



**LONG-TERM FRAMEWORK  
FOR THE IMPLEMENTATION OF THE COMPREHENSIVE  
AFRICA AGRICULTURE DEVELOPMENT PROGRAMME (CAADP)  
IN RWANDA**

**GUIDING THE ECONOMIC DEVELOPMENT AND POVERTY REDUCTION STRATEGY  
AND  
SUPPORTING THE STRATEGIC PLAN FOR AGRICULTURAL TRANSFORMATION**

**Background Document for the Rwanda CAADP Round Table**

**Kigali, March 29–31, 2007**

## TABLE OF CONTENTS

<b>BACKGROUND AND CONTEXT .....</b>	<b>III</b>
CAADP: Framework, Principles, and Targets to Guide National Sector Strategies .....	iii
<b><u>PART A:</u> REVIEW OF ONGOING DEVELOPMENT EFFORTS AND THEIR ALIGNMENT WITH CAADP TARGETS AND PRINCIPLES .....</b>	<b>1</b>
<b>I. RECENT AGRICULTURAL SECTOR PERFORMANCE, TRADE, AND NUTRITION TRENDS</b>	<b>1</b>
1. Review of Production Performance by Subsector .....	1
2. The Natural Resource Base and the Challenge to Raise and Sustain Productivity Growth .....	1
3. Consumption and Nutrition Trends .....	2
4. Export Sector Performance .....	2
<b>II. LONG-TERM ECONOMIC DEVELOPMENT STRATEGIES AND AGRICULTURAL DEVELOPMENT FRAMEWORKS .....</b>	<b>3</b>
1. The Vision 2020 .....	3
1.1. The Poverty Reduction Strategy (PRSP) .....	3
2. The National Agricultural Policy .....	4
3. The Strategic Plan for Agricultural Transformation (PSTA) .....	5
<b>III. PSTA INVESTMENT PROGRAMMES UNDER THE ECONOMIC DEVELOPMENT AND POVERTY REDUCTION STRATEGY (EDPRS) .....</b>	<b>6</b>
<b>Programme 1. Intensification and Development of Sustainable Production Systems:</b> .....	6
1.1 Sustainable Soil Conservation .....	6
1.2 Marshland Development .....	7
1.3 Irrigation Development .....	7
1.4 Support to Supply and Utilisation of Agricultural Inputs .....	7
1.5 Improvement and Diversification of Animal Production .....	8
1.6 Improvement of Food Access and Vulnerability Management .....	9
<b>Programme 2. Support to Professionalisation of Producers:</b> .....	9
2.1 Promotion of Farmers’ Organisations and Capacity Building of Producers .....	10
2.2 Restructuring of Services to Producers and Rural Innovation .....	10
2.3 Promotion of Research for Development .....	10
2.4 Rural Financial Systems and Agricultural Credit .....	10
<b>Programme 3. Promotion of Commodity Chains and Development of Agribusiness:</b> .....	11
3.1 Creation of an Environment Conducive to Business and Entrepreneurship Development .....	11
3.2 Promotion and Development of Specialty and Crops and Animal Products .....	11
3.3 Transformation and Competitiveness of Agricultural and Animal Products .....	11
3.4 Development of Rural Infrastructure .....	12
<b>Programme 4. Institutional Development</b> .....	12
Estimated Cost of Implementing the PSTA Programmes .....	13
<b>IV. FINANCE, INFRASTRUCTURE, AND INSTITUTIONS IN RWANDA’S AGRICULTURE .....</b>	<b>17</b>
1. The National Investment Strategy (NIS) .....	17
2. Agricultural Sector Funding Through the Government Budget and Public Sector .....	17
3. Agricultural Sector Funding Through Private-Sector Financing Institutions .....	17
4. Central Government Ministries and Their Role in Agriculture .....	18
5. Parastatals and Other Public Sector Institutions .....	19
6. Producer Organisations .....	20
<b>V. RELATIONSHIPS BETWEEN VISION 2020, EDPRS, CAADP, AND THE PSTA .....</b>	<b>21</b>
<b><u>PART B:</u> PAST PERFORMANCE AND FUTURE PROSPECTS FOR GROWTH, POVERTY REDUCTION, AND FOOD AND NUTRITION SECURITY .....</b>	<b>24</b>
<b>I. IS RWANDA ON TRACK TO MEET CAADP’S GROWTH AND POVERTY TARGETS? .....</b>	<b>24</b>
1. Recent Performance and Current Trends Compared to CAADP Targets .....	24
2. Projected Growth and Poverty Outcomes under Current Trends .....	24
<b>II. WOULD EMERGING GOVERNMENT STRATEGIES ACHIEVE CAADP’S GROWTH AND POVERTY REDUCTOIN TARGETS? .....</b>	<b>25</b>
1. Overview of Government’s Strategic Objectives for the Agricultural Sector .....	25

2. Projected Growth and Poverty Outcomes under Government Plans and Strategies.....	25
<b>III. ACHIEVING MDG1 REQUIRES GROWTH BEYOND CURRENT PSTA AND CAADP TARGETS</b>	<b>25</b>
1. Required Growth Outcomes to Achieve MDG1 Objectives in Rwanda by 2015.....	25
<b>PART C: SOURCES OF POVERTY REDUCING AGRICULTURAL SECTOR GROWTH IN RWANDA</b>	<b>28</b>
<b>I. AGRICULTURAL-SECTOR GROWTH AND POVERTY REDUCTION IN RWANDA</b> .....	<b>28</b>
<b>II. POTENTIAL EQUITY EFFECTS RELATED TO GOVERNMENT GROWTH TARGETS UNDER PSTA</b>	<b>30</b>
1. Impact of Subsectoral Growth on the Reduction and Distribution of Poverty Among Household Categories	30
2. Possible Equity Effects and How to Address Them under Current PSTA Targets .....	30
<b>PART D: PROJECTED LONG-TERM OUTPUT, CONSUMPTION, AND TRADE TRENDS UNDER MDG1, GOVERNMENT, AND CAADP TARGETS</b> .....	<b>34</b>
I. SUBSECTOR SUPPLY, DEMAND, AND PRICE ADJUSTMENTS .....	34
<b>II. PROJECTED LONG-TERM TRADE ADJUSTMENTS</b> .....	<b>36</b>
1. Long-Term Trends in the Importable Sectors.....	36
2. Long-Term Trends in the Exportable Sector .....	36
<b>PART E: FINANCING AGRICULTURAL GROWTH TO MEET GROWTH AND POVERTY-REDUCTION TARGETS UNDER PSTA TARGETS AND MDG1</b> .....	<b>39</b>
1. The Relationship between Agricultural Spending, Growth, and Poverty Reduction.....	39
2. Long-Term Funding Requirements to Meet PSTA Targets and MDG1 in Rwanda.....	39
3. Internal and External Resource Mobilisation to Achieve PSTA Targets and MDG1.....	40
<b>PART F: STRATEGIC ANALYSES AND KNOWLEDGE SUPPORT SYSTEMS TO INFORM AND GUIDE THE CAADP IMPLEMENTATION PROCESS</b> .....	<b>42</b>
<b>I. CAADP AS A STRATEGIC FRAMEWORK</b> .....	<b>42</b>
<b>II. REVIEW AND KNOWLEDGE PROCESSES FOR A SUCCESSFUL IMPLEMENTATION OF CAADP</b>	<b>42</b>
<b>III. THE REGIONAL STRATEGY ANALYSIS AND KNOWLEDGE SUPPORT SYSTEMS (RESAKSS)</b>	<b>44</b>
<b>IV. THE COUNTRY STRATEGY ANALYSIS AND KNOWLEDGE SUPPORT SYSTEM IN RWANDA (RWANDA-SAKSS)</b> .....	<b>44</b>
The Need for a Rwanda SAKSS Node under the PSTA/EDPRS Agenda.....	45
The Role of the Rwanda SAKSS.....	45
Operation and Governance of the Rwanda SAKSS Node .....	46
The Relationships between the ReSAKSS and Rwanda SAKSS Nodes .....	46
<b>PART G: ANNEXES</b> .....	<b>49</b>

## BACKGROUND AND CONTEXT

Rwanda is one of the initial 15 countries on the New Partnership for Africa's Development (NEPAD) Heads of State and Government Implementation Committee (HSGIC), and along with Kenya, Ethiopia, and Mauritius, represents the Eastern Africa subregion on this committee. It is also one of the initial 16 countries on the continent to accede to the African Peer Review Mechanism (APRM) and endorsed the APRM principles by signing the APRM memorandum of understanding in March 2003. Rwanda is among the first group of four countries that are undergoing the Peer Review process alongside Ghana, Kenya, and Mauritius.

