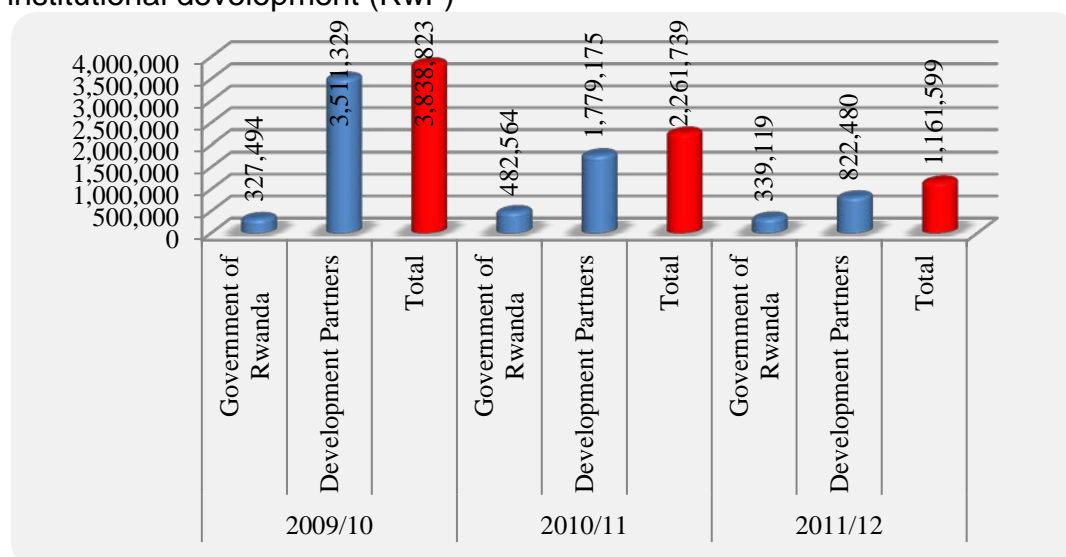
Source: MINAGRI, Agricultural Investment Plan, 2009–2012.

The private sector's investment in the programme has reached RwF 56 million in 3 years. The main areas of intervention are given in Table 4.2. However, the secured investment is much smaller than the cost of investment. This represents a shortfall of RwF 55 million in the investment needed in the sub-sector.

Institutional development

The institutional development programme seeks to strengthen the institutional environment, particularly MINAGRI, to improve capacity to implement the sector's strategy.

Figure 4.5 Government of Rwanda and development partner investment for institutional development (RwF)



Source: Own calculation based on MINAGRI, Agricultural Investment Plan, 2009–2012.

This programme focuses on institutional strengthening and capacity building; the policy and regulatory framework in the agriculture sector; agricultural statistics and ICT; M&E systems and coordination of the agriculture sector; and a decentralization programme for agriculture. The budget allocated to this sub-sector is less than that allocated to other sub-sectors (Figure 4.5). The intervention is exclusively financed by the government and its partners. No private investment is expected in this area.

4.4 Budget analysis

Table 4.3 summarises the evolution of the MINAGRI budget between 2000 and 2011. The budget figure has fluctuated from year to year, varying from RwF 8 billion in 2000 to RwF 67 billion in 2010/11, but most importantly, doubling between 2009/10 and 2010/11.

Table 4.3 MINAGRI budget allocation, 2000 to 2011 (RwF million)

Year	Recurrent			Development	Total
	Wage*	Non-wage	Total		
2000	896	645	1,540	6,747	8,288
2001	954	1,121	2,075	10,725	12,801
2002	865	1,247	2,112	10,940	13,052
2003	1,000	1,368	2,369	7,423	9,792
2004	904	2,466	3,370	9,915	13,285
2005	1,128	3,580	4,708	7,959	12,667
2006	1,564	3,043	4,608	8,658	13,265
2007	2,035	2,394	4,429	13,517	17,946
2008	550	4,014	4,564	17,385	21,949
2009/2010	2,218	4,783	7,001	24,088	31,089
2010/2011	3,079	4,924	8,003	58,987	66,991

* This is made up of wages, salaries, allowances and other benefits and employer contributions, including social protection ("SSF and healthcare"). Non-wage recurrent items include: telecommunications, office equipment and supplies, rent, car hire and building maintenance. Sources: MINECOFIN (2011).

When comparing budgeted and actual agriculture expenditures and using data for six years for which complete "actuals" are available (2003 to 2008), MINAGRI expenditure was significantly different from the funds budgeted. Execution rates varied between 48% in 2009 to 127% in 2005 (Table 4.4).

In 2009 the country was transitioning from calendar year to financial year. The figure therefore covers only two semesters. This may partly explain the variations in release against revised budget.

Table 4.4 MINAGRI budget and actual expenditure, 2003 to 2008 (RwF million)

Year	Budget	Actual	(%)	Budget	Actual	(%)	Budget	Actual	(%)
	Recurrent			Development			Total		
2003	2,369	1,470	62.1	7,423	5,223	70.4	9,792	6,693	68.4
2004	3,370	3,157	93.7	9,914	7,215	72.8	13,284	10,372	78.1
2005	4,707	4,753	101.0	7,959	11,395	143.2	12,666	16,148	127.5
2006	4,607	3,426	74.4	8,657	12,568	145.2	13,264	15,994	120.6
2007	4,428	4,229	95.5	13,516	13,728	101.6	17,944	17,957	100.1
2008	4,563	4,503	98.7	17,385	18,856	108.5	21,948	23,359	106.4
2009	7,514	7,233	96.3	13,552	6,487	47.9	21,066	13,720	65.1
2009/10	6,999	6,999	100.0	50,087	24,477	48.9	57,086	31,476	55.1
2010/2011	7,753	7,426	96.0	26,322	37,783	144.0	34,075	45,209	133.0

Source: MINECOFIN (2010b); MINAGRI (2010a).

The high actual expenditure figure for 2005 can be explained wholly by expenditure by the Rural Sector Support Project (RSSP) which was RwF 3.6 billion over the budgeted amount. This is attributable to improved efficiency in procuring goods and services. The causes of the significant under-spend in the two other years is undetermined, although it occurred mainly on the development budget (aggravated in 2003 by an additional under-spend on the recurrent budget of only 63% of budgeted funds). It is likely to be a manifestation of some of the problems often associated with project assistance that include low levels of actual disbursement caused in part by complex procurement procedures and erratic funding commitments.

However, the overall national budget was similarly significantly under-spent, with execution rates of 90% in 2003, 87% in 2004 and 96% in 2005. Thus, the MINAGRI rate of budget execution appears to be little more than a slightly magnified reflection of the factors that affected the national budget in the first two years, whilst its performance was significantly better than that realized by the national budget in 2005.

An analysis of the financial year 2010/11 budget indicates an execution rate of 132.67% for MINAGRI due to the over-execution of the development budget. Irrigation, Crop Intensification Program and Food Security and Vulnerability Management over-executed their budgets significantly given their developmental importance. Secondly, the execution rate also conveys an improving level of capacity within MINAGRI to disburse and execute the budget.

As it can be seen from Table 4.5, the figures used at the initial stage in the planning differ greatly with the final figures on resources put in the budgets. This indicates that modifications are made to the Medium-Term Expenditure Framework (MTEF) and budget ceilings as sectors prepare their budget framework papers and later when the proposed budget is considered by Cabinet and Parliament. Table 4.5 shows such variation for 2008, 2009 and 2010.

Table 4.5 Recurrent and development budget of agriculture, 2008–2009/10 (RwF)

Item	2008	2009	2009/10
Approved	26,311,048,000	21,069,933,000	55,590,603,000
Revised	21,948,901,000	7,918,352,000	57,090,603,000
Released	24,067,832,000	12,074,280,000	31,089,002,000

Source: MINAGRI (2010a).

When the information in Table 4.6 is broken down to programme level, it appears that modifications are made on the sector budget ceiling, but more for programmes 3 and 4. Indeed, the country is committed to allocate resources to the intensification and development of sustainable production systems and to support the professionalization of producers. A close look at the analysis shows that supply and use of inputs was affected by a reduction of only 0.62% from the approved figures while irrigation development, food security and vulnerability management witnessed a significant increase of 23% and 113% respectively.

Table 4.6 Changes in the agriculture budget, FY2009/10 (RwF million)

Programmes	2009/10			
	Approved	Revised	Variation	%
Programme 1. Intensification and Development	36,797	38,573	1,776	4.9
Natural Resources and Water and Soil Conservation	5,401	5,401	-	-
Agricultural and Livestock Production	4,926	5,307	381	7.7
Marshlands Development	4,791	4,791	-	-
Irrigation Development	4,303	5,303	1,000	23.2
Supply & Use of Agriculture Inputs	16,935	16,830	-105	-0.6
Food Security and Vulnerability Management	440	940	500	113.6
Programme 2. Support to the Professionalization	4,565	4,797	232	5.1
Promotion of Farmers Organization and Capacity	1,809	1,797	-12	-0.7
Restructuring of Proximity Services for	51	46	-5	-9.8

Producers				
Research for Transforming Agriculture	2,686	2,936	250	9.3
Rural Financial and Credit Development	20	19	-1	-5.2
Programme 3. Promotion of Commodity Chains and Agribusiness	9,005	9,163	158	1.7
Conducive Environment for Business	59	35	-24	-40.8
Promotion and Development of Traditional Export	400	400	-	-
Rural Support Infrastructures	35	193	158	451.4
Market Oriented Rural Infrastructure	3,628	3,652	24	0.7
Rural Finance—PPCU (MINAGRI CENTRAL)	4,883	4,883	-	-
Programme 4. Institutional Development	5,224	4,558	-666	-12.7
Management Support	1,936	1,339	-597	-30.9
ICT Development and Coordination	225	178	-47	-20.9
Planning, Monitoring and Evaluation	3,063	3,042	-21	-0.7
Total	55,591	57,091	1,500	2.7

Source: MINAGRI (2010a).

The budgetary execution in terms of PSTA II programmes is detailed below (Table 4.7):

1. Intensification and Development of Sustainable Production Systems
2. Professionalization of Producers and other Agents
3. Commodity Chain Promotion, Horticulture and Agribusiness Development
4. Institutional Development

Table 4.7 MINAGRI quarterly execution by PSTA programmes (RwF million)

Programme	Quarterly execution (RwF)				Total	Execution rate
	Q1	Q2	Q3	Q4		
1.	4,868	11,030	10,774	10,605	37,278	144%
2.	803	1,152	961	652	3,568	95%
3.	324	691	150	985	2,150	99%
4.	409	465	323	1,017	2,214	97%
Total	6,404	13,338	12,208	13,260	45,210	

Source: MINAGRI (2010a).

The agriculture sector budget also includes the transfers earmarked for the districts—transfers from the national government comprising the earmarked grants—budgeted as recurrent transfers following PSTA II programmes (MINAGRI, 2008a):

1. Intensification and Development of Sustainable Production Systems
2. Professionalization of Producers and other Agents
3. Commodity Chain Promotion, Horticulture and Agribusiness Development

In the 2010/11 financial year 2.9 billion RwF was initially earmarked to be transferred to districts in July 2010 and was increased in the budget revision to 4.0 billion RwF (MINAGRI, 2010a). This is a significant increase compared to the 1.2 billion RwF in the 2009/10 financial year. In the 2011/12 budget approved by Parliament, RwF 4.1 billion was finally earmarked for agriculture in districts. For 2011/12, the budget revision midway in the financial year is expected to increase the amounts earmarked

for transfer to districts. For the 2012/13 and 2013/14 financial years, as absorption capacity improves, districts are expected to receive increased direct transfers to implement the programme of agricultural transformation.

Fiscal decentralization is still a relatively recent initiative in Rwanda. The 2010 District PFM Needs Assessment Study identified several fields in which improvements were necessary and made recommendations to overcome the difficulties. To build capacity, MINAGRI has sought to engage districts in the decentralization process.

In terms of transfers to districts, the two major factors that determine allocation are:

- 50% population: Based on the population census, the population index makes up 50% of the allocation.
- 50% cultivated area: The area index refers to the cultivated area of the District and is also 50%.

Since most of the population is employed in the agriculture sector, and since this population represents the highest proportion of the population living below the poverty line, the government must increase the budget allocated to this sector. The major objective of this increase would be to meet the challenge of poverty reduction and agriculture sector development, and to prioritize these investments.

4.5 Rwanda's progress toward meeting CAADP commitments

In relation to CAADP commitments, the following analysis assesses the country's success in achieving key targets set out in MDG1 and in CAADP based on available national data.

MDG1 hunger target

Available data permit an assessment of progress toward reducing the proportion of hungry people, but does not allow an examination of success in reducing the proportion of people living below the poverty line. Recent data show that despite the high economic growth, poverty rates have not fallen proportionately, declining only by 3.5%, from 60.4% to 56.9% between 2000 and 2006. The continuing high levels of poverty can be attributed to low levels of growth in agricultural productivity, particularly between 2000 and 2006. The analysis of growth options conducted to inform the selection of priority investment areas shows that achieving MDG1 will require an increased focus on rural incomes and rural outputs.