The Rwandan government is entirely committed to the overall NEPAD objectives and principles and has been among the first few countries to establish NEPAD Country Structure (National NEPAD Secretariat that started in August 2003 in the Office of the President) in order to facilitate the coordination and implementation of NEPAD programmes. Under this structure, several NEPAD programmes, including the APRM, NEPAD's e-Schools, and the Environmental Initiative, have been or are in the process of being implemented.

Rwanda has also been leading the way in implementing the Comprehensive Africa Agriculture Development Programme (CAADP). CAADP is at the heart of efforts by African governments under the AU/NEPAD initiative to accelerate growth and eliminate poverty and hunger among African countries. The main goal of CAADP is to help African countries reach a higher path of economic growth through agriculture-led development to eliminate hunger, reduce poverty and food insecurity, and enable the expansion of exports. As a programme of African Union, it emanates from and is fully owned and led by African governments. Although continental in scope, it is an integral part of national efforts to promote agricultural-sector growth and economic development. It is not a set of supranational programmes to be implemented by individual countries. It is rather to be understood as a common framework, reflected in a set of key principles and targets that have been defined by the Heads of State and Government, in order to: (a) guide country strategies and investment programmes, (b) allow regional peer learning and review, and (c) facilitate greater alignment and harmonisation of development efforts.

### **CAADP: Framework, Principles, and Targets to Guide National Sector Strategies**

CAADP serves as a common framework for agricultural development and growth in African countries. The following are its main principles and targets, which define the CAADP:

- a) A focus on agriculture-led growth as a main strategy for achieving the Millennium Development Goal of poverty reduction;
- b) The pursuit of a 6 percent average annual sector growth rate at the national level;
- c) The allocation of 10 percent of national budgets to the agriculture sector;
- d) The exploitation of regional complementarities and cooperation to boost growth;
- e) Adherence to the principles of policy efficiency, dialogue, review, and accountability, shared by all NEPAD programmes;
- f) Adherence to the implementation principles, assigning the roles and responsibility of programme implementation to individual countries, of coordination to designated Regional Economic Communities, and of facilitation to the Continental NEPAD Secretariat.

**PART A**  
**REVIEW OF ONGOING DEVELOPMENT EFFORTS AND THEIR  
ALIGNMENT WITH CAADP TARGETS AND PRINCIPLES**

**I. RECENT AGRICULTURAL SECTOR PERFORMANCE, TRADE, AND NUTRITION TRENDS**

**1. Review of Production Performance by Subsector**

Between 2000 and 2005, total output as well as average crop productivity growth in terms of annual yields has been quite strong for most crop subsectors, in particular for fruits and vegetables, but also for legumes and cereals. In particular, rice and wheat have witnessed spectacular growth, albeit from initially low bases, as shown in Tables A1 and A2 in the Annex. Livestock numbers have also increased significantly over the same period, driven by the sheep and pig sectors, followed by goats, cattle, and poultry (Table A3). Milk production has also increased considerably as a result of a joint effort by the government and the private sector to develop the dairy cattle industry. Despite the generally positive trends, however, the actual level of crop productivity is still very weak compared to the potential under optimum production conditions. Furthermore, despite the good performance in recent years, milk supply remains very low and Rwanda still relies on imports in order to meet the market demand. Moreover, according to estimates by the Ministry of Agriculture, less than 70 percent of the domestic supply of meat was expected to come from domestic sources. According to available data, 10,958 tonnes of meat were imported in 2004 and a total of 28,813 tonnes have been imported from 2000 to 2004.

The low level of agricultural productivity in Rwanda is a consequence of accelerated soil degradation and a very poor use of improved seeds and fertilisers. Rwanda is far below other countries in terms of fertiliser use, with an average of 5kg/ha compared to 300-400 kg/ha in developed countries. Input use has been mainly limited by: (i) economic factors, (ii) inadequate access to credit; (iii) nonperforming research and extension linkage; and (iv) poor and inefficient supply and distribution systems. Major constraints to the development of the dairy cattle and milk production subsector include: (i) very few breeds with high genetic potential; (ii) poor animal husbandry; (iii) animal diseases; (iv) weak veterinary services, and (v) inadequate linkage between research and extension. Only 14 percent of cattle are improved (1 percent are dairy pure breed cattle and 13 percent crossbreed are dairy cattle-local Ankole). In order to boost livestock contribution to agricultural development and poverty reduction, the government has recently adopted the “One Cow for Every Poor Family Programme,” which seeks to import 95,400 cows and acquire 273,000 local cows by the year 2012. The major expected outcome is that Rwanda will no longer import milk by 2009.

**2. The Natural Resource Base and the Challenge to Raise and Sustain Productivity Growth**

Rwanda has generally good rainfalls, surface water (rivers, lakes and other artificial water reserves), and underground outflows from different aquifer systems. However, utilizing those water resources to boost agricultural productivity has been a major challenge. More than half of Rwanda’s total marshland area of 165,000 ha is under cultivation, but the vast majority is being used without any intensification or sustainable management infrastructure. Also, more than a third of the country’s cropland requires protection intervention before it can be used for agricultural production, and close to 40 percent exhibits a high to very high level of erosion risk, leaving only 23.4 percent of the country’s land at small or no risk of erosion. And the problem is getting worse, as it is estimated at about 15 million tonnes of soil, equivalent to the country’s capacity to feed 40,000 people, is lost each year to erosion.

### **3. Consumption and Nutrition Trends**

Per capita income in Rwanda is currently \$250, equivalent to only 25 percent of the per capita income targeted for 2020. The share of population under the poverty line of US\$1/day is estimated at 60 percent. The average caloric consumption deficit is estimated at more than 15 percent, reaching nearly 30 percent for protein, and a considerable 70 percent for lipids (see Table A4 in Annex). A comparison of average consumption levels across different localities in Rwanda reveals a stark urban-rural differential, with average consumption levels in urban areas being more than three times those in rural areas. The poorest 20 percent of the population accounts for only 3.5 percent of total consumption.

According to the food security analysis done during the preparation of the PSTA in 2004, the main contributors to energy requirements are banana, Irish potato, beans, cassava, and sweetpotato. Beans constitute the main source of proteins, followed by sweetpotato and sorghum. Lipids come from maize, beans, ground nuts, and soybeans. However, production of the four major crops (sweetpotato, beans, banana, cassava) has been declining over time. Taken together with sorghum, these five crops constitute more than 70 percent of the consumption basket in rural areas. The Vision 2020 states that by 2010, Rwanda will meet 95 percent of energy and 92 percent of proteins requirements, reflecting a permanent deficit when compared with recommended daily allowances. Nutritional indicators for children under the age of 5 show that while the height-for-age has been increasing during the 2000–2005 period, weight-for-age has declined.

### **4. Export Sector Performance**

Rwanda depends heavily on agriculture as the main source of export revenue. The traditional exports—coffee, tea, pyrethrum, hides and skins—represent 71 percent of the country's export revenue. In the past five years, the government has taken significant measures to promote exports by increasing productivity and adding value to traditional exports. It is also promoting diversification into new areas such as horticulture and niche crops.

Between 2000 and 2005, coffee represented about 30 percent of export revenues. Because of the government's recent emphasis on quality improvement and better marketing, the price of fully washed green coffee increased 25 percent from 2004 to 2005 and the price of ordinary coffee increased 51 percent. The new Coffee Sector Strategy establishes a series of measures aimed at boosting the overall performance of the coffee industry. Projected production by 2011 is expected to reach 35,000 tonnes, with 100 percent being fully washed coffee.

Tea comes after coffee in terms of export revenues. In 2005, Rwanda produced more than 15,000 tonnes of tea, though export earnings have remained almost constant from 2000 to 2005 due primarily to price changes. In 2004, a price premium was introduced to encourage good leaf quality, resulting in Rwandan tea being first for quality at the Mombasa tea auctions. However, the Rwandan tea sector still faces challenges in increasing production and productivity. The development strategy for the tea sector targets an ambitious production increase of up to 35,900 tonnes of dry tea by 2010 by increasing the production of green leaves, creating 5,400 ha of new estates from 2006 to 2008, and increasing the processing capacity of OCIR Thé factories.

## II. LONG-TERM ECONOMIC DEVELOPMENT STRATEGIES AND AGRICULTURAL DEVELOPMENT FRAMEWORKS

### 1. The Vision 2020

Rwanda has articulated its long-term development goals in a document entitled “Vision 2020.” The document is the result of a broad consultative process involving key stakeholders that began in 1998. It provides government officials, development partners, and all stakeholders with the general framework and context for formulating strategies and interventions for political, social, and economic development in Rwanda.

The Vision 2020 articulates clearly the aspirations of Rwanda to vanquish poverty and attain the per-capita income of middle-income countries. Key strategies include the full development of human resources and the emergence of a prosperous, knowledge-based society through the acquisition of skills in the scientific, technological, managerial, and professional areas. Under the assumption that the population will have almost doubled to about 13 million by the year 2020, the Vision targets to raise the annual per capita income from US\$ 290 to US\$ 900, reduce the poverty level from 64 percent to 30 percent, and raise the average life expectancy from 49 to 55 years.