Table 4.8 shows the two indicators measuring the proportion of hungry people, namely, the prevalence of underweight children under the age of five years, and the proportion of the population that falls below the minimum level of dietary energy consumption.

Table 4.8 MDG1: Eradicate extreme poverty and hunger

Indicator	2000 (base year)	Latest (2005)	2015 target
Poverty prevalence (%)	60.4	56.9	30.2
Child 0–5 years stunted (%)	43	45	24.5
Child 0–5 years wasted (%)	7	4	2
Child 0–5 years underweight (%)	24	22.5	14.5

Protein deficiency per capita (%)	44	-	22
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Source: MINAGRI (2009).

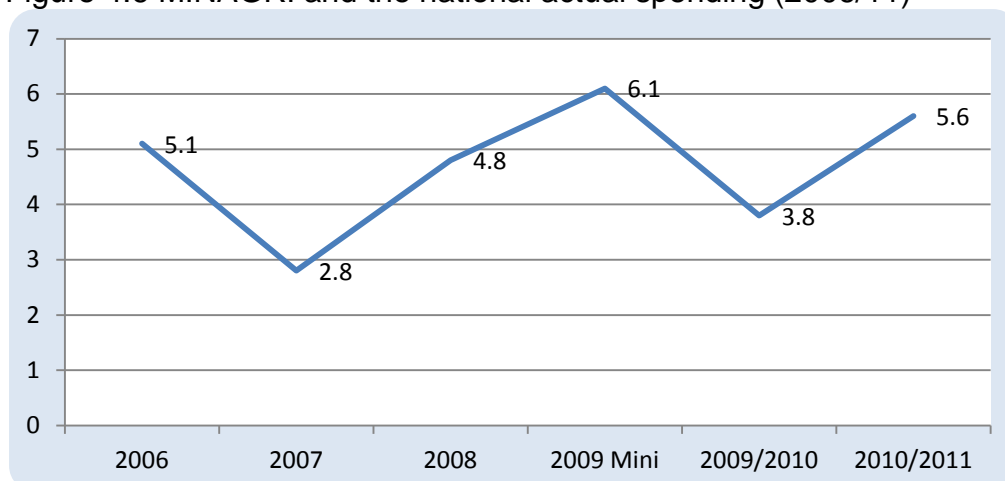
The proportion of underweight children in 1992 was 29%, declining to 24% in 2000 and 22.5% in 2005, nearly the same as it was five years earlier (NISR, 2007). This means that malnutrition of children under five years old continues to present challenges.

According to NISR (2007), a rural–urban divide persists, with rural and urban areas having underweight rates of 23.5%, and 16.2%, respectively. Other important factors that affect underweight rates include the level of education of mothers and income level. The percentage of underweight children was greater for the poor and for the least educated mothers.

Budget allocation to agriculture

Information on the proportion of the national budget accounted for by MINAGRI shows significant fluctuation over the years (Figure 4.6). For example, in 2002 agriculture accounted for 5.1% of the total budget; this figure fell significantly in the following year to only 3.9%. In the 2010/11 budget the allocation stood at 6.8%. This trend is expected to continue, given the up-scaling of MINAGRI programmes.

Figure 4.6 MINAGRI and the national actual spending (2006/11)



Source: MINECOFIN (2011).

The 2003 Maputo Declaration requires African governments to allocate at least 10% of their national annual budget to the agriculture sector to enhance its growth and development. Rwanda therefore reviewed its 2010/11 budget to align with the shared development goals of CAADP and to boost the sector’s productivity.

The relative importance alters much when other (non-MINAGRI, but agriculture-related) budget data are added to the total MINAGRI budget to give as comprehensive a picture as possible of public funding of the agriculture sector. Widening the definition of “agriculture” as per the Classification of Functions of Government (COFOG) definition by CAADP (see Box 1), public expenditure to the agricultural sector stand, at present, at RwF 100 billion or 10.2% of the total national budget, which is RwF 984 billion. A big share of the agriculture budget, equivalent to RwF 67 billion representing 6.8%, goes to MINAGRI. The remaining RwF 33 billion,

representing 3.4%, is allocated to other public institutions involved in the agriculture sector (i.e. ministries of trade and industry, infrastructure, natural resources, local government; National Bank of Rwanda, Rwanda Development Bank and Rwanda Cooperative Agency).

In addition, Rwanda received US\$ 50 million from GAFSP to invest in the LWH Project of MINAGRI. The infrastructure and social sectors take a large share of the national budget.

Box 1

Core areas of government functions relevant to the agriculture sector based on the Classification of Functions of Government (COFOG)

Agriculture (includes crops and livestock):

- Administration of agricultural affairs and services; conservation, reclamation or expansion of arable land; agrarian reform and land settlement; supervision and regulation of the agricultural industry
- Construction or operation of flood control, irrigation and drainage systems, including grants, loans or subsidies for such works
- Operation or support of programmes or schemes to stabilize or improve farm prices and farm incomes; operation or support of extension services or veterinary services to farmers, pest control services, crop inspection services and crop grading services
- Production and dissemination of general information, technical documentation and statistics on agricultural affairs and services
- Compensation, grants, loans or subsidies to farmers in connection with agricultural activities, including payments for restricting or encouraging output of a particular crop or for allowing land to remain uncultivated
- Administration and operation of government agencies engaged in applied research and experimental development related to agriculture
- Grants, loans or subsidies to support applied research and experimental development related to agriculture by research institutes and universities

Forestry:

- Administration of forestry affairs and services; conservation, extension and rationalized exploitation of forest reserves; supervision and regulation of forest operations and issuance of tree-felling licenses
- Operation or support of reforestation work, pest and disease control, forest fire-fighting and fire prevention services and extension services to forest operators
- Production and dissemination of general information, technical documentation and statistics on forestry affairs and services
- Grants, loans or subsidies to support commercial forest activities
- Administration and operation of government agencies engaged in applied research and experimental development related to forestry
- Grants, loans or subsidies to support applied research and experimental development related to forestry and undertaken by research institutes and universities

Fishing:

- Administration of fishing affairs and services; protection, propagation and rationalized exploitation of fish stocks; supervision and regulation of freshwater fishing, coastal fishing, ocean fishing, fish farming and issuance of fishing licenses
- Operation or support of fish hatcheries, extension services, or stocking activities, etc.
- Production and dissemination of general information, technical documentation and statistics on fishing affairs and services
- Grants, loans or subsidies to support commercial fishing activities, including the construction or operation of fish hatcheries
- Administration and operation of government agencies engaged in applied research and experimental development related to fishing
- Grants, loans or subsidies to support applied research and experimental development related to fishing undertaken by research institutes and universities

CHAPTER 5. AGRICULTURAL GROWTH PERFORMANCE

5.1 Background

Agriculture remains the backbone and the most important sector of the Rwandan economy. It is seen as a major engine of growth for the economy and its modernization is one of the six components (pillars) of Vision 2020, which describes the basic development objectives of the country over the long term. The government programme of development aims to accord the agriculture sector the highest priority, with a fundamental transformation of the sector from subsistence to commercial production.

The good performance of the sector boosted Rwanda's real GDP from 7.9% in 2007 to 11.4% in 2008. The harvest for the 2010A agriculture season marked an increase of 6.2%, rising from 4,783 million tons in 2009A to 5,079 million tons in 2010A season (BNR, 2010A).

5.2 Agricultural food crop production

Agricultural production trends

Agriculture is dominated by small-scale, subsistence-oriented family farming units. These households produce a range of food crops such as cereals, roots and tubers, bananas, and vegetables, with approximately 66% of production destined for home consumption. The remaining 34% of production finds its way to local markets. Table 5.1 below gives the food crop production for the Season A from 2006 to 2011.

Table 5.1 Food crop production (000 tons)

Crops	2006A	2007A	2008A	2009A	2010A	2011A
Total crops	3,432	3,295	3,891	4,783	5,079	5,243
Cereals	116	128	232	331	414	409
Sorghum	13	14	13	20	14	8
Maize	66	74	133	217	327	341
Wheat	9	11	38	38	42	27
Paddy	28	29	48	56	31	33
Legumes	145	248	232	241	244	210
Beans	120	195	181	187	187	179
Peas	8	13	12	16	18	12
Groundnuts	6	6	6	6	5	6
Soya	12	34	32	32	34	13
Roots & tubers	1,567	1,156	1,625	2,048	2,405	2,588
Irish potatoes	759	374	573	822	1,035	1,113
Sweet potatoes	317	296	288	332	313	283
Taro	75	83	77	77	76	67
Cassava	416	403	688	818	981	1,124
Bananas	1,187	1,307	1,308	1,651	1,505	1,483
Vegetables and fruits	417	457	494	511	511	552

Source: MINAGRI (2010b).

Crops are produced mainly under un-irrigated conditions using mostly family labour and few or no purchased inputs. Approximately 60% of households also rear livestock for milk, eggs and meat. A minority of households also produce export crops such as coffee, tea and pyrethrum.

Food crops dominate the land area harvested, reflecting the subsistence-oriented agriculture of Rwanda. In 2007, pulses and oilseeds accounted for the largest share of total harvested area excluding traditional export crops (27.8%), followed by roots and tubers (25.9%), bananas (20.9%), and cereals (20.3%). Fruits and vegetables accounted for only 5% of total harvest land.

The overall production of cereals increased by 25.1% mainly due to the large increase in the production of maize (51.1%) and wheat (10.6%). Both the harvests of 2010 recorded an increase of 8.2% over 2009, driven by cereals and roots and tubers production which increased by 18.7% and 18.8% respectively. Productivity has increased due to an agricultural intensification strategy using improved seeds and more fertilizers.

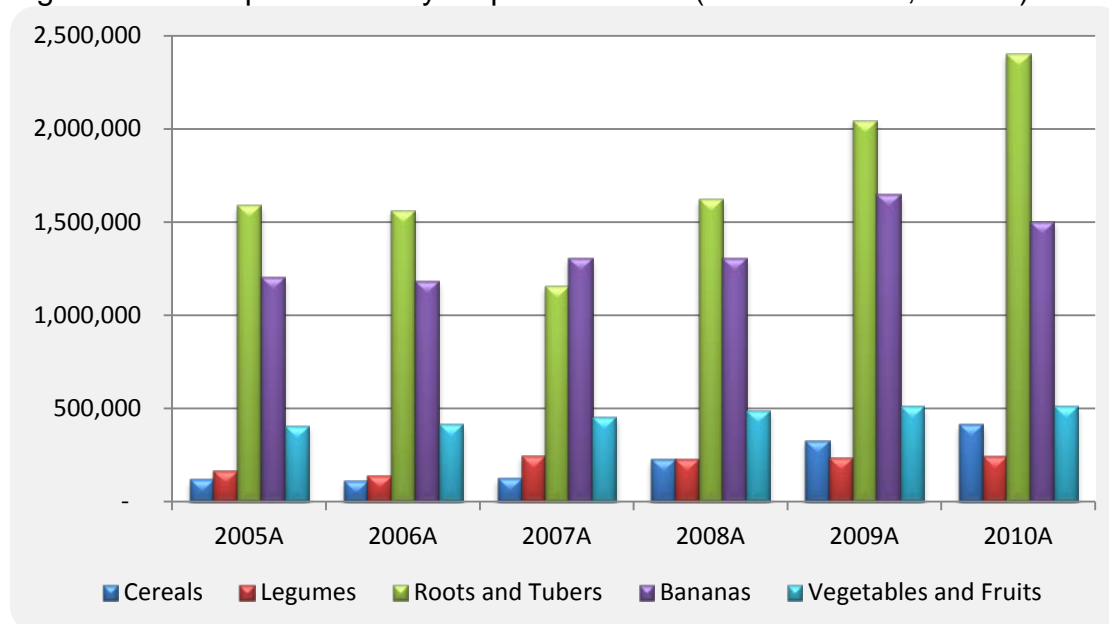
The total production of roots and tubers performed better by 17.4% mainly attributed to Irish potatoes and cassava whose production increased by 25.8% and 20.0% respectively. Cassava production has continued on an upward trend compared to the 2009A season. This increase was also attributed to the continuous expansion of land under cultivation and their relative production weight. It is essential to increase agricultural productivity to ensure that Rwanda meets its growth target.

The sustained good performance of agriculture is attributed to the Government crop intensification programme and favourable climatic conditions. Rwanda is currently recording a boom in maize production with an increase of 53.7% in 2010 over 2009. This performance is currently leading to a dynamic trade activity of this crop, especially between Rwanda and neighbouring countries.

According to the MINAGRI crop assessment reports, Rwanda is transitioning from the list of food insecure countries to the list of countries where food security is not threatened. The main causes of the increase in production are the improved yields of most of the main crops from different sectors of agricultural production; the government's green revolution policy; conducive climatic conditions and the increase in fertilizer use.

The production of bananas decreased by 8.8% compared to the same period of 2009A. This was the result of uprooting non-productive banana plantations that were heavily infected while maintaining those that are productive (Figure 5.1).

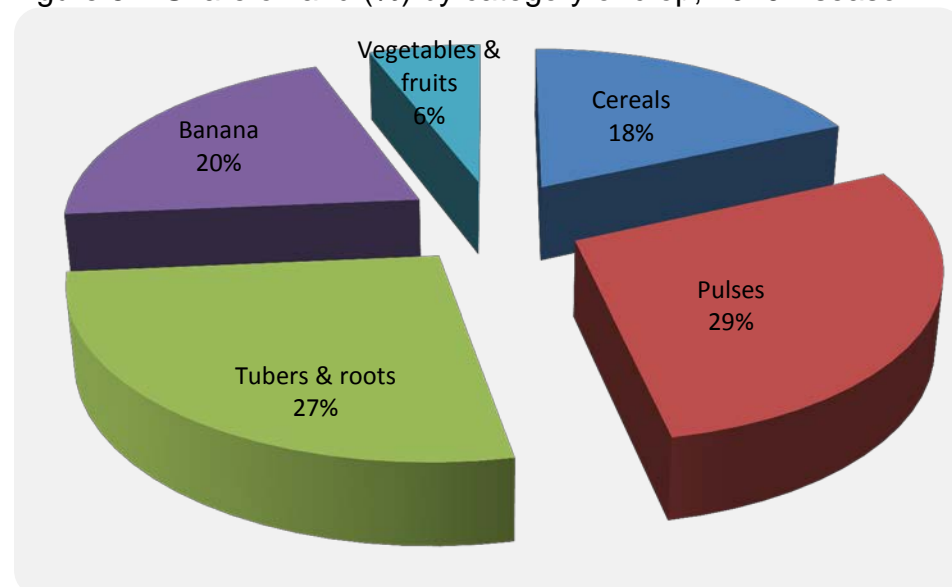
Figure 5.1 Food production by crop in season A (2005A–2010A, in tons)



Source: MINAGRI (2010b).

The land area measured in the crop assessment exercise comprised the land under cultivation, of which the planted crops would be harvested until the end of February 2010. Figure 5.2 shows that the share of land allocated to legumes and roots and tubers in 2010A was estimated at 29% and 27% respectively. The remaining cultivated area in 2010A was distributed as follows: banana (20%), cereals (18%) and vegetables (6%). Figure 5.2 also shows the share of land allocated to each individual crop.

Figure 5.2 Share of land (%) by category of crop, 2010A season



Source: BNR Quarterly Bulletin, First Quarter 2010.

Table 5.2 Distribution of cultivated area (%), 2002A–2011B

Crop	2002A	2002B	2003A	2003B	2004A	2004B	2005A	2005B	2006A	2006B	2007A	2007B	2008A	2008B	2009A	2009B	2010A	2010B	2011A	2011B
Sorghum	2	20	2	20	2	20	2	21	2	19	3	18	3	16	3	15	1	14	1	13
Maize	14	4	10	4	10	4	10	4	10	4	12	4	12	5	12	5	13	7	17	8
Wheat	0	1	1	1	1	1	1	2	1	1	1	2	2	4	2	3	2	4	2	3
Rice		0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Beans	38	18	25	19	24	15	25	13	25	19	24	19	22	17	22	19	21	16	22	16
Peas	3	2	3	2	3	2	3	2	3	1	3	1	2	2	2	3	3	3	2	3
Groundnuts	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Soya	3	2	2	2	3	2	3	2	3	2	4	2	5	3	5	3	5	3	2	3
Banana		22	22	21	22	22	22	22	22	22	20	21	21	18	21	19	20	19	20	19
Irish potato	11	7	9	8	10	7	9	7	9	7	7	6	7	7	7	6	10	8	10	7
Sweet potato	18	12	8	10	7	13	7	11	7	9	7	11	6	11	6	8	5	8	4	8
Yam & Taro	3	1	2	1	2	1	2	1	2	1	2	2	2	2	2	1	2	2	1	2
Cassava		8	10	7	8	9	7	7	7	7	8	8	10	10	10	11	11	11	12	11
Vegetables	5	3	4	3	3	2	3	3	3	3	4	3	4	2	4	2	4	2	3	2
Fruits					2	1	2	2	2	2	2	2	2	2	2	2	2	2	3	3
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Source: MINAGRI (2011).

Table 5.3 Yields trends (kg/ha), 2002A–2011B

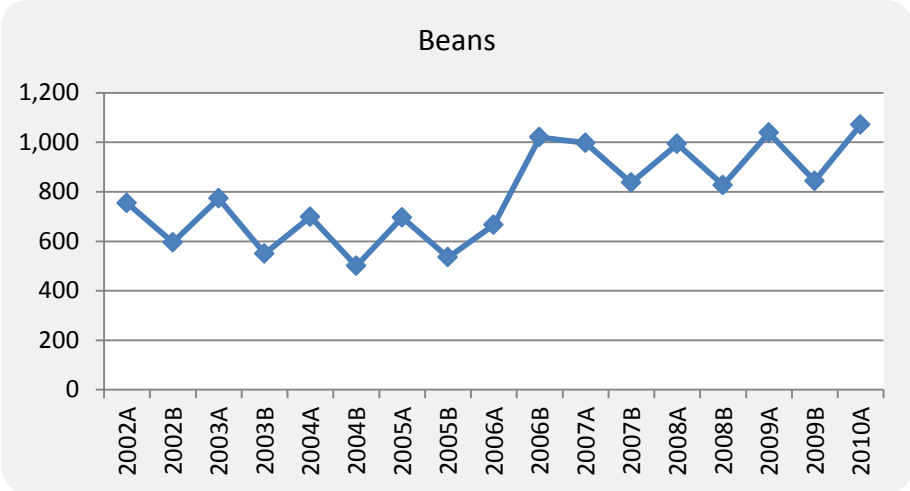
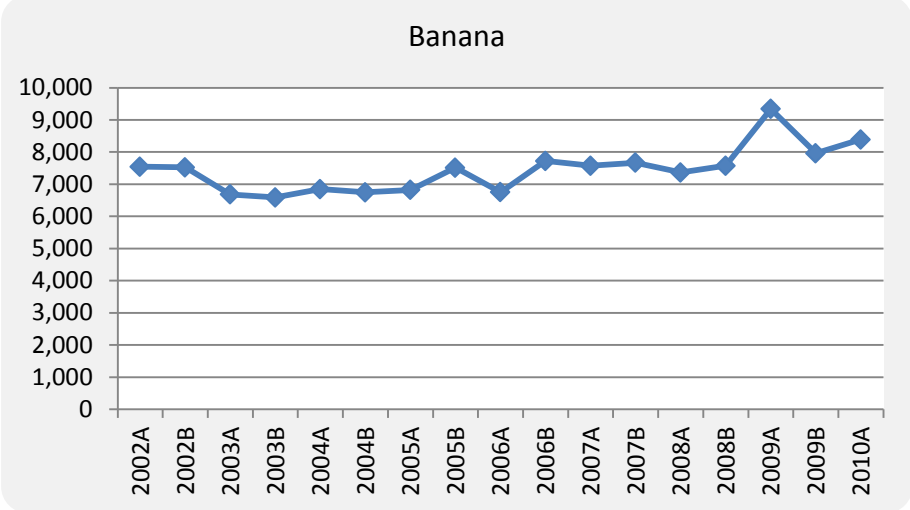
Crop	2002A	2002B	2003A	2003B	2004A	2004B	2005A	2005B	2006A	2006B	2007A	2007B	2008A	2008B	2009A	2009B	2010A	2010B	2011A	2011B
Sorghum	1,063	1,069	1,038	973	1,113	900	1,143	1,160	1,014	1,107	1,191	1,014	1,188	994	1,489	1,162	1,512	1,189	1,180	1,416
Maize	927	664	804	577	895	640	929	789	900	749	721	737	1,311	780	2,115	1,551	2,585	1,853	2,270	2,283
Wheat	800	755	725	538	736	779	786	1,012	786	933	841	939	1,791	961	2,181	1,371	2,077	1,329	1,924	2,039
Rice	2,714	3,335	4,000	1,890	4,374	3,298	4,113	4,508	4,409	4,759	3,422	5,006	4,318	4,636	4,500	5,942	5,236	5,137	4,317	5,751
Beans	755	595	773	550	698	500	696	535	666	1,020	997	836	993	827	1,038	843	1,071	970	937	1,011
Peas	541	411	532	336	579	422	579	493	573	515	533	533	570	548	723	762	880	728	779	978
Groundnuts	642	539	608	323	692	438	650	600	562	548	556	452	565	499	565	745	612	772	530	766
Soya	640	557	650	527	527	452	554	576	550	863	831	699	831	814	831	808	783	799	663	863
Banana	7,545	7,525	6,682	6,591	6,848	6,748	6,824	7,516	6,753	7,726	7,576	7,668	7,365	7,574	9,340	7,960	8,388	8,068	8,752	9,067
Irish potato	6,682	8,067	6,818	5,682	8,641	7,169	9,812	9,530	9,806	8,402	7,728	7,797	8,321	10,091	9,920	10,537	10,531	11,112	12,102	11,186
Sweet potato	7,027	6,056	6,455	5,591	5,850	5,423	5,868	6,016	5,813	5,484	5,435	5,898	5,434	5,567	5,753	7,139	7,617	7,409	7,971	8,086
Yam and taro	5,050	5,013	5,227	5,091	5,127	4,896	5,131	5,151	5,101	4,709	4,775	4,829	4,266	4,994	4,266	6,620	6,325	6,554	6,249	6,899
Cassava	7,700	7,098	7,318	6,255	7,616	6,099	7,641	5,870	7,573	5,360	5,729	5,155	14,581	11,809	15,411	12,345	11,413	12,609	10,917	13,933
Vegetables	5,273	4,500	8,000	16,364	9,769	13,396	9,747	13,299	9,683	10,859	10,132	11,647	10,101	11,475	10,084	11,071	10,782	11,454	11,063	11,488
Fruits					9,000		9,000	13,201	8,950	11,036	10,140	10,962	10,188	11,296	10,131	10,942	11,096	11,233	11,413	12,005

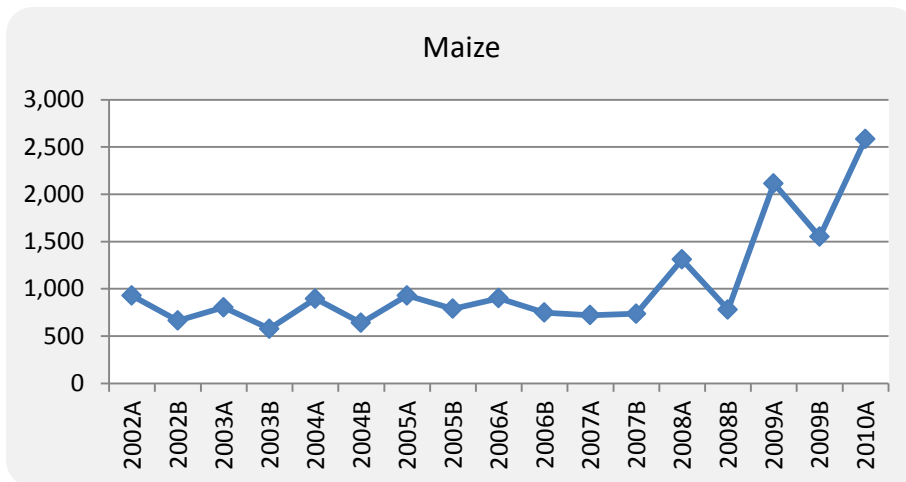
Source: MINAGRI (2011).

Table 5.2 shows land allocations for each crop between the 2002A and 2011B seasons while Table 5.3 gives the yield trends—production per unit of land—for each crop for the 2002A to 2011B seasons.

Figure 5.3 below provides the yield trends for banana, beans and maize. As illustrated, productivity for the three crops has increased over the years; the growth of maize being the most marked.

Figure 5.3 Yield trends of selected crops (kg/ha), 2002A–2010A

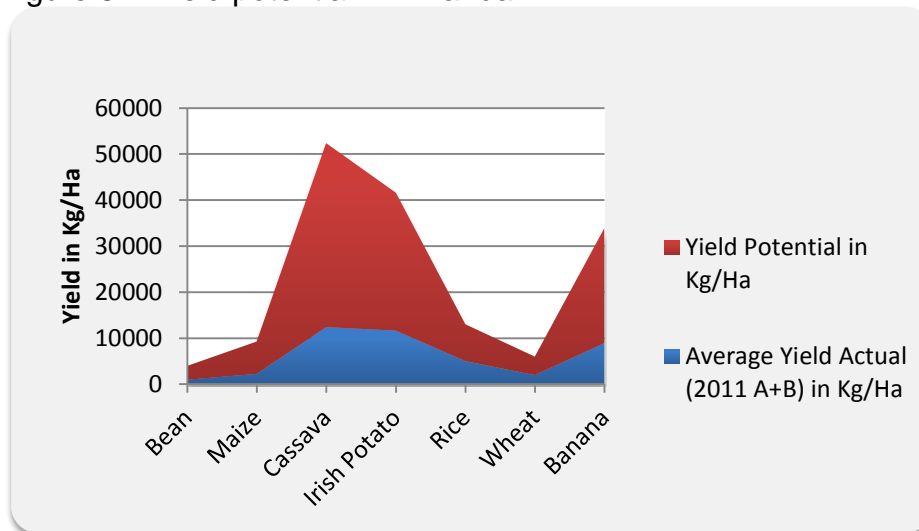




Source: MINAGRI (2010b).