Five pillars and four cross-cutting areas have been identified as critical elements of the Vision. The pillars are: (i) an effective and capable state underpinned by good governance; (ii) human resource development and a knowledge-based economy; (iii) infrastructure development; (iv) a private sector-led economy based on a growing class of entrepreneurs operating within a competitive and creative culture; and (v) productive high-value and market-oriented agriculture. The cross-cutting areas include: (i) gender equality; (ii) natural resource management and protection of the environment; (iii) culture, science, and technology, including ICT; and (iv) regional and international integration.

The Vision 2020 highlights the role of agriculture and sustainable land use to improve the rural economy. Agriculture will remain the major engine of growth; with a projected growth rate of at least 7.5 per cent until 2010—contributing 45 percent of total GDP—and then decreasing to an average rate of 6.7 per cent in 2020. Total agricultural production will have tripled from 2000 to 2020 and the value of total agricultural exports will increase five- to ten-fold. This is to be achieved through the practice of skills-based and market-oriented agricultural production, increased land productivity, and value addition to agricultural produce. The number of people employed in agricultural production is expected to decrease to 50 percent of the population, while land farmed using modern technologies will increase from 3 percent in 2000 to about 50 percent in 2020. Sustainable land use management will be commonly used and soil protection techniques will be employed on at least 90 percent of all cultivated land. Fertiliser application is expected to rise by 3000 percent from 2000 to 2020.

In order to achieve the objectives of the Vision 2020, short- and medium-term implementation strategies and tools have been developed. In the short-term, emphasis is being placed on macroeconomic stability and wealth creation to reduce aid dependency. Medium-term programmes will be enacted through the National Poverty Reduction Strategy (PRSP), now the Economic Development and Poverty Reduction Strategy (EDPRS), and the National Investment Strategy (NIS).

#### 1.1. The Poverty Reduction Strategy (PRSP)

Rwanda’s first PRSP was prepared between 2000 and 2002, initially as an instrument to link debt relief to progress on poverty reduction in enhanced HIPC-eligible countries. It presents Rwanda’s strategy for poverty reduction and economic growth, consistent with the Vision 2020. The PRSP institutionalised pro-poor development policies, strategies, programmes, and actions, and monitoring mechanisms. It formed the basis of the national planning framework for the next decade, guiding the government’s social and economic development investments as well as other priority expenditures.

The PRSP also served as a framework within which communities, the private sector, civil society, and development partners could form partnerships. The initial planning phase, PRSP-I, covered the period 2000-2005.

The analysis conducted during PRSP-I revealed a set of macroeconomic and structural challenges facing the country: low agricultural productivity, low human-resource development, limited employment opportunities, high population density and growth, high transport costs, and environmental degradation. Six broad priority areas requiring action were identified and are ranked in order of importance: 1) rural development and agricultural transformation, 2) human development, 3) economic infrastructure, 4) governance, 5) private-sector development, and 6) institutional capacity-building.

Agriculture was to remain the driving engine of the economy for the period under the PRSP implementation. Agriculture was considered to be the tradable sector in Rwanda, ready to expand immediately and make an impact on poverty reduction through increased incomes for the poor. In order to achieve the targeted annual per capita growth of 4-5 percent, the agricultural sector needed to contribute with 5.3 percent of overall GDP growth. Taking into account the major challenges facing the sector, agricultural transformation strategies had to address the issues of low and falling agricultural productivity as well as increasing land pressure and land degradation and soil fertility decline. Other strategies included diversification of agricultural production, improved commercialisation of agricultural products, and application of modern technologies, including an increased use of modern inputs. Increased fertiliser use was expected to play a critical role in achieving accelerated growth in the agricultural sector, contributing 4 percentage points of growth. The anticipated substantial growth in the sector was expected to come mainly from increased production of bananas, fruits and vegetables, potatoes, and livestock. Increased fertiliser use would particularly boost production in the former provinces of Ruhengeri, Gisenyi and Kigali-Ngali as well as in the tea- and coffee-growing areas.

Three Annual Progress Reports were prepared in 2002, 2003, and 2004. An independent evaluation of PRSP-I was completed in February 2006. The evaluation indicated that in practice, the PRSP has had only limited traction over the pace or orientation of reform in the agricultural sector or, indeed over the size of the sector budget. Some progress was made, particularly in the coffee and rice industries and in restocking, but agricultural growth has remained largely vulnerable. Also the expected substantial increase of fertiliser use and its impact on land productivity remained significantly below target. The low use of other farming intensification measures such as modern technologies, combined with the lack of a well-functioning agricultural extension system, has significantly contributed to the generally poor performance of the agricultural sector.

## **2. The National Agricultural Policy**

The National Agricultural Policy (NAP) was developed in April 2004 as a framework for the effective implementation of the government's development strategies in line with the Vision 2020 goals and the PRSP medium-term objectives in the agricultural sector, as well as with other relevant national, regional, and international development frameworks and policies. Its major objective is to contribute to the achievement of food security for the entire population, raise the incomes of the rural population, and boost the country's economy. It was developed to ultimately lead to a 50 percent reduction by 2020 in the number of people living from agricultural production. The NAP was further formulated in line with the National Investment Strategy (NIS), developed in 2002, which planned for heavy public investment in the agricultural sector during the *primary growth phase* between 2002 and 2006 and for strengthening the private sector, which is expected to be the driving engine in investments in the agricultural sector during the subsequent period, *the consolidation phase*.

The key principles of the National Agricultural Policy are:

- The pursuit of food security instead of food self sufficiency;
- The need to better integrate agriculture into the national economy and have it become a viable, profitable, and non-seasonal income generating profession;
- The strategic role of research and extension and their orientation to the real needs of market;
- The move toward market-oriented agriculture by promoting selected commodities for which the country has comparative advantages and where production can be economically profitable and viable;
- The importance of an adequate and effective institutional framework to ensure a conducive environment for a successful implementation of the Policy.

The Policy defines a set of objectives for the following five key programme areas:

*Crop Production:* NPA objectives in the crop production subsector are the following: (i) increased utilisation of agricultural inputs for intensification; improved water and soil management; and increased conservation, processing, and transformation of agricultural products; (ii) improved quantity and quality of traditional export crops, namely coffee, tea, and pyrethrum, in order to improve their competitiveness on international markets; (iii) diversification of export crops through the promotion of horticulture and the introduction of new non-traditional crops for external markets; and (iv) encouragement of the private sector to invest in production, processing, and marketing of inputs and agricultural products.

*Animal Resources:* The objectives for the animal resources subsector focus mainly on the areas of genetic improvement—improved animal husbandry, including feeding, hygiene, and veterinary services—and better integration of livestock and agriculture as appropriate farming systems.

*Soil and Water Management:* The objectives under this programme include: (i) adopting an integrated watershed management approach, appropriate to the environmental and site-specific socioeconomic setting; (ii) integrating various techniques for soil-erosion control, while also restoring and improving soil fertility; (iii) introducing and widely disseminating water harvesting for irrigation purposes while minimising the damage caused by heavy rains and run-off; (iv) increasing the development and more effective use of marshlands for production of high-value crops, and (v) introducing alternative technologies for the utilisation of other water resources for irrigation, such as lakes and ponds, rivers, and underground water.

*Cross-Cutting Areas:* The objectives here are to raise the effectiveness and impact of agricultural research and extension, farmers' associations and cooperatives, and the agricultural credit system, and to promote private-sector involvement and the competitiveness of the domestic agricultural sector.

### **3. The Strategic Plan for Agricultural Transformation (PSTA)**

The Strategic Plan for Agricultural Transformation (PSTA) was adopted in January 2005 to provide a comprehensive framework for the operationalisation of the National Agricultural Policy (NAP). It forms the framework for investment planning and budgeting in the agricultural sector for the government and, increasingly, for most development partners active in the sector. In March 2006, the government started a seven-year project to support the implementation of the PSTA.

The PSTA's guiding principles are: (i) diversifying/intensifying crops and developing animal resources; (ii) diversifying income and rural employment; (iii) supporting market-oriented production and integration of the agricultural economy within the national and regional economic context; (iv)

managing natural resources, particularly water and soils, in a sustainable manner; (v) strengthening the organisational and technical capacities of producers and other rural professional organisations; (vi) strengthening the capacities of proximity service providers, and promoting privatisation and the private sector; (vii) creating a conducive and effective institutional framework to promote the professionalisation of producers as well as encouraging productive investments, entrepreneurship, and employment creation in the agribusiness sector; (viii) redefining the role of MINAGRI and restructuring its actions toward the sectorwide programme approach (SWAP) within the decentralisation framework, and (ix) promoting a gender-sensitive approach and the reduction of vulnerability among underprivileged groups.