While improvements of yield are evident, when set against the full forecasted potential, the current yields are still small. Figure 5.4 highlights the yield potential compared to the current yield.

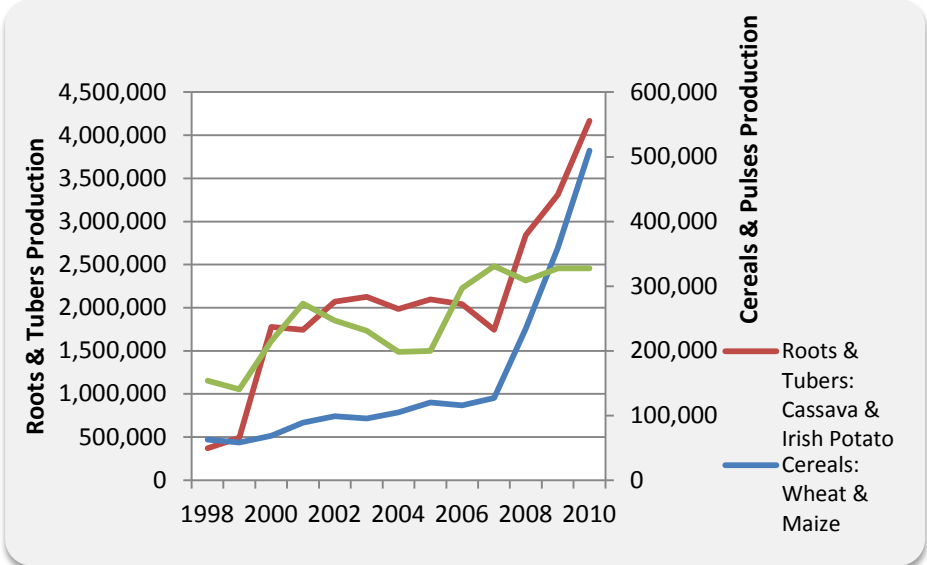
Figure 5.4 Yield potential in Rwanda



Source: MINAGRI (2011).

Putting the recent improvements into perspective, great improvements in food availability have been observed over the last decade. Figure 5.5 shows significant improvements in cereals and roots and tubers. The production of beans, a key protein, also increased from 1998 to 2010 by over 200%. Banana, sweet potato and sorghum are highly important crops for Rwandans historically. However, they show less sharp increases from 2007. Nevertheless, these crops remain at the core of the food basket for rural Rwanda.

Figure 5.5 Food production evolution



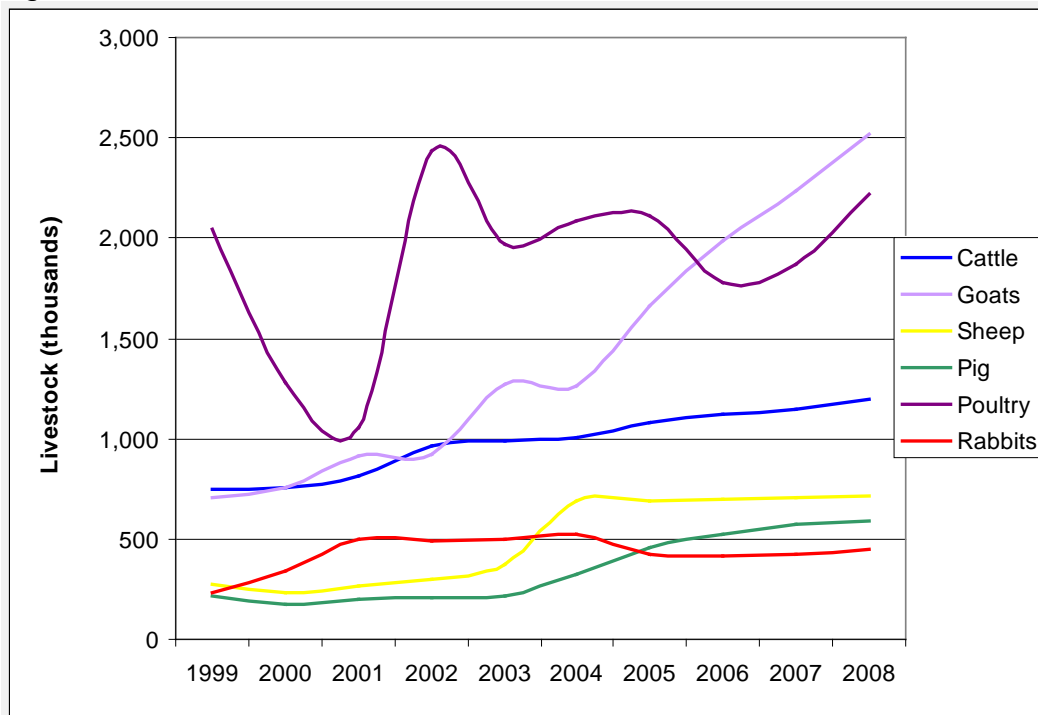
Source: MINAGRI (2011).

5.3 Livestock production

Rwanda has good natural conditions for livestock production, but shortage of land results in an emphasis on crops. This is compounded by the low productivity levels of many local species. A livestock census carried out in November 2008 by the Rwanda Animal Resources Development Authority (RARDA) shows an increase in all livestock numbers, except poultry, since 2001. Poultry was affected by avian flu (Figure 5.6). The growth in the goat population was most marked. Some of the increase in cattle numbers can be attributed to the One Cow Program which supplied poor farmers with cattle. This has been extended to providing goats and poultry too in recent years.

As small-scale farmers realize the marketability of poultry, the recorded population has increased rapidly. Cattle, sheep, pigs and rabbits have also increased in numbers, albeit more slowly.

Figure 5.6 Livestock numbers, 1999–2008

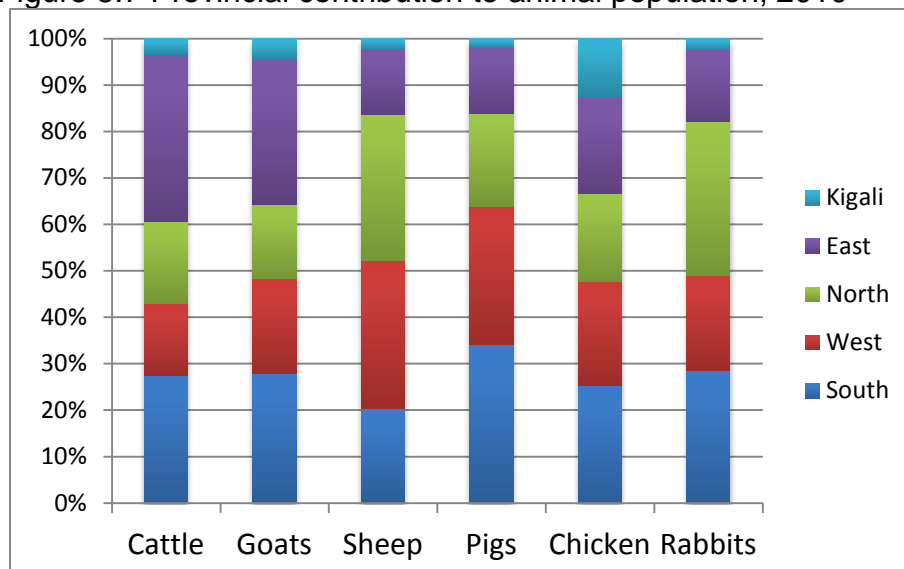


Source: MINAGRI (2010b).

In the 2010/11 financial year, the One Cow Per Poor Family programme distributed a total of 27,688 heifers to poor households. Since the beginning of the programme, 113,579 cows have been distributed to poor families and 19,352 cows have been “passed on” (MINAGRI, 2011).

Animal census data broken down to provincial level are given Figure 5.7. Without taking into account human population or farm size, cattle and goats are dominant in the east. In Kigali (the capital city) with its high population density and low average farm size, poultry is popular.

Figure 5.7 Provincial contribution to animal population, 2010



Source: MINAGRI (2010b).

Not surprisingly, animal production has increased alongside livestock numbers, leading to substantial increases in animal products (Table 5.4). Litres of milk produced in Rwanda have increased by 20% from 2009 to 2010. Additionally, eggs, honey, meat and fish have also seen similar magnitudes of improvement.

Table 5.4 Animal products (tons), 2000–2010

Product	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Milk	57,853	63,484	97,981	112,453	121,417	135,141	152,511	189,827	257,480	334,727	401,672
Meat	25,608	35,748	39,126	43,589	48,681	49,861	52,226	54,780	69,637	65,863	79,035
Fish	6,996	7,308	7,612	8,144	8,126	8,180	9,267	9,655	12,594	14,104	16,924
Eggs	920	1,015	2,432	3,402	2,452	2,452	1,536	1,620	2,327	3,268	3,921
Honey	762	760	819	908	1,029	1,671	1,676	1,084	1,654	2,684	3,221
Hides & skin	N.A.	N.A.	N.A.	982	2,158	3,138	3,183	4,137	4,496	4,098	5,327

Source: MINAGRI (2010b); NISR (2011).

CHAPTER 6. AGRICULTURAL TRADE PERFORMANCE

6.1 Agricultural exports

Rwanda's major export crops are coffee, tea, hide and skins, and pyrethrum. Coffee is the second largest export item by value; exports in 2007 were 13,674 tons, worth about US\$ 35.7 million (Table 6.1). Coffee exports declined by 34% in 2007 compared to 2006 due to the sharp fall in production (48%), despite a 28% increase in coffee prices. The low productivity trend in coffee prompted the government to coffee to the list of crops that require production intensification in 2007. The long-term strategy is to produce 37,000 tons of green coffee by 2010 and to raise the volume of high quality coffee, mainly through the expansion of washing stations, and to increase the rate of fully washed coffee to 60%.

Table 6.1 Agricultural exports, 2007 to June 2011

		2007	2008	2009	2010	Jan–Jun 10	Jan–Jun 11
Coffee	Value (US000\$)	35,700	47,100	37,287	56,081	8,807	8,153
	Volume (000kg)	13,700	18,200	14,992	19,319	3,400	3,305
	Price (US\$/kg)	2.61	2.59	2.39	3.38	2.46	5.6
Tea	Value (US000\$)	31,500	39,800	48,179	55,708	33,632	34,344
	Volume (000kg)	18,400,	19,000	18,663	21,528	12,675	12,911
	Price (US\$/kg)	1.72	2.09	2.48	2.59	2.67	2.59
Hides and Skins	Value (US000\$)	3,560	2,850	1,690	3,740	1,347	-
	Volume (000kg)	1,810	1,930	1,792	3,731	1,327	-
	Price (US\$/kg)	1.97	1.47	1.09	1.02	0.96	-
Pyrethrum	Value (US\$ 000\$)	3,000	380	306	1,625	1,265	4,295
	Volume (000kg)	40	3	3	6	6	16
	Price (US\$/kg)	78.44	116.16	203.08	250	222.47	275

Source: MINAGRI (2011).

Total tea exports were 18,376 tons in 2007 and earned over US\$ 31 million in foreign exchange. Tea production was higher by 10.4% in 2007 than it was in 2006. However, due to the fall in prices, earnings in foreign exchange declined somewhat. Coffee is grown by a large number of smallholder private growers while tea is grown mainly by smallholders. However, there are large plantations which are owned and managed by nine tea factories that process green tea into black tea. Sorwathe, for example, is the leading private tea producer, accounting for less than 10% of plantations and 20% of tea production. The factories supplement the tea cultivated on their own (state-owned) land with relatively small amounts of tea produced by tea cooperatives and private growers. In 2005, the sector was estimated to employ 60,000 people and had 12,000 ha under cultivation. The government aimed to increase cultivation area from 12,000 ha to 18,000 ha by 2010 to increase the average yield from 1,500 kg to 2,500 kg per ha and to more than double production to about 36,000 tons.

Hides and skins exports currently amount to approximately 2,000 per year, over 90% of which are low value dry leather and less than 10% are high value wet blue leather. Hides and skins of domestic ruminants (cattle, sheep and goats) are collected by individual tanneries from livestock producers who deliver them to local collection

centres. Rwandan hides and skins receive significant quality discounts in international markets. This is due to severe deterioration in quality caused by poor post-slaughter treatment attributable to a lack of specialized equipment, low level of human capacity, and deficient coordination along the value chains.

Approximately 25,000 farmers cultivate pyrethrum on around 3,200 ha concentrated within a small radius around the country's single pyrethrum processing plant located outside Ruhengeri. Most pyrethrum growers belong to a production cooperative, which coordinates production and marketing activities. Comparing January to June 2011 to January June 2010, pyrethrum revenues have increased, with a significant increase in exported production. The high international demand and the quality of Rwanda's product explain the improvement.

Coffee and tea remain the key exports in the country. At 50% in 2005 these crops accounted for the largest share of export revenue. Coffee exports in 2004 accounted for about US\$ 32.2 million, representing 32.8% of total export revenue. In 2005 export receipts increased to US\$ 38 million. Tea export earnings for 2005 amounted to US\$ 26 million.

According to EDPRS, Rwanda's adoption of an export-oriented growth strategy has implications for the agriculture sector which will seek to increase the unit value of agricultural exports by improving quality and by producing new exportable products. EDPRS (2008–2012) targeted that 70% of the export revenue in the country should come from agricultural products. However, agricultural export production continues to represent only a small percentage of production.

The growth of coffee exports has been held back by fluctuating international coffee prices, but Rwandan producers are starting to produce fully-washed coffee (including fine and speciality coffees) for which they are receiving premium prices. Table 6.1 shows fluctuations in output have decreased as a result of efforts to improve coffee husbandry techniques. Coffee prices dropped in 2009, following the global financial crisis and depressed demand, dropping from US\$ 2.61 per kg in 2007 to a low of US\$ 2.22 in the first 6 months of 2009. Since then, prices recovered somewhat, moving up to US\$ 2.55 in the second semester of 2009 and to US\$ 2.67 in June 2010. Despite prices creeping back up, producers have been slow to respond to these signals and output has remained at 7.3% below the production levels in the first semester of 2009.

Tea production is more stable in nature and Rwanda's tea exports have grown gradually while the value of its exports has increased substantially due to beneficial price developments. This can be attributed to the efforts of OCIR-Thé to improve the quality of the tea grown and to improve processing techniques. Rwanda is also increasingly moving into tea packaging and blending, for which producers can command much higher prices than for unblended tea sold at the tea auction in Mombasa, Kenya.

Hides and skins exports continue to fetch low prices. As a result, the volume of exports has also declined slightly, meaning that the total value of exported hides and skins dropped by a half between 2007 and 2009. Production increased substantially in the first semester of 2010 compared to 2009, and total export levels can therefore be expected to exceed those of 2009 by as much as 50%. Furthermore, prices seem to

be increasing, with the average price moving from just US\$ 0.69 to US\$ 1.01 from January to June 2010.

Pyrethrum exports crashed in 2008, as a result of financial difficulties experienced by the only processor in the country. This in turn led to farmers substituting pyrethrum for potatoes in the north of the country. Production seems to be picking up again, with Rwanda exporting almost as much pyrethrum in the first half of 2010 as in the 2 previous years. The reduction in pyrethrum output has also had a beneficial impact on prices, meaning that export revenues in the first 6 months of 2010 are twice the combined value of 2009 and 2010. Obviously, these high prices cannot be expected to last if national production returns to pre-2008 levels, but pyrethrum can be expected to return to its previous status as an important export crop in the next few years.

Table 6.2 provides the 20 major exports to neighbouring countries from May 2009 to April 2010.

Table 6.2 Twenty major exports, May 2009 to April 2010 (RwF million and % share)

	Total exports to neighbouring countries	27,680	% share
1	Bovine cattle (live)	3,384	12.2%
2	Goats (live)	2,782	10.0%
3	Paraffin	2,628	9.5%
4	Dried beans	1,353	4.9%
5	Maize flour	1,220	4.4%
6	Irish potatoes	1,112	4.0%
7	Raw milk	1,004	3.6%
8	Groundnuts	951	3.4%
9	Beef meat	839	3.0%
10	Dried fry of Tanzania	754	2.7%
11	Second-hand clothing	624	2.2%
12	Pig (live)	621	2.2%
13	Other vegetables	606	2.2%
14	Poultry (live)	561	2.0%
15	Cassava flour	482	1.7%
16	Other fishery products	447	1.6%
17	Eggs	446	1.6%
18	Other chemical, rubber and plastic products	431	1.6%
19	Sheep (live)	425	1.5%
20	Domestic metal products	420	1.5%

Source: MINAGRI (2010b).

Coffee

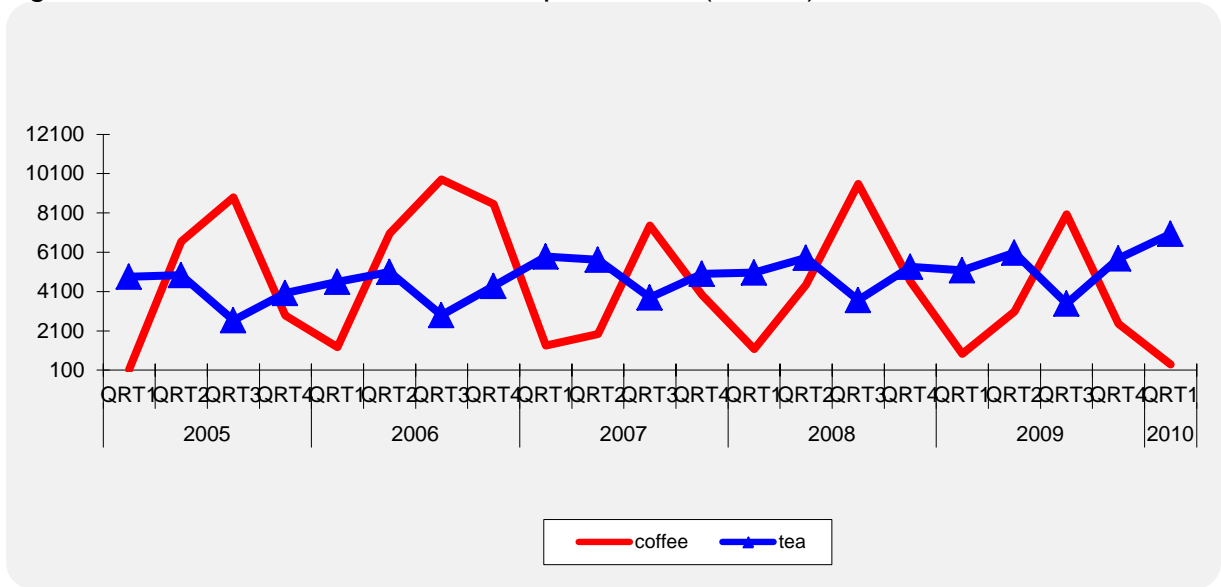
The production of tradable coffee sharply declined by 58.8% in the first 3 months of 2010 falling from 934.5 tons in the first quarter of 2009 to 384.6 tons in the first quarter of 2010. This drop was caused by poor weather conditions and lack of maintenance and repair in the coffee factories. In addition, the decision taken by Rwanda Coffee Development Authority (OCIR-Café) to start coffee season in June rather than April also contributed to this decrease in production.

However, a look at the export crops in the second quarter of 2010 showed that a noticeable increase in coffee production was registered during the 2010 coffee season when compared to the previous one. Indeed, according to projections by OCIR-Café, the production of tradable coffee is estimated to reach 26,000 tons, up from 14,250 tons in 2009. This was the result of higher use of fertilizers, recently renewed plantations and expansion of cultivated area under coffee, and of seasonal factors such as favourable coffee cycles and conducive climate conditions (BNR, 2010B).

Tea

Tea production increased from 5,173.53 tons in the first 3 months of 2009 to 7,040.36 tons in the corresponding period of 2010, an increase of 36.1%. For the same period, tea production increased by 17.1%, after some tea factories were privatized. This led to improved production and trading practices. Figure 6.1 gives the evolution of coffee and tea production from 2005 to 2010.

Figure 6.1 Evolution of coffee and tea production (in tons)



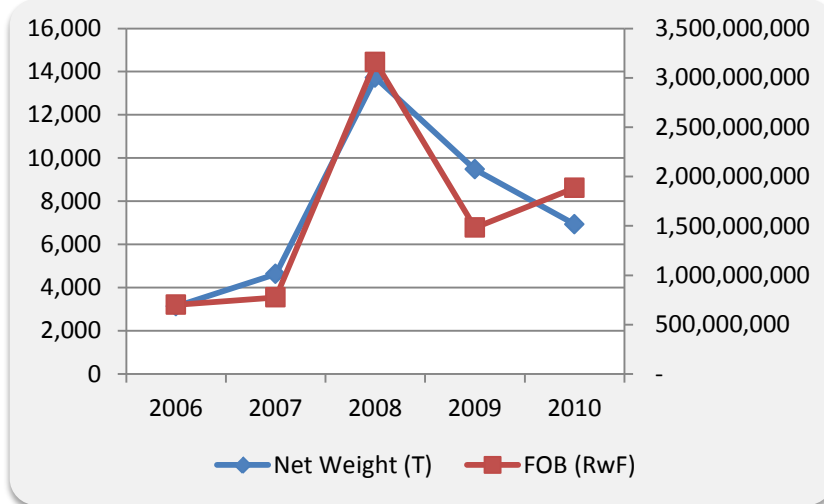
Source: BNR (2010).

Horticulture

The government considers horticulture a key diversification strategy that can improve nutrition and increase farmer incomes. However, this is a relatively new venture. MINAGRI seeks to facilitate this growing sector. The focus products are primarily pineapples, mangoes, avocados, Japanese plum, passion fruit and macadamia nuts. To attract foreign investors and organize regional trading, cold-storage facilities are being constructed to increase the formal horticulture export market.

Figure 6.2 shows the formal exports in horticulture with a large difference between 2010 horticulture exports and those of 2008. This can be explained by the continued absence of flower exports. However, the increased revenues in 2010 over 2009 show improvements in horticulture export quality and the high global prices that Rwanda needs to capitalize on.

Figure 6.2 Horticulture formal exports (NAEB)



Source: MINAGRI (2011).

6.2 Agricultural imports

The import products are classified into four main categories, namely consumer goods, capital goods, intermediary goods, and energy and lubricants. Compared to 2008, the CIF value of exports in 2009 experienced a growth rate of 7.9% (from US\$ 1,173.98 million in 2008 to US\$ 1,267.25 million in 2009) (Table 6.3). Import value of capital goods and intermediary goods declined by 1.3% and 3.3% respectively, while that of consumption goods and energy increased a lot, leading to an increase in total imports (BNR, 2009).

Intermediary goods are classified into four categories, namely construction materials, industrial products, chemical fertilizers and various other intermediary goods. Although the value of intermediary goods declined by 3.3%, the import of fertilizers increased by 61.5% in line with the government's green revolution programme that has had a positive impact on food production.

Table 6.3 Evolution of imports (value in US\$ million and volume in tons)

Description		2004	2005	2006	2007	2008	2009
Capital goods	Value	79.98	109.88	126.80	202.53	367.29	362.69
	Volume	12,493	17,506	20,803	31,551	39,860	39,748
Intermediate goods	Value	79.20	111.16	146.15	189.91	323.87	313.14
	Volume	107,716	154,363	206,831	274,574	367,938	408,803
Energy products	Value	68.64	78.16	108.56	115.65	161.49	208.83
	Volume	123,282	128,819	172,818	183,252	186,722	189,632
Consumer goods	Value	102.46	131.17	166.54	229.10	284.08	342.38
	Volume	109,210	120,855	173,743	285,259	253,662	354,809
Food	Value	33.16	35.26	47.93	71.76	87.07	115.86
	Volume	75,744	79,854	122,832	223,979	172,073	261,568
Others consumer goods	Value	69.3	95.9	118.6	157.3	197.01	226.52
	Volume	33,465	41,001	50,911	61,280	81,589	93,241
Adjustment	Value	37.5	41.0	43.3	33.5	37.25	40.27
Total CIF	Value	367.8	471.4	591.4	770.6	1,173.98	1,267.25

Source: BNR (2009).

The import value of final consumer goods increased from US\$ 284.08 million in 2008 to US\$ 342.38 million in 2009, an increase of 20.5%. Food products showed an increase of 33.1%, to US\$ 115.86 million against US\$ 87.07 million in 2008. The most imported foodstuffs were cooking oil and fats, cereals, flour, seeds and sugar.

6.3 Trade balance

External trade was marked by a large increase in imports and a decrease in exports leading to a more deteriorated trade balance of US\$ -768.08 million against US\$ -613.05 in 2008 (Table 6.4). Compared to 2008, the increase in import value in 2009 came from consumption goods and energy. The current account deficit reached US\$ 378.56 million in 2009 corresponding to 8% of GDP.

Table 6.4 Major BOP component developments (in US\$ million)

	2004	2005	2006	2007	2008	2009
A. Trade balance	-177.87	-228.67	-299.02	-404.39	-613.05	-768.08
Total exports	98.05	124.98	147.38	176.77	267.67	192.67
Coffee exports	32.23	38.27	54.04	35.67	47.05	37.29
Tea exports	21.55	24.38	31.86	31.52	44.95	48.71
Imports FOB	-275.93	-353.64	-446.40	-581.16	-880.72	-960.75
B. Services (net)	-137.06	-166.46	-132.30	-123.16	-100.60	-177.70
C. Income (net)	-33.65	-27.21	-28.66	-17.22	-35.06	-36.79
Balance on goods and services	-348.59	-422.34	-459.97	-544.76	-748.71	-982.6
D. Current transfers net	313.93	364.52	325.54	461.32	518.57	604.0
Private	35.05	46.73	77.15	98.82	72.61	79.71
Public	278.87	317.79	248.39	362.50	445.96	524.31
E. Current account	-34.66	-57.82	-134.43	-83.45	-230.15	-378.56
F. Capital and financial account balance	127.29	165.45	250.50	196.70	316.12	433.5
Errors and omissions	15.31	11.53	-34.59	-2.66	-27.97	2.05
G. Overall balance	107.94	119.16	81.52	110.60	58.01	57.05

Source: BNR (2009).