The PSTA specifies four priority programme areas: *Intensification and Development of Sustainable Production Systems*: This programme comprises six subprogrammes: (i) sustainable management of natural resources and conservation of water and soils; (ii) development of integrated livestock systems; agro-sylvo-pastoral production; and promotion of specialised, intensive animal husbandry; (iii) marshland development; (iv) irrigation development; and (v) supply and utilisation of agricultural inputs; and (vi) food security and vulnerability management.

2. *Support to Professionalisation of Producers*: It includes three subprogrammes: (i) promoting farmers' organisations and strengthening farmers' capacities; (ii) restructuring local service provision; and (iii) fostering rural finance systems and agricultural credit development.
3. *Promotion of Commodity Chains and Development of Agribusiness*: This programme contains four subprogrammes: (i) promotion and development of commodity chains; (ii) transformation and competitiveness of agricultural products, (iii) rural infrastructure development for support to producers, and (iv) creation of a conducive environment and promotion of entrepreneurship.
4. *Institutional Development*: The institutional development programme comprises activities under three subprogrammes: (i) the legal and regulatory framework; (ii) reforms and institutional support to public services, and (iii) coordination, monitoring, and evaluation of the agricultural sector.

### III. PSTA INVESTMENT PROGRAMMES UNDER THE ECONOMIC DEVELOPMENT AND POVERTY REDUCTION STRATEGY (EDPRS)

The Government of Rwanda will implement the EDPRS in May 2007, covering the period 2007 to 2011. The agricultural development and investment programme in the same period is consistent with the EDPRS<sup>1</sup> and will be implemented under the PSTA. The PSTA is therefore the operational framework for the implementation of the agricultural investment programme, to achieve the objectives defined in the larger planning frameworks of EDPRS, CAADP, and Vision 2020. The priority agricultural investment programmes and subprogrammes for the EDPRS period have been designed to be consistent with the four principal programmes of the PSTA:

#### **Programme 1. Intensification and Development of Sustainable Production Systems:**

##### 1.1 Sustainable Soil Conservation

The objective of this subprogramme is to increase the area protected against soil erosion from 40 percent in 2006 to 100 percent by 2012. The main actions for the achievement of this target are 1)

---

<sup>1</sup> The information provided in this chapter is based on the EDPRS - Agricultural Sector Planning, as of end February 2007.

development and implementation of programmes for construction and rehabilitation of progressive and bench terraces (or radical terraces) throughout the country, and b) promotion of appropriate agroforestry technologies for sustainable land-use and management. Under the soil-protection programme, it is planned to rehabilitate and protect a total of 13,000 ha of currently existing bench terraces and construct 30,000 ha new bench terraces. A total of 860,000 ha (about 64 percent of all land) will be protected through trenches and progressive terraces by 2010. The Agroforestry programme entails a number of actions leading to the planting a total of 42 million trees annually. It is expected that every household will have at least 30 trees by 2011. The necessary activities include broad sensitisation and training in agroforestry practices and the establishment of at least one tree nursery in each “umudugudu,” from one per secteur in 2006.

## 1.2. Marshland Development

The subprogramme targets the development of marshlands for utilisation throughout the year and for growing high-value crops, particularly rice. The objective is to raise the area of appropriately developed marshlands from around 11,000 ha in 2006 to 20,000 ha in 2011. The development and utilisation of marshlands will strictly respect environmentally sound best practices and will only be initiated after Environmental Impact Assessments have been done. The Government of Rwanda will continue to invest in marshland development but will increasingly promote community participation and encourage the private sector to invest in the area.

## 1.3 Irrigation Development

The irrigation subprogramme consists of development and promotion of irrigation systems, including small-scale systems for hillsides and lowlands as well as water harvesting systems and other water collection techniques. Diverse irrigation technologies including surface irrigation, pumping and sprinkler irrigation will be promoted. Under the subprogramme, it is intended to increase the total area under irrigation from 1 percent in 2006 to about 5 percent of the total agricultural land in 2012. The area under hillside irrigation will be increased from currently 130 ha to 3,200 ha in 2011. Small-scale irrigation using microdams for rain water harvesting will be promoted through construction of at least 1,000 micro dams to cover around 200 ha annually. About 800 community water-harvesting structures (community ponds) with a capacity of 500 cubic meters will be in place by 2011 from the baseline of 40 in 2006.

## 1.4 Support to Supply and Utilisation of Agricultural Inputs

The objective of this subprogramme is to promote the utilisation of improved seed and fertiliser application. Regarding the seed sector, the objective is to increase the rate of application of improved seed from 3 percent in 2006 to 20 percent. This will require raising production of improved foundation seed fivefold from 3,000 tonnes in 2006 to 15,000 tonnes in 2011. Training farmers in cooperatives in appropriate improved seed multiplication and utilisation is a critical strategy to achieve this goal.

The fertiliser promotion strategy has the objective to increase the average level of fertiliser application from currently 8 kg/ha to 20 kg/ha in 2011. This will necessitate a significant increase in the importation of fertilisers to around 56,000 tonnes in 2011 from the 2006 baseline of 14,000 tonnes. The government will facilitate the programme through bulk purchases and will provide financial support to the private sector through special lines of credit. Accompanying measures include training

of farmers associations in the use of both inorganic and organic manure with a target of achieving a utilisation rate of at least 70 percent of all farmers by 2011, up from 20 percent in 2006. Production and utilisation of organic manure is to be promoted through training in construction of composts, leading to composting in every farm household.

### 1.5 Improvement and Diversification of Animal Production.

The objectives of this subprogramme include: i) facilitating the access of poor households to livestock, ii) improving the genetic potential of the animals, iii) improving animal disease control and veterinary services, and iv) diversifying animal products such as fisheries and honey. The production targets of different animal products for 2011 as compared to the baseline of 2006 are as follows:

- Milk: Increase from 121,417 tonnes in 2006 to 290,000 tonnes in 2011
- Meat: Increase from 48,682 tonnes in 2006 to 61,400 tonnes in 2011
- Fish: Increase from 7,100 tonnes in 2006 to 17,500 tonnes in 2011
- Eggs: Increase from 2,452 tonnes in 2006 to 3,300 tonnes in 2011
- Honey: Increase from 1,029 tonnes in 2006 to 4,250 tonnes in 2011

With the objective of facilitating the access of poor households to livestock, the government started the “*One Cow per Poor Household Programme*” in 2006, by which up to 600,000 poor households will receive a cow by 2011. Improved breeds will be distributed under this programme, mainly applying a revolving-fund type of approach, whereby a cow recipient will give a heifer from his/her cow to another recipient in the community. The target is to increase the number of households with livestock from 71 percent in 2006 to 90 percent in 2011. The incomes of the beneficiaries of this programme are expected to increase by 15 percent (from 45 percent to 60 percent) in 2011.

Genetic improvement of livestock will be achieved mainly through the combination of importing exotic pure breeds and artificial insemination (AI). It is planned to import 1,700 pure breed cows, 700 improved small ruminants, 800 improved goats, and 2,000 pig rams annually. AI will play a significant role in genetic improvement of the local breeds. By 2012, the number of calves born through AI is expected to increase by 50 percent in addition to another 15,000 calves born from the embryo transfer technology. The target is to increase the proportion of high genetic potential cattle from 14 percent in 2006 to about 20 percent by 2011. In order to fully decentralise the AI services, at least one AI specialist will be trained to operate in each secteur.

More effective animal disease control and improved extension services including delivery of vaccines and other veterinary services will greatly improve the performance of livestock. The objective is to immunise 80 percent of the entire national herd annually against major epidemics (FMD, tuberculosis, brucellosis, black quarter, etc.) from the 18 percent baseline in 2006. Tick-borne diseases prevalent among cattle are planned to be reduced from 80 percent in 2006 to around 45 percent in 2011. In the same period, at least 25 border disease-control posts and 7 quarantine posts will be operational.

Improved animal feed through better supply and quality is critical for the performance of the animal sector. The government will facilitate the private sector in the production of high-quality animal feeds, with the target of having at least two operational feed-processing units in every district by 2011. In order to promote good quality fodder crops, at least 1.5 tonnes of improved forage seeds will be distributed annually from the national seeds service. In addition to improved animal feeds, zero grazing will be further promoted and all beneficiaries of the “*One Cow per Poor Household Programme*” are

expected to practice zero grazing. The number of livestock under zero grazing will rise from 6 percent in 2006 to about 25 percent of the total national herd in 2011.

The animal products diversification subprogramme consists mainly of promoting the fisheries industry and honey. Intensification of the fisheries industry will be achieved by improving the integrated management of lakes and restocking them with new appropriate high-quality fish species, building the capacity of operators in the industry, and improving the production, processing, and marketing infrastructure. Fish farming will be promoted with the target of establishing at least 1 fish farming unit in every district by 2011, up from the current 10 in the whole country. Five fish collection centres will be established in different locations in the country and one large-scale cold room installed in Kigali city. Fish production is expected to increase from a current 7,400 tonnes per year to 17,500 tonnes by 2012. A total of 1,800 professionals will also be operating successfully in the fisheries industry. Per capita annual fish consumption is expected to rise from 0.9 kg in 2006 to 2 kg in 2011.