6.4 Informal cross-border trade

MINICOM, in collaboration with MINAGRI, conducted an informal cross-border trade survey from May 2009 to April 2010. The results indicated that Rwanda exports substantial quantities of commodities to its four neighbours. The total value of this trade was Rwf 40 billion (approx. US\$ 67 Million), with Rwanda exporting Rwf 27 billion (approx. USD 46 Million) worth of goods – a trade surplus of Rwf 15 billion (approx. USD 25 Million). Most (58.4%) of these exports were agricultural products and 80% of these were destined for the Republic of Congo (DRC) (Table 6.5). For details, see Table 6.5.

Table 6.5 Informal regional imports and exports, May 2009–April 2010 (Rwf million)

Country	Imports	% share	Exports	% share	Total trade	% share
Burundi	3,722	30	3,842	14	7,564	19
DRC	3,305	27	22,039	80	25,344	63
Tanzania	113	1	17	0	130	0
Uganda	5,238	42	1,782	6	7,020	18
Total	12,378	100	27,680	100	40,058	100

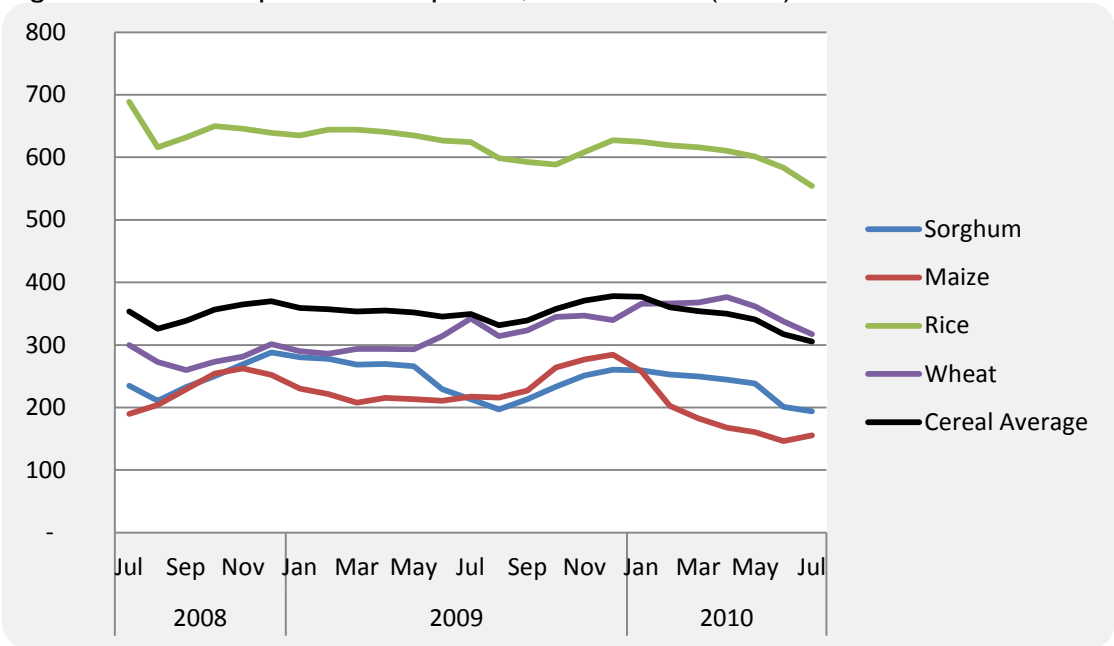
MINAGRI (2010a).

Rwanda’s unique challenges, including small farm sizes and high rural poverty rates, make the task of raising the value of production per hectare urgent. Export products typically are very high in value per hectare.

6.5 Market and price development

Cereal prices continued to decline gradually throughout the 2009/10 financial year (Figure 6.3). Due to Rwanda’s natural barriers to trade, the prices recorded can be largely explained through changes in production. One can therefore conclude that reductions in price are linked to the increases in output discussed above. However, the lag in the reduction of prices following the season 2010B harvest in May is due to a strong regional demand for certain cereals. Conversely, the prices of maize plummeted from January 2010 with a very large season A harvest; prices are recovering slowly. Part of the problem with maize prices has been that the national maize market, storage and post-harvest handling facilities are poorly developed; this means the large production increases seen in the last few years often leave farmers with excess crop. MINAGRI has therefore put a post-harvest handling and storage taskforce in place to address these issues to ensure stable and profitable prices for producers. A strategic grain reserve strategy is also in the process of being drafted.

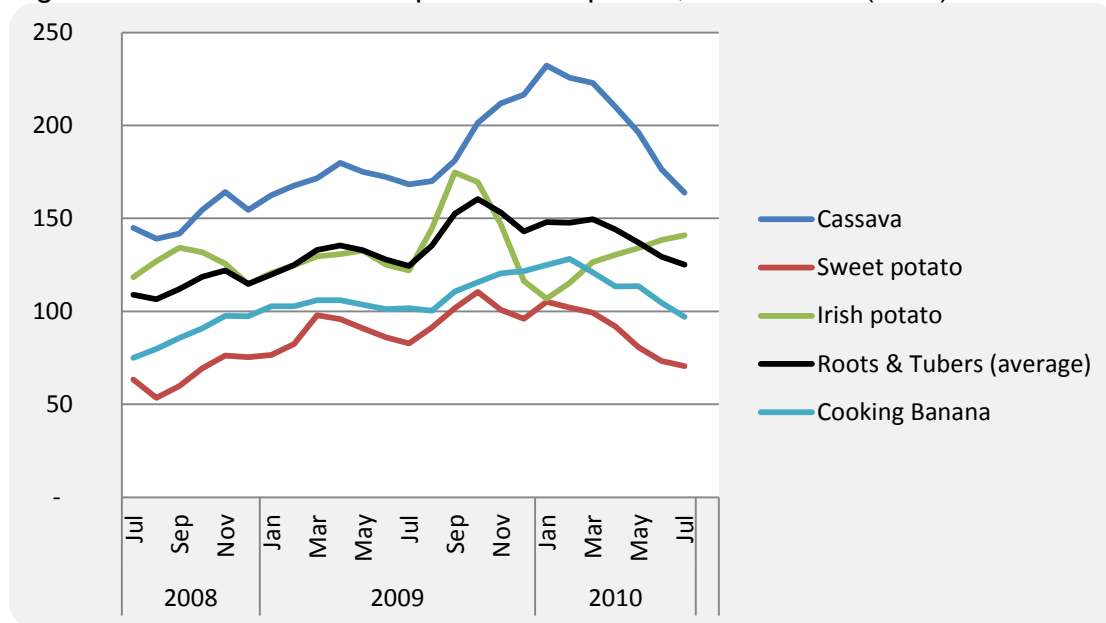
Figure 6.3 Cereal price development, 2008–2010 (RwF)



Source: MINAGRI (2010b).

Price developments among the different roots and tuber crops vary substantially, with Irish potatoes, in particular, following a different trajectory (Figure 6.4). Irish potatoes are much more widely marketed than cassava, sweet potato and cooking bananas which are all seen as subsistence crops. The strong regional demand for Irish potatoes made the price of this crop dropped briefly, following the 2010A harvest, but subsequently increased. The formal and informal trade data support this explanation.

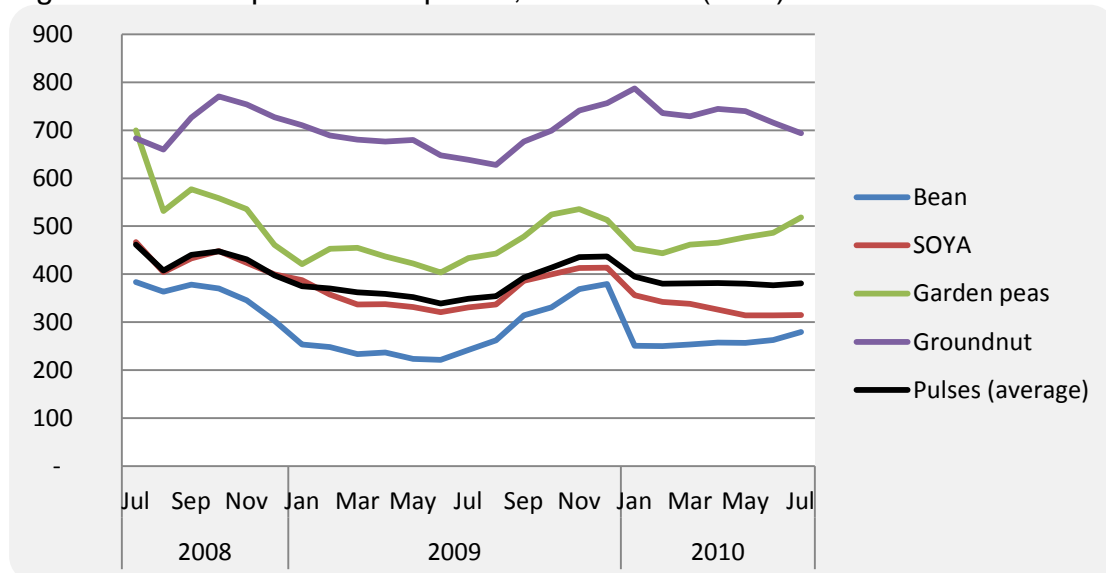
Figure 6.4 Roots and tubers price development, 2008–2010 (RwF)



Source: MINAGRI (2010b).

The price of pulses (Figure 6.5) has fluctuated the least in the last 12 months of 2009 of all the staple crops grown in Rwanda, as production of these crops has been fairly constant, with small production increases being absorbed by regional demand. Rwanda has a comparative advantage in bean production and a good part of the increases in production seen in the last four years have been exported to the region.

Figure 6.5 Pulse price development, 2008–2010 (RwF)



MINAGRI (2010b).

In conclusion, prices depend heavily on production levels and agricultural seasons, as post-harvest handling and storage facilities are not well developed.

CHAPTER 7. POVERTY, HUNGER, FOOD AND NUTRITION SECURITY

7.1 Poverty status

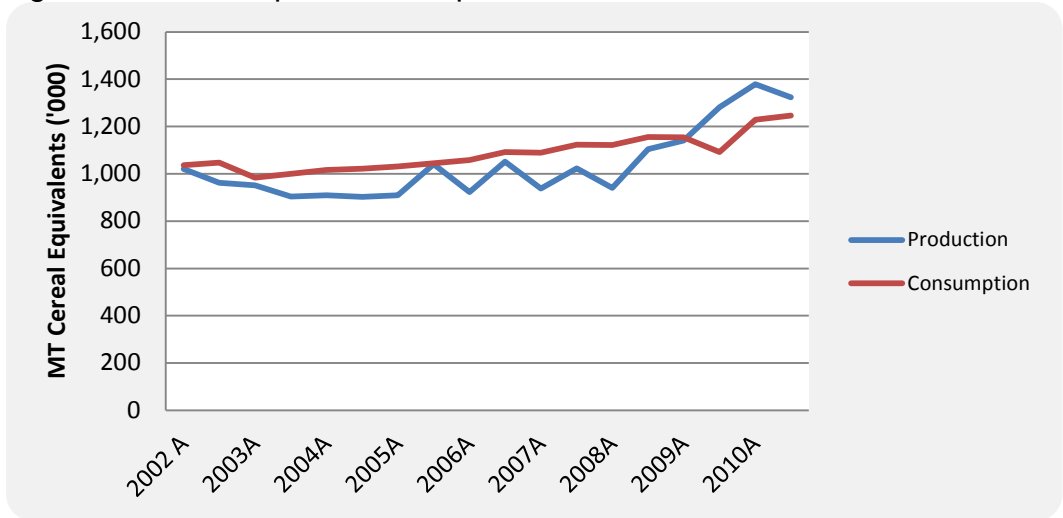
Although the Government of Rwanda has made significant efforts to fight against poverty and hunger, the task remains considerable. Currently, the proportion of the population living below the poverty line of US\$ 1 per day is still high because more than 56.9% of the population fall in this category (MINECOFIN, 2007). The population living in extreme poverty is also considerable at 36%. This is influenced by the level of expenditure needed to provide minimum food requirements of 2,100 kcal per adult per day.

Because most of the population living in poverty are located in the rural area where the major activity is agriculture, the development of the agriculture sector is synonymous with poverty reduction, in general. Indeed, according to the *Ubudehe* survey conducted in 2006, the major causes of poverty were lack of land, poor soils, unpredictable weather and lack of livestock. This confirms the importance of agriculture in poverty reduction.

7.2 Progress towards MDG

Food security remains a concern of most of developing countries. In the case of Rwanda, the government embarked on a clear policy related to poverty reduction and food security in the country. Of direct relevance to MINAGRI work is target 3 of goal 1 to eradicate extreme poverty and hunger. Target 3 is to “halve, between 1990 and 2015, the proportion of people who suffer from hunger”. While hunger is multi-faceted, the country has made very good progress on those aspects of hunger that relate to MINAGRI work. Thanks to the efforts to intensify production, production has exceeded consumption (Figure 7.1) for the last 3 agricultural seasons for the first time since 1994 (MINAGRI, 2010b).

Figure 7.1 Consumption versus production



Source: MINAGRI (2010b).

Recent growth rates of 8–9% per annum are encouraging and necessary to achieve MDG1 by 2015. However, whether Rwanda will be able to sustain these growth levels

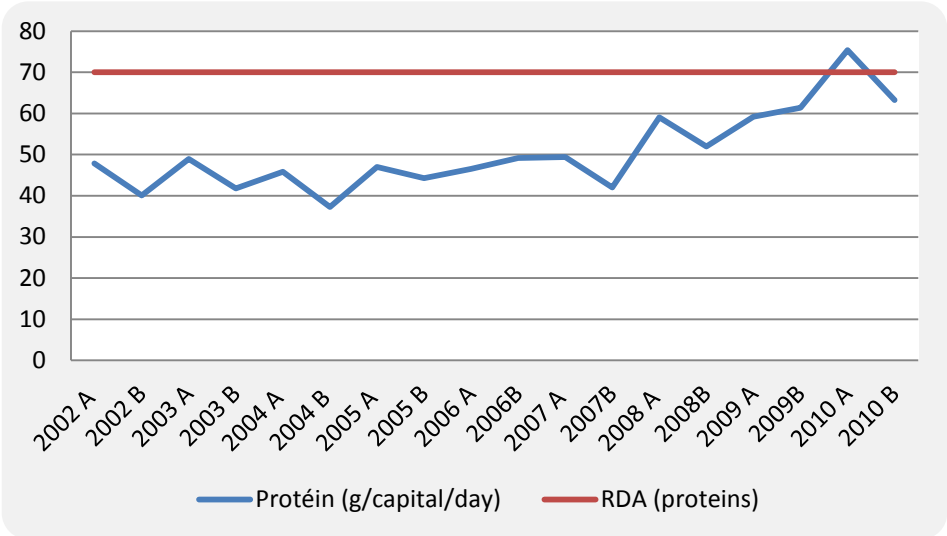
depends on the level of investments made in the agriculture sector over the next five years.

According to Action Aid, Rwanda is likely to achieve MDG1 (halving extreme poverty and hunger). Indeed, the Action Aid (2010) report attributes Rwanda’s improvement to the new government policy which supports small-scale farmers. “This progress was made possible by a new government policy which supports smallholders with crucial farming tools and seeds, while expanding irrigation and supporting environmentally sustainable production methods to tackle the endemic problems of soil erosion in the country” (Action Aid, 2010:23).

7.3 Food and nutrition security

The combination of improved production in crop and animal related products has improved the availability of energy. Increases in production have continued to have a positive impact on food security, measured in terms of availability. Most importantly, Rwanda has experienced an increase in kcal/person per day since 2008; this continued throughout seasons 2010A and B, as shown in Figures 7.2, 7.3 and 7.4.

Figure 7.2 Proteins per capita per day

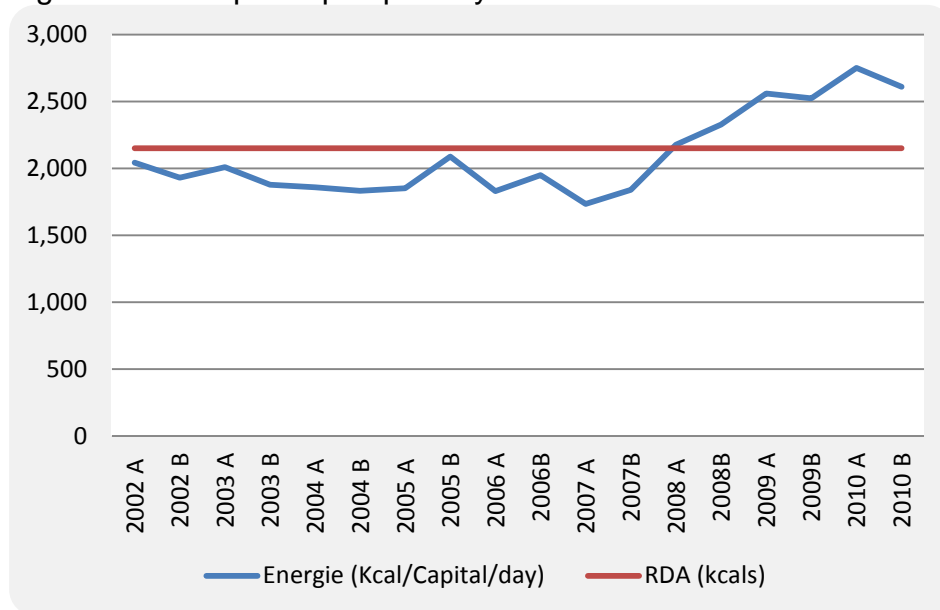


Source: MINAGRI (2010b).

The target for protein was met in 2009. However, this could not be sustained in 2010, which saw a slightly lower harvest.

Currently in Rwanda, the estimation of the energy intake (kcal/capita per day) is 2,675 for season 2011 A and 2,938 for season 2011 B (Figure 7.3). The protein and lipids (g/capita per day) for seasons A and B were estimated at 70 and 24 respectively. This leaves the outstanding challenge of lipids (fats such as oil or butter) that remain below international standards. MINAGRI seeks to increase livestock production along with the related processing of animal products to improve nutrition.

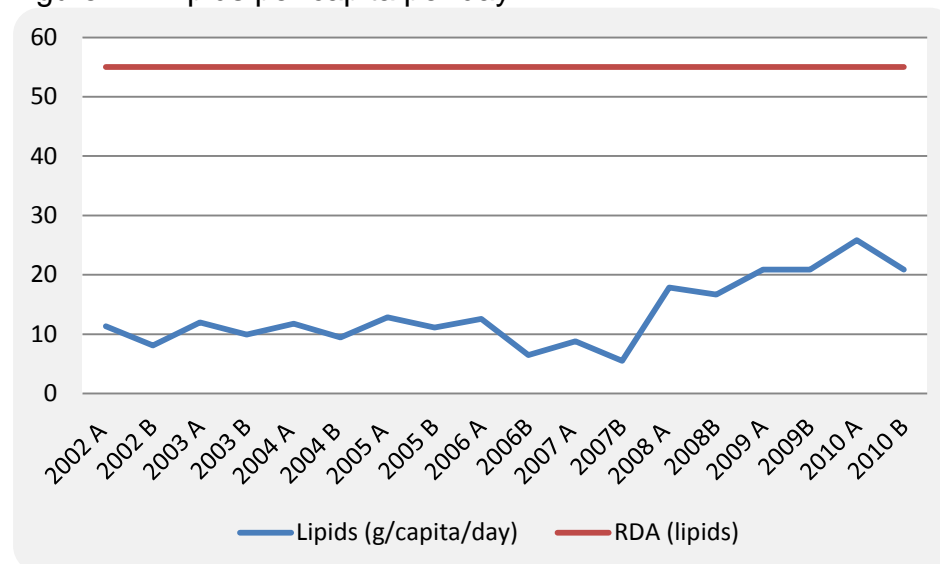
Figure 7.3 Kcal per capita per day



Source: MINAGRI (2010b).

The combination of the three measures captures the nutritional availability. However, actual consumption is not measured here and represents a related but separate challenge to reducing malnutrition. While substantial progress has been made, the country has yet to consistently meet the World Health Organization (WHO) recommendations for lipid availability although production has doubled since 2002 (Figure 7.4), but still remains far short of the requirements for a healthy population (MINAGRI, 2010b).

Figure 7.4 Lipids per capita per day



Source: MINAGRI (2010b).

Data over a period of nine years showing the broader evolution of the food availability in Rwanda is given in Table 7.1 below.

Table 7.1 Nutritional availability data

	1990	2001	2010	2011
Kilocalories (%)	83	65	131	131
Proteins (%)	71	60	116	118
Lipids (%)	17	17	60	60

* based on the 2,100 kcal, 59 g proteins, 40 g lipids international standard.

Source: FSRP and MINAGRI (2011).

CHAPTER 8. AGRICULTURAL GROWTH, POVERTY AND HUNGER LINKAGES

Poverty in Rwanda is mainly a rural phenomenon, with 66.1% of the rural population falling below the national poverty line of US\$ 129 per adult per year, compared to 16.1% of Kigali households and 46.5% of other urban households (EICV, 2005/06). Household incomes are a function of landholdings, with 74% of households who own less than 0.3 ha falling below the poverty line compared to 54% of those households who own more than 1 ha. Only 26.6% of the households in Rwanda own more than 1.0 ha of land and the average size among this group is 1.94 ha.

Despite high rural poverty rates, agriculture contributes around 40% of GDP and provides employment for about 80% of the working population. Therefore, the country's economy depends mainly on the production of the primary sector, particularly food crop production, and poverty reduction will depend largely on efforts made in this sector.

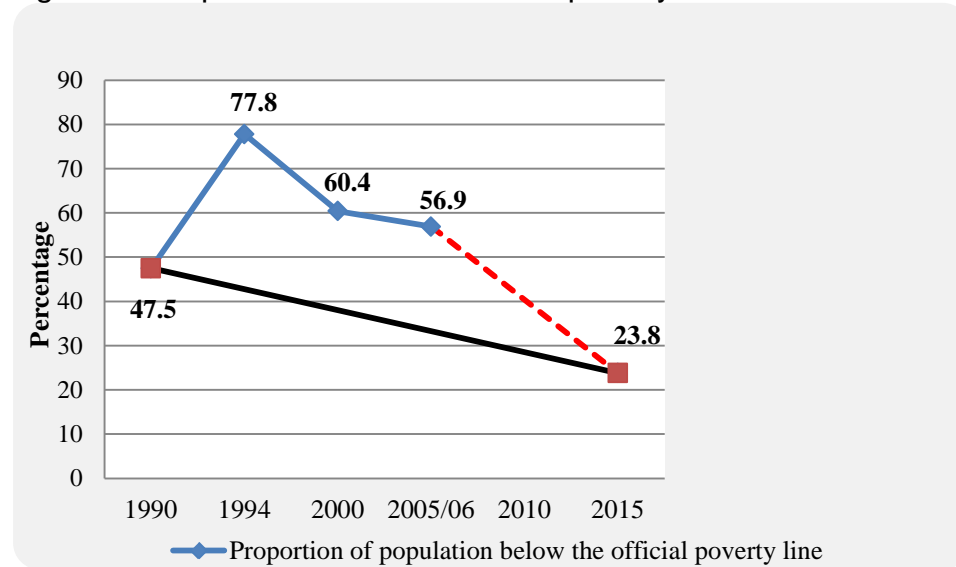
Most of Rwanda is dependent on rainfed agriculture, hence, the proportion of undernourished people is equally weather-dependent. Despite this, the percentage of the national food requirement satisfied by domestic food production increased from 63% in 1990 to 84% in 2002 (NISR, 2007). Similarly, the incidence of consumption poverty, measured by the extreme poverty line, has fallen since 2001. The extreme poverty line represents the level of expenditure needed to provide minimum food requirements of 2,500 kcal per adult per day. The trend in consumption poverty has shown a significant decrease from 41.3% in 2001 to 36.9% in 2006, in general (NISR, 2007).

According to the 2006 Comprehensive Food Security and Vulnerability (CFSVA), 52% of households are food insecure or vulnerable. Food insecurity is found across the country and it is highest among agricultural labourers, those with “marginal livelihoods” and female-headed households.

Over the last decade, Rwanda's government made significant progress in tackling poverty and hunger. With regard to poverty, the rate decreased from 77.8% in 1994 to 60.4% in 2001 and to 56.9% in 2006 (Figure 8.1).

An analysis of the trend graph for poverty indicates that there would have to be a significant increase in the rate of reduction in poverty between 2006 and 2015 to achieve the target of only 23.8% of the population falling below the official poverty line. Whilst the poverty rate looks set to continue to decline, it seems unlikely that the 2015 target will be met (Abbott and Rwirahira, 2010). The proportion of poor people in 2006 was greater than in 1990, the base year from which MDG targets are measured. If the base year was taken as 1994 (following the genocide against the Tutsi), when the proportion of poor people was 78%, then there would be a more realistic chance of poverty being halved by 2015.

Figure 8.1 Population below the official poverty line 1990–2005/06



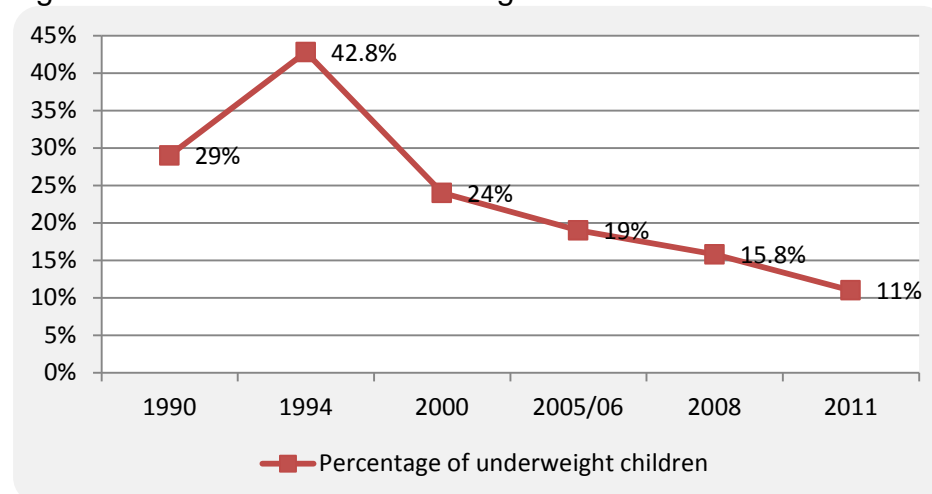
Sources: Government of Rwanda and UN (2003); NISR (2006).