Promotion of the honey industry will mainly consist of intensive professionalisation campaigns targeting honey producers in production, processing, and marketing. The programme hopes to increase the number of professional honey producers from a current 360 to more than 13,000 in 2011, particularly in the traditional bee-keeping areas around the natural forests of Nyungwe, Virunga, and Akagera. Total honey production is expected to rise from 1,029 tonnes in 2006 to about 4,250 tonnes in 2011.

#### 1.6 Improvement of Food Access and Vulnerability Management

The objective of this subprogramme is to ensure access to food for the most disadvantaged and vulnerable rural households. The main strategy is to significantly increase production of key food security agricultural products, coupled with introduction of special food security programmes in every district and conducting of regular surveys on social protection and food security.

The table below summarises the targets that are set for the most important food crops:

Table A1. Output Targets under the Food Security Programme

Crop	Baseline 2006 (tonnes)	Target for 2011 (tonnes)	Crop	Baseline 2006 (tonnes)	Target For 2011 (tonnes)
Maize	96,566	178,497	Wheat	20,083	42,924
Beans	250,386	306,254	Sorghum	181,683	22,193
Rice	34,563	85,793	Soybeans	21,165	27,105
Banana	2,549,517	3,114,336	Sweetpotato	919,290	1,122,949
Cassava	964,619	1,178,320	Yams	146,978	179,539
Irish potato	1,153,636	1,422,119			

#### Programme 2. Support to Professionalisation of Producers:

The main objective of this programme is to achieve a high level of professionalism among producers, supported by client-oriented and demand-driven research and extension services. The main components of the programme include strengthening of farmers' capacities, support to service

providers, promotion of agricultural research for development, and strengthening of rural finance systems. The four subprogrammes are as follows:

### 2.1 Promotion of Farmers' Organisations and Capacity Building of Producers

The objective of this subprogramme is to support the creation and strengthening of farmers' cooperatives, and their transformation into professional entities with adequate technical and organisational capacities to efficiently and effectively plan and implement the market-oriented production, processing, and marketing of their produce. The target is raise the number of cooperatives trained in farming as a business and in marketing and enterprise development from a current 75 to at least 2,000 in 2011. This will require government support in terms of organisational and technical skills training. A law regulating the establishment and functioning of cooperatives was passed in 2006 and the government's general policy is to transform all producers' associations into full-fledged cooperatives.

### 2.2 Restructuring of Services to Producers and Rural Innovation

Under this subprogramme, an effective extension services strategy will be developed and disseminated to all stakeholders in the agricultural sector.<sup>2</sup> Private-sector service providers need support for technical issues such as defined service standards in order to provide quality service delivery to the producers. The extension approach will include the establishment of demonstration plots in every district, in collaboration with the Community Innovation Centres (CICs). The subprogramme will also seek to increase the number of extension workers so as to halve the number of households reached per worker, from 3,000 to 1,500 in 2012. The efficiency of delivery of different agricultural extension services will be assessed in a participatory manner through the use of Citizen Report Cards, which will be introduced gradually beginning with four districts.

### 2.3 Promotion of Research for Development

Agricultural research systems will be strengthened with the objective of increasing the effective use of technological innovations in the agricultural sector, both in crop and animal husbandry. Agricultural research will be demand driven and participatory in order to produce needed results. Application of the watershed approach for research needs assessment and the innovation systems approach for knowledge dissemination, involving major stakeholders to form mutual coalitions, will significantly improve implementation of research results. The capacities of the national research institutions active in the agricultural sector—particularly ISAR—will be strengthened, and close collaboration among them and with external research institutions will be forged. The number of qualified researchers in ISAR will increase from a current 102 to 150 in 2012, and the number of technicians will increase from 65 to 300 in the same period.

### 2.4 Rural Financial Systems and Agricultural Credit

The objective of this subprogramme is to increase the share of agricultural credit from a current 3 percent to 15 percent of all credit in the national credit system. This will be achieved through a number of measures, including sensitisation and incentivisation of farmers to use credit and other financial

---

<sup>2</sup> A national agricultural extension strategy is currently under development. A number of development partners, including IFAD, DFID and the Belgian Cooperation, are providing support in extension- and innovation-related activities under MINAGRI.

services (such as guarantee fund) for their agricultural activities. The government will strengthen different risk-minimisation and insurance mechanisms to facilitate access to agricultural credit. Credit lines and special agricultural-production and export-promotion facilities will continue to be funded. The business development centres of private-sector federations will provide training and support to farmers and farmers' cooperatives in the development and implementation of bankable agricultural projects.

### **Programme 3. Promotion of Commodity Chains and Development of Agribusiness**

#### **3.1 Creation of an Environment Conducive to Business and Entrepreneurship Development**

The objective of this subprogramme is expanding market access for agricultural products through improved competitiveness and diversification. Achievement of this objective will need to focus on a set of selected priority crops and animal products, facilitate export diversification, promote value addition and competitiveness, and improve rural infrastructure to facilitate product marketing. The strategy aims at significantly increasing both the quantity and quality of the products for export. The government will continue to support farmers' cooperatives to improve the quantity and quality of production through the acquisition of the necessary inputs and credits, and the facilitation of access to regional and international markets.

#### **3.2 Promotion and Development of Specialty and Crops and Animal Products**

The five products to be promoted under this subprogramme include coffee, tea, pyrethrum, hides and skins, and horticulture. The proportion of fully washed coffee is expected to increase from 10 percent in 2006 to 90 percent in 2011, and corresponding total coffee production from about 19,000 tonnes to 33,000 tonnes. Total tea production is expected to rise from 17,000 tonnes in 2006 to about 27,500 tonnes in 2011, while the high-quality tea leaf proportion will increase from 4.3 percent to 25 percent in the same period. The target for pyrethrum is to increase the crude extract by 50 percent from 1,430 kg in 2006 to 2,145 kg in 2011. Production and export of hides and skins will rise by 55 percent, from 1,508 tonnes in 2006 to 2,330 tonnes in 2011.

Targeted promotion of horticultural crops is expected to increase horticultural export products tenfold, from a current 1,992 tonnes to about 20,000 tonnes. During the period from 2006 to 2011, the production and export of cut flowers and ornamentals will increase from 500 tonnes to about 10,000 tonnes; vegetables from 5 tonnes to 600 tonnes; fruits and nuts from 980 tonnes to about 5560 tonnes, and essential oils from 507 tonnes to 2,060 tonnes.

Finally, special attention will be given to the promotion of sericulture as a new diversification opportunity. Incentives will be provided to the private sector with the aim of increasing the area under mulberry trees (for silk worms) from a current 15 ha to 10,000 ha in 2011.

#### **3.3 Transformation and Competitiveness of Agricultural and Animal Products**

The government will strengthen support to the private sector to improve the environment for investment and competitiveness on regional and international markets. Rwandan export products will have to achieve and sustain international quality standards, to be ensured through the Rwanda Bureau of Standards.

The strategy for promoting the transformation of and value addition to agricultural products will focus on specialised commodity chains in each district to maximise utilisation of locally available potential.

Government facilitation and incentives will be provided to the private sector in order to construct the necessary agroprocessing units and promote cottage industries for the transformation and value-addition processes, with the target of raising the total number of agroprocessing units from a current 121 to 400 in 2011. It is expected that the number of coffee-washing stations will increase by 240 by 2011. Five new tea factories will be in place to increase the total number to 15, and two new factories for processing hides and skins are expected to be constructed, increasing the number from one unit to three in 2011. Modern cold-chain facilities are to increase from currently one to 20 in 2011.

### 3.4 Development of Rural Infrastructure

The objective of this subprogramme is to improve market accessibility for agricultural products. The government will rehabilitate and construct basic infrastructure such as feeder roads and will facilitate the private sector in the establishment of other necessary infrastructure for the storage, transport, and processing of agricultural produce.

For the improvement of rural roads, the feeder road network will be expanded from a current 8,500 km to 9,300 km in 2011. This will be achieved through an annual addition of about 130 km to the current 6,500 km of earth roads and 40 km to the current 2,000 km of gravel roads. In order to improve the quantity and quality of rural markets, the number of modern rural markets will be increased from 25 in 2006 to 90 in 2011. Modern food-grain storage facilities will be established in collaboration with local administrative authorities and the private sector to increase the total food-grain storage capacity from 9,000 tonnes in 2006 to 15,000 tonnes in 2011. Among the different measures is the establishment of modern plastic “hermetic food-grain storage facilities” throughout the country, to increase storage capacity from a current 100 tonnes to 2,000 tonnes in 2011.

In the animal production sector, the private sector will be encouraged to establish and efficiently operate a number of facilities. The target is the establishment of modern milk-collecting centres in each of Rwanda’s five “milk basins.” The number of refrigerated lorries for animal products will increase from 1 to at least 5 in 2011. The number of modern slaughter houses is also expected to increase from 1 to about 5 in 2011. Construction of at least one factory by the private sector to process UHT milk will be facilitated.

## **Programme 4. Institutional Development**

The objective of the programme is to strengthen the institutional framework for the efficient and effective functioning of the agricultural sector, both at a central and decentralised level. Through the programme, MINAGRI will effectively coordinate all stakeholders in the sector to ensure dialogue on all issues related to the sector: planning of policies, strategies, programmes, implementation, and sector monitoring and evaluation. The strengthened institutional framework will also be capable of providing accurate and up-to-date data and information to enable evidence-based and result-oriented planning and adaptive management of different programmes in the sector.

Major activities under the programme aim to:

- (i) Ensure a steady increase in and effective use of the budget allocated to agricultural development activities. The target is to increase the resources allocated to direct agricultural

activities *per se* from about 4 percent in 2006 to achieve the CAADP recommended level of 10 percent of the total national budget in 2011. Capacity will be enhanced for efficient budget execution with the target of achieving an execution rate of at least 95 percent for the recurrent budget and at least 85 percent for the development budget.

- (ii) Achieve adequate staffing as planned in the organogrammes at MINAGRI, the semi-autonomous agencies operating under MINAGRI, and in the decentralized agricultural services. The staffing level is to gradually be raised from a current 30 percent of actual need to 100 percent in 2011. Human resources capacities are to be strengthened, both at the central and district levels, with regard to planning, budgeting, financial management. and monitoring and evaluation.
- (iii) Develop appropriate mechanisms and capacities for the provision of accurate data and information throughout the sector on a regular basis, particularly with regard to agricultural statistics. This will include information on markets and food security, and related early-warning information. It is envisaged to provide crop assessment reports every agricultural season and to provide benchmark agricultural statistics every five years.
- (iv) Improve the coordination of the sector and, monitoring and evaluation through the development and effective implementation of capacity-building plans at different levels in the sector to ensure that the country's agriculture policy is integrated and implemented in all district development plans. Furthermore, efficient coordination of all stakeholders and their active involvement in monitoring and evaluation processes, such as annual joint sector reviews, will provide an appropriate environment for dialogue and adaptive management of the agricultural sector.

### **Estimated Cost of Implementing the PSTA Programmes**

The following tables present the estimated cost of implementing the above PSTA/EDPRS programmes. Table A2 shows the estimated cost for each programme and sub-programme for the period 2007-2011, under unconstrained investment resources. Table a3 compares the cost for each programme across three scenarios: (i) one with no resources constraint, meaning that each programme is fully funded to meet all programme targets; (ii) one with medium resource constraint, where the level of available funding would allow for only one about third of the targets to be met; and (iii) one under more limited resource availability, leading to only around 25% of targets being met.

The costs presented here are different from the projected long term funding needs in Part E of this document. The latter figures represent estimations of the level of required public funding to achieve the growth and poverty reduction targets under the PSTA agenda, based on the historical relationship between sector growth and public expenditure in Rwanda and other African countries.

**Table A2: Cost of PSTA Programmes and Subprogrammes, 2007–2011<sup>3</sup>**

<b>Programme</b>	<b>Subprogramme</b>	<b>Cost for 2007 – Unconstrained Scenario (FRw)</b>	<b>Cumulative cost 2007-2011 - Unconstrained Scenario (FRw)</b>
Programme 1: Intensification of Sustainable Production Systems	1.1. Soil Conservation	41,482,622,834	232,294,845,317
	1.2. Marshlands Development	5,393,705,625	26,968,528,125
	1.3. Irrigation Development	1,126,200,000	6,188,000,000
	1.4. Inputs Promotion	3,005,545,200	20,190,959,000
	1.5. Animal Production Development	24,498,934,788	121,208,500,980
	1.6. Food Access and Vulnerability Management	3,798,500,000	29,888,200,000
<b>TOTAL Programme 1</b>		<b>79,305,508,447</b>	<b>436,739,033,421</b>
Programme 2: Professionalisation of Producers	2.1. Promotion of Cooperatives and Capacity Building of Producers	2,383,355,000	15,310,525,000
	2.2. Restructuring of Services to Producers and Rural Innovation	90,000,000	900,000,000
	2.3. Promotion of Research for Development	4,743,676,000	25,339,260,000
	2.4. Rural Financial Systems and Agricultural Credit Development	4,134,162,582	24,775,019,489
<b>TOTAL Programme 2</b>		<b>11,351,193,582</b>	<b>66,324,804,489</b>
Programme 3: Promotion of Commodity Chains and Development of Agribusiness	3.1. Promoting Business and Entrepreneur Development	330,000,000	1,650,000,000
	3.2. Promotion of Traditional Export Crops	469,081,267	2,345,406,333 <sup>4</sup>
	3.3. Transformation/Competitiveness of Agricultural and Animal Products	2,727,259,000	16,036,295,000 <sup>5</sup>
	3.4. Rural Infrastructure Development	1,176,081,040	6,359,405,2000 <sup>6</sup>
<b>TOTAL Programme 3</b>		<b>4,702,421,307</b>	<b>26,391,106,533<sup>7</sup></b>

<sup>3</sup> The allocation of resources is based on three scenarios: One unconstrained scenario and two constrained scenarios: the base and medium scenarios. The unconstrained scenario presents the actual cost of the programme to achieve the objectives and targets set for 2011. The (minimum) base scenario targets reaching about 25 percent of the targets set, and the medium scenario targets reaching around 33 percent of the targets set in the unconstrained scenario. The scenario to be implemented will depend on availability of resources.

<sup>4</sup> Contribution from the private sector is estimated at about 18 billion FRw, bringing total investment to just above 20 billion FRw

<sup>5</sup> Investment from the private sector is estimated at around 96 billion FRw, with total investment of about 102 billion FRw.

<sup>6</sup> The private sector will contribute to infrastructure development, particularly through the establishment of “hermetic” storage facilities. The ministry of infrastructure will finance construction and rehabilitation of the larger part of rural roads. Total investment for rural infrastructure is estimated at about 35.6 billion FRw.

<sup>7</sup> Total investments, including those from the private sector, will amount to around 160 billion FRw.

<b>Programme</b>	<b>Subprogramme</b>	<b>Cost for 2007 – Unconstrained Scenario (FRw)</b>	<b>Cumulative cost 2007-2011 - Unconstrained Scenario (FRw)</b>
Programme 4: Institutional development	4.1. Capacity Strengthening of Agricultural Institutions	2,115,798,686	14,274,857,491
	4.2. Support to Agricultural Statistics System	362,268,400	1,811,342,000
	4.3. Development and Strengthening of Monitoring and Evaluation Systems	68,107,360	408,306,400
<b>TOTAL Programme 4</b>		<b>2,546,174,446</b>	<b>16,494,505,891</b>
<b>TOTAL INVESTMENT – MINAGRI</b>		<b>545,949,450,334</b>	
<b>TOTAL INVESTMENT IN AGRICULTURE SECTOR:</b>		<b>733,354,634,997<sup>8</sup></b>	

<sup>8</sup> These include investments from MINAGRI, other ministries, and the private sector.

**Table A3: Summary of the Cost of the PSTA Programmes under Three Scenarios**

Programme	Budget 2007 <sup>9</sup> Base Scenario (FRw)	Cost for 2007 Unconstrained Scenario (billion FRw)	Cumulative Cost 2007 – 2011		
			Base Scenario (billion FRw)	Medium Scenario (billion FRw)	Unconstrained Scenario (billion FRw)
1. Intensification and Development of Sustainable Production Systems	8,931,177,152	79	155	215	437
2. Support to Professionalisation of Producers	2,262,467,068	11	13	19	66
3. Promotion of Commodity Chains and Development of Agribusiness	6,740,416,823	5	6	11	26
4. Institutional Development	2,050,938,957	3	5	8	16
<b>TOTAL – MINAGRI</b>	<b>19,985,000,000</b>	<b>98</b>	<b>179</b>	<b>253</b>	<b>545</b>

<sup>9</sup> Budget includes recurrent budget, development budget, and transfers to districts.

## IV. FINANCE, INFRASTRUCTURE, AND INSTITUTIONS IN RWANDA'S AGRICULTURE

### 1. The National Investment Strategy (NIS)

The NIS was developed and adopted in October 2002. It makes projections of the necessary public investments in all sectors in order to achieve the PRSP objectives. According to the NIS, Gross Domestic Investments, from both the public and private sectors, have to increase from 18 percent GDP in 2001 to 20–22 percent GDP in 2010 in order to achieve a GDP annual growth rate of at least 7 percent, which is necessary to attain the PRSP objectives. Corresponding public investments in the agricultural sector are to increase from 8.3 billion FRw in 2002 to a peak of 14.7 billion FRw in 2006, then gradually decrease to 10.4 billion FRw in 2010. It is expected that from 2007 onward, the private sector will be the driving engine of growth and will greatly contribute to private investments in agriculture.