Two indicators are used to measure progress towards halving the proportion of the population which is hungry. The first indicator is the prevalence of children under five years old who are underweight for height. The second is the proportion of the population who have below the recommended minimum energy intake of 2,300 calories a day.

Children whose weight-for-age is more than two standard deviations below the median of the reference population are considered underweight. The measure reflects the effects of both acute and chronic under-nutrition.

With regard to the proportion of underweight children under five years of age, Rwanda has surpassed the 2015 indicator of 14.5% (Figure 8.2). However, the country has not reduced the proportion of the population who have below the minimum energy intake (Figure 8.3).

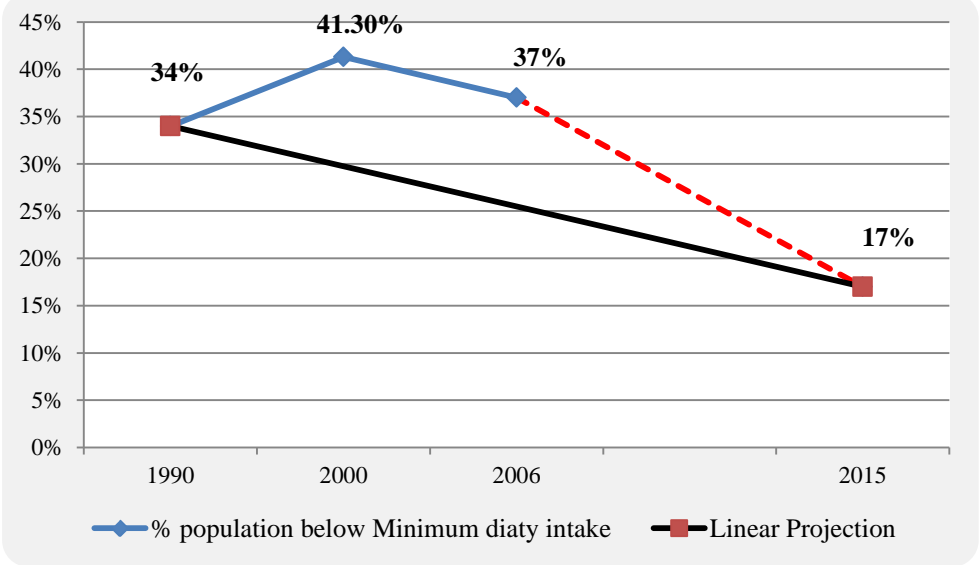
Figure 8.2 Prevalence of underweight children



Sources: DHS (2010).

According to Vinck et al. (2009), nearly half of all Rwandan children show signs of malnutrition. The DHS (2010) reported that 44% were stunted at the time of the survey, 3% of were found to be wasted and about 1 in 10 children (11%) were underweight.

Figure 8.3 Population below minimum level of dietary consumption



Source: UN (2003); NISR (2006).

An analysis of causes of hunger shows that inadequate dietary intake and malnutrition are closely correlated with poverty. The risk of those in severe poverty being malnourished is extremely high. Children and adults alike are vulnerable to a range of debilitating and in some cases life threatening diseases.

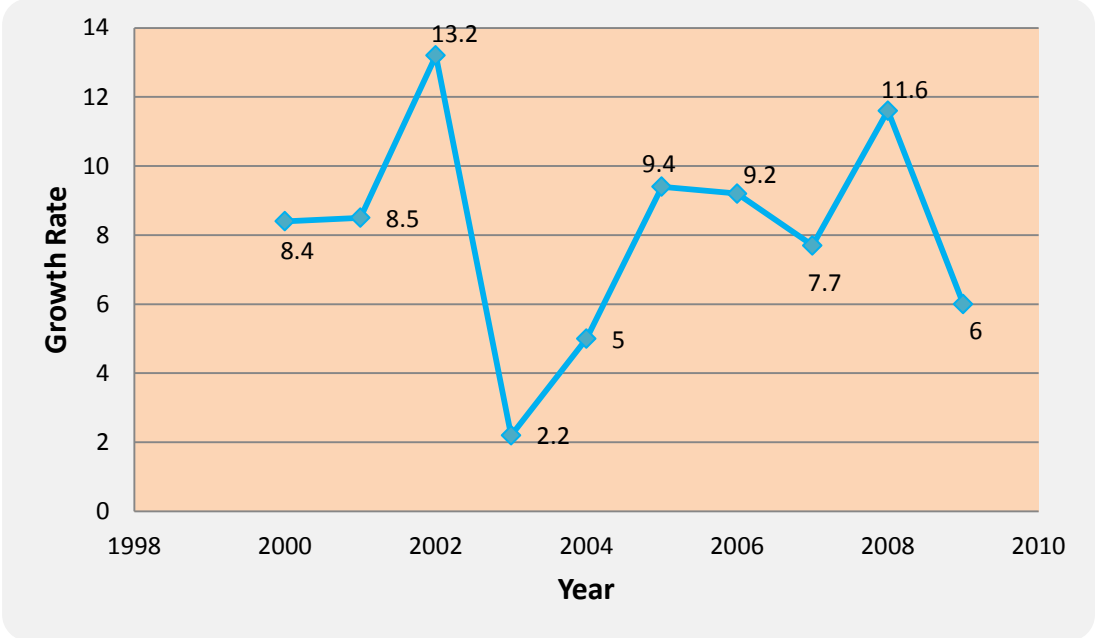
Among all the objectives set out in the EDPRs to reduce poverty and hunger, government policies promoted agricultural land intensification through production of high value crops, modern livestock management and promotion of commodity chains and agribusiness. Moreover, the government put in place a social cluster specifically to deal with the issue of child malnutrition, involving all relevant ministries. A feeding programme for pre-school children and a school feeding programme have been started. Given the strategies now in place the government is confident the rate of child malnutrition will continue to decrease.

According to Orazem et al. 2009 (in Abbott and Rwirahira, 2010), reductions in poverty are also likely to encourage greater use of improved methods of farming and the adoption of measures that protect the environment and encourage entrepreneurial activity.

Based on the global hunger index (GHI), Rwanda has made good progress since 1990 in fighting hunger. Figures for Rwanda indicate a GHI value of 21 in 2011 compared to 28.9 in 1990, 27.2 in 2003, 26.3 in 2007, 22.3 in 2008, 25.4 in 2009 and 23.1 in 2010 (IFPRI, 2011). Regardless of this positive trend, the fight against hunger is not achieving its goals fast enough. This remains a challenge, as the country continues to have GHI values higher than 20, considered to be alarming according to GHI classification.

The high population growth rate of 3% per annum remains a big challenge in addressing MDG1. Poverty affects the rural areas more than it does urban ones. Moreover, women- and child-headed households are generally more at risk of being poor than other groups. The country is now one of the top performing countries in Africa, although the annual GDP growth decreased from 8.4% in 2000 to 6% in 2009 (Figure 8.4).

Figure 8.4 GDP growth rate, 2000–2009



Source: Own calculation based on NISR (2010a).

Although the country has registered significant economic growth in the last decade, the population growth, however, has not followed this trend. This has a negative impact on the welfare of the population, especially in rural areas. The inequality in income distribution is also significant, especially between rural and urban areas. Approximately 83% of the population live in rural areas. The disparity is reflective of the relatively high level of inequality in the country, as measured by the *Gini* coefficient, which increased from 0.47 to 0.51 between 2001 and 2006 (NISR, 2007).

The linkage between investment in agriculture, growth, poverty and hunger is defined in national policy of EDPRS. Although the policy is clear about the measures related to addressing MDG1, challenges remain significant. The high population growth rate seems to be the most important constraint to this objective. This issue must be addressed since many other challenges are directly linked to this population growth. The land shortage and the proportion of the population living below the poverty line are some examples.

CONCLUSION AND RECOMMENDATIONS

Agriculture is the main driver of Rwanda's economic growth since it contributes 34% to the GDP (2009) and it employs most of the Rwandan population (80% in 2009). This means that its transformation would have the greatest impact in terms of poverty reduction and wealth creation in the country. Currently, the rate of population living below poverty line of US\$ 1 per day is still high because more than 56.9% of the population are in this category. The number of people living in extreme poverty is also considerable as 36% of the population are identified in this group. This is characterized by the level of expenditure needed to provide minimum food requirements of 2,100 kcal per adult per day.

Because most of the population living in poverty is located in the rural areas with their major activity being agriculture, the development of this sector is therefore synonymous with poverty reduction in general. According to the *Ubudehe* survey conducted in 2006, the major causes of poverty were lack of land, poor soils, unpredictable weather and lack of livestock. This confirms the importance of agriculture in poverty reduction.

The structure of GDP has remained globally unchanged since 2005 with the service sector contributing 46% to GDP, followed by the agriculture (34%) and industry (4%) in 2009. A closer look at GDP growth performance by kind of activity shows important growth rates for the agriculture sector in 2009 and 2010.

The external sector was affected by the global economic and financial crises which resulted in worsening the trade balance deficit between 2008 and 2009. The overall balance of payments registered an excess of US\$ 57 million, while external trade was marked by a deficit of US\$ 768 million against US\$ 613 million in 2008, leading to a current account deficit of US\$ 378 million, corresponding to 8.2% of GDP.

Agricultural policies and strategies integrated into Vision 2020, EDPRS, the National Agricultural Policy and CAADP have been used as tools to ensure sustained economic growth; contribute to poverty reduction mainly in the rural sector; eliminate hunger; and increase farm income. Trend analysis used as tool to explore development achievements suggests that the primary sector performed well in 2009 (+7.7%) boosted by the continuing high growth in agricultural production due to favourable weather conditions and the ongoing government crop intensification programme.

Rwanda was the first country to sign the CAADP compact. Rwanda has been at the forefront of the CAADP implementation process with the country allocating 10.2% of its national budget to the agriculture sector during the 2010/11 fiscal year. Moreover, Rwanda achieved an average annual growth of 7.4% in 2010, up from 8% the previous year.

Trends analysis also showed that food production significantly improved during 2009 and 2010 with a significant increase registered in cereals (33.4%) mainly due to the high increase in the production of maize (72%) and sorghum (20.9%). Production for roots and tubers was also good (11.8%) where cassava and Irish potatoes increased by 20.1% and 11% respectively.

For animal production, with the exception of poultry that reduced slightly (by 0.28%) in 2009, other animal species increased compared to the previous year. A livestock census carried out in November 2008 by RARDA shows an increase of all livestock in numbers since 2001. Some of the increase in cattle numbers can be attributed to the One Cow Program that provides cattle to poor farmers; this has been refined to providing goats and poultry in recent years. Not surprisingly, animal production has increased alongside livestock numbers, leading to substantial increases in animal products, but figures are not available to discern the extent to which production has increased as a result of increased numbers or productivity.

During 2009, the value added for forestry activities slightly increased by 2.7%, almost the same rate as that of 2008. This situation indicates a low level of forest exploitation resulting from environmental protection measures put in place.

Coffee and tea remain the key exports. The growth of coffee exports has been constrained by fluctuating international coffee prices and the maintenance and repairing of coffee factories. However, Rwandan producers are now moving into fully washed coffee (including fine and speciality coffees) for which they are gaining a substantial price premium. Tea production is more stable in its nature and Rwanda's tea exports have grown gradually while the value of its exports has increased substantially due to beneficial price developments.

An informal cross-border trade survey from May 2009 to April 2010 found that Rwanda exports substantial quantities to its four neighbours (Uganda, Tanzania, Burundi and DRC). Most (58.4%) of these exports are agricultural products and 80% of these are exported for DRC.

Increases in production have continued to have a positive impact on food security, measured in terms of availability. Most importantly, Rwanda has experienced an increase in kcal/person per day since 2008. However, the WHO recommendations for lipid and protein availability are yet to be consistently met. The target for protein was met in 2009, but this could not be sustained in 2010, which saw a slightly lower crop harvest. As far as lipids are concerned, production has doubled since 2002, but remains far short of the requirements for a healthy population. The country GHI of more than 20 is still considered alarming as per the GHI classification.

The high population growth rate of 3% annually remains a big challenge to addressing MDG1. Poverty affects rural areas more than it does urban. Furthermore, households headed by women and children are generally more at risk of being poor than other groups. The disparity, measured by the *Gini* coefficient, increased from 0.47 to 0.51 between 2001 and 2006.

We therefore recommend that the Government of Rwanda with its partners identify key areas for intervention:

- Increase investment for equitable economic growth
- Increase agricultural productivity and ensure food security
- Provide all necessary inputs to increase agricultural productivity
- Strengthen and emphasize family planning in the fight against poverty.

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