### 2. Agricultural Sector Funding Through the Government Budget and Public Sector

Public agricultural financing is carried out through different projects and programmes, planned in the Public Investment Programme (PIP) and budgeted according to the Medium Term Expenditure Framework (MTEF). The resources allocated to the agricultural sector in the past five years have been far lower than what is required to achieve the PRSP and Vision 2020 objectives and do not meet the Maputo goal of allocating at least 10 percent of the total government budget to the agricultural sector. The percentage of funds allocated to the agricultural sector fell from 8.63 percent in 2002 to 3.28 percent in 2006 (see Table A8.1 in the Annex), mostly due to a general lack of adequate resources as well as a lack of properly prepared sector strategies under the PRSP. Significantly increased funding for priority areas such as energy and fuel and transport and communication has also contributed to lower allocations to the agricultural sector.

The government has substantially increased the number of agricultural projects in the last five years in different areas, including soil and water management/marshland development, the rice sector, export crop promotion, dairy cattle development, and fisheries. World Bank financing of the Rural Sector Support Project (RSSP) and the Rural Agricultural Markets Promotion Project (PDMAR) represented 27.13 percent of total agricultural commitments. The three multilateral agencies—the World Bank, African Development Bank (ADB) and the International Fund for Agricultural Development (IFAD)—together contributed 60.96 percent of all committed resources, as loans for 8 projects. The United States, the Netherlands, Belgium, and China accounted for 23.37 percent of all committed resources in the agricultural sector, as grants for 20 projects. The remaining 15.67 percent of financing came from the FAO and different NGOs for several small projects and programmes.

### 3. Agricultural Sector Funding Through Private-Sector Financing Institutions

The Banque Nationale du Rwanda (BNR) oversees all banking and credit and savings institutions in the country. Two non-commercial banks, the Banque Rwandaise de Developpement (BRD) and the Union de Banques Populaires (UBPR), play a significant role in agricultural financing. BRD promotes development investments and is increasingly paying particular attention to the agricultural sector. In 2004, the government strengthened the role of BRD to promote investments, *inter alia*, in the areas of agriculture and tourism. BRD is playing an increasingly important role in financing the agricultural sector. Total BRD loans to the agricultural sector rose by about 250 percent from 2001 to 2004. However, while BRD lending approvals to the agricultural sector continue have risen, disbursements have not followed the same trend. Disbursements rose from 244 million FRw in 2001 to 1.2 billion FRw in 2004, but fell drastically by more than 66 percent in 2005, to only 403 million FRw, indicating

the relatively low level of absorptive capacity of investments in the agricultural sector, resulting from long delays by project promoters in fulfilling the conditions for disbursements.

In 2004, BRD's Microfinance Unit was restructured and renamed the Fund for the Strengthening and Development of Microfinance (FOREDEM), in conformity with its role as a promoter and not implementer of microfinance. Since 2004, FOREDEM has managed to mobilise resources and provide funding for different projects in the agricultural sector. As of June 2006, loan approvals totalled 1.62 billion FRw for 20 projects, including 13 in coffee and 5 for refinancing microfinance institutions (MFIs). According to its strategy, the financing of farmer cooperatives and the refinancing of MFIs will enable BRD to reach 8,034 members of cooperatives and 14,871 MFI clients.

The Banques Populaires are credit and savings cooperatives that provide medium, small, and microcredit loans to their members. There are currently 149 branches, distributed in 102 of the country's 106 former districts. The total loan amount approved in the agricultural sector rose from 272.37 million FRw in 2001 to 3.5 billion FRw in 2004, representing 7.2 percent and 13.4 percent, respectively, of total approved loans. The majority of members of the Peoples Banks are small depositors with savings of less than 10,000 FRw. In 2004, these constituted 72.3 percent of all depositors. About 12.5 percent of all loans granted by the Banques Populaires in 2004 were between FRw 10,000 and 20,000 FRw. More than 80 percent of all loans were granted to members for less than 500,000 FRw.

Besides the BRD and UBP, many microfinance institutions are involved in the agricultural sector, although determining the exact amount of credit channelled through them and other rural financing organisations has been difficult, since they have not had to report to any central institution. However, recent BNR regulations will make the surveillance of MFI operations easier through the regular provision of reports.

In recent years, a small number of commercial banks have shown increasing interest in agricultural-sector activities related to the production, processing, marketing, and trading of agricultural inputs. However, the level of financing going to the sector remains insignificant when compared to other sectors. Loans to the commerce and construction sectors, for example, accounted for more than 60 percent of all bank loans over the entire period.

#### **4. Central Government Ministries and Their Role in Agriculture**

*The Ministry of Agriculture and Animal resources (MINAGRI)* is responsible for developing strategies and programmes for the operationalisation of the agricultural policy. It also coordinates, monitors, and evaluates policy implementation and carries out necessary policy reviews and adjustments.

*Ministry of Finance and Economic Planning (MINECOFIN)* is responsible for planning all national public investment programmes, mobilising and allocating concomitant financial resources, and monitoring the utilisation of financial resources invested in all sectors as well as their impact on general economic growth and poverty reduction. It ensures that investment programmes in the agricultural sector are consistent with national development frameworks such as the PRSP/EDPRS, and sets budgeting ceilings for the annual and three-year MTEF sector budgets in accordance with national priorities. With MINAGRI, it coordinates the mobilisation of resources for the agricultural sector.

*The Ministry of Lands, Water, Forestry, Environment and Natural Resources (MINITERE)* is in charge of lands, water, forestry, and the environment. It is responsible for administrative issues relating

to land and water utilisation for agriculture, whereas MINAGRI is in charge of land and water use for agricultural production.

*The Ministry of Infrastructure (MININFRA)* is in charge of roads and energy, and plays a key role in the development of rural infrastructure, including rural roads and rural energy supply.

*The Ministry of Local Government, Good Governance, Community Development and Social Affairs (MINALOC)* is responsible for coordinating, *inter alia*, all developmental activities carried out at the district and sector levels and is as such directly involved in the coordination of planning and implementation of agricultural activities.

*The Ministry of Commerce, Industry, Tourism and Cooperatives (MINICOM)* plays an important role in the promotion of industrial processing, marketing, and the export of agricultural products. It is further in charge of promoting cooperatives, which is a key strategy for the agricultural transformation process.

*The Ministry of Gender and Family Promotion (MIGEPROF)* in the Prime Minister's Office, is responsible for gender promotion and women's empowerment in agricultural activities.

*The Ministry of Education* is increasingly involved in ensuring that agriculture is an integral part of the curricula, both in theory and practice, for all primary schools.

*The Ministry of Youth, Sports and Culture (MIJESPOC)* promotes the productivity of youth in all sectors and particularly in rural areas, where the majority of the youth live.

## **5. Parastatals and Other Public Sector Institutions**

Most of the parastatal institutions and semi-autonomous agencies that are involved in the agricultural sector operate under the Ministry of Agriculture. A limited number of institutions with major activities in the agricultural sector operate outside of the direct authority of the ministry. These are: the *Rwanda Investment and Export Promotion Agency (RIEPA)*; the *Rwanda Bureau of Standards (RBS)*, which is responsible for certification and quality control; and the two specialised sector-promotion agencies, *OCIR-Café* and *OCIR-Tea*—all of which operate under the Ministry of Commerce. The *Rwanda National Institute of Statistics (RNIS)* operates under the Ministry of Finance. The following institutions and agencies directly depend on the Ministry of Agriculture:

*Rwanda Agricultural Development Authority (RADA)*: RADA's mission is to contribute to the growth of agricultural production through the development of appropriate technologies, and to provide advisory, outreach, and extension services to stakeholders in agriculture to allow them to modernise the sector according to the framework established by Vision 2020, PRSP, NAP, and PSTA.

*Rwanda Animal Resources Development Authority (RARDA)*: RARDA's mission is to contribute to the growth of animal production through the development of appropriate technologies, and to provide advisory, outreach, and extension services to stakeholders in the animal resources subsector to allow them to modernise the subsector according to the framework established by NAP, PRSP and Vision 2020.

*OCIR-Tea*: The mission of *OCIR-Tea* is to (i) participate in the development of the policy and strategies for the tea industry and follow-up on their implementation, (ii) fix the norms of tea quality, (iii) produce and disseminate all pertinent information concerning the tea industry, (iv) coordinate and promote the work among different actors involved in the tea sector, (v) collaborate in the development of the tea sector, (vi) collaborate in research and extension services in the tea sector, and (vii) participate in international negotiations relating to the tea sector and ensure the implementation of the subsequent decisions that are made. *OCIR-Tea*'s major objective is to make the Rwandan tea industry

become a competitive sector, producing and exporting quality teas in different forms—bulk, blended, and packaged.

*OCIR-Café*: The mission of OCIR-Café is to (i) participate in development of the policy and strategies for the coffee industry and follow-up on their implementation, with regard to production, processing, marketing, research, and training, (ii) fix the norms of coffee quality and the classification systems and control coffee quality, (iii) produce and disseminate all pertinent information concerning the coffee industry, (iv) coordinate and promote the work among different actors involved in the coffee sector, (v) collaborate with other actors in research and extension work in the coffee sector, (vi) support coffee growers' associations involved in production, coffee washing, and marketing, (vii) provide training to all stakeholders in the coffee industry, and (viii) participate in international negotiations relating to the coffee sector and ensure the implementation of the subsequent decisions that are made. Specific objectives include supporting increased quality coffee production, supporting coffee processing and value addition, and increasing the promotion and marketing of Rwanda coffee.

*Institut des Sciences Agricoles du Rwanda (ISAR)*: ISAR's mandate is to promote the scientific and technical development of agriculture and livestock in Rwanda. Its major activities are to: (i) conduct studies, research, and experiments for agricultural development, (ii) contribute to the training of researchers and specialists in the agricultural sector, (iii) collaborate with other research institutions, and (iv) publish and disseminate research results and contribute to their extension. ISAR's current strategic plan is based on a *decentralisation/zonal approach*, whereby research centres will be located within the different agroclimatic zones of the country to promote direct contact and interactions with farming communities and other partners in rural development. This will involve a *participatory and integrated (watershed) approach* to research and technology transfer in order to facilitate the involvement of all key stakeholders in problem identification, priority setting, research and development planning, technology transfer, and monitoring and evaluation.

According to its vision statement, ISAR is to become an Institute that is market responsive, demand driven, and client oriented, sustainably generating, developing, adapting, and disseminating agricultural knowledge, information, and technologies that contribute to economic growth and social welfare. Lack of human resources, inadequate research funding, and a number of other factors have affected ISAR's performance. These include: (i) difficulties in allocating limited financial resources to a huge number of research programmes; (ii) low level of motivation due to inadequate compensation and lack of clear career development paths for researchers; (iii) insufficient regional cooperation; (iv) a poor link between research, extension, and farmers resulting in a poor rate of technology transfer and adoption; and (v) high dependency on external funding.

## **6. Producer Organisations**

The development and promotion of farmers' cooperatives has been identified as a key strategy for improving production and increasing marketing effectiveness. The cooperatives sector in Rwanda is large and diverse. A recent survey conducted by the MINICOM Task Force on cooperatives identified a total of 12,934 cooperatives or associations in Rwanda, with 68.7 percent operating in the agricultural sector, 12.8 percent in microfinance, 5 percent in handicrafts, and 4.4 percent in commerce. More than 70 percent of the cooperatives are small-sized, with 10-50 members. A few big cooperatives with 500 members or more are involved in rice and tea production.

Cooperatives are faced with many challenges affecting their performance: (i) lack of an enabling legal environment;<sup>10</sup> (ii) organisational weaknesses and lack of ownership by members; (iii) limited technical and managerial capacities, (iv) poor profitability, and (v) lack of adequate human and financial resources.

The Government of Rwanda adopted the Cooperative Promotion Policy in March 2005 with the objective of facilitating the comprehensive development of cooperatives in order to make a significant contribution to the national economy. Within the context of this policy, the government intends to create a National Cooperative Agency. The Agency will strengthen cooperatives by building institutional capacity and providing extension services, and will assist their development alongside other commercial enterprises.

## V. RELATIONSHIPS BETWEEN VISION 2020, EDPRS, CAADP, AND THE PSTA

The goal of the CAADP process in Rwanda is to support the development of a comprehensive rural development component under the Economic Development and Poverty Reduction Strategy (EDPRS), which is aligned with the CAADP objectives and principles that Rwanda and other African countries have collectively defined as part of the broader NEPAD agenda. It has been carried out in full compliance with the basic principle guiding the country-level implementation process, which is to build upon and add value to ongoing country efforts. In particular, its content, timing, and output have been fully aligned with the EDPRS process. It has consisted of the following three specific tasks: (a) a stocktaking and review of existing strategies, plans, and resource allocation in the agricultural and rural sectors; (b) an analysis of the role of agriculture in growth and poverty reduction in Rwanda and the alignment of long-term agricultural development efforts with the CAADP framework; and (c) the formulation of policy and investment strategy options for sustained agricultural growth, poverty reduction, and food and nutrition security in Rwanda.

The outcome, which is summarised in the current report, addresses three sets of issues, all critical for the realisation of CAADP's growth and poverty-reduction objectives in Rwanda. These are: (i) a determination of the extent to which existing national policies, budget allocations, and investment strategies are successfully tackling the key constraints to achieving a 6 percent growth rate for the agricultural sector; (ii) the identification of eventual gaps and of sources of poverty-reducing growth in the sector; and (iii) the definition of policy, budgetary, and investment options to fill the gaps and exploit existing sources of growth to reduce poverty and achieve food and nutrition security.

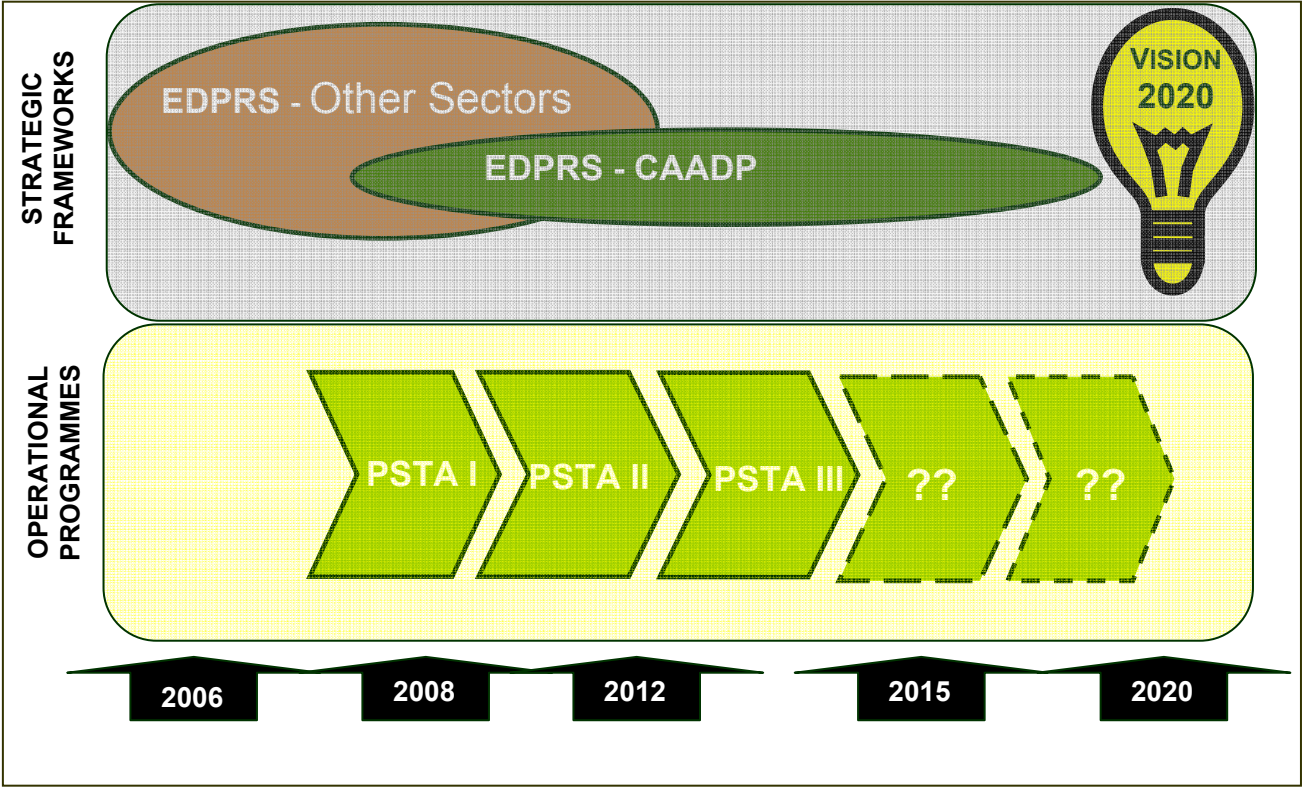
The diagram and two boxes below describe the relationships between the Vision 2020, the EDPRS, the CAADP agenda, and the PSTA. The first three of these are strategic or indicative in nature and have varying time horizons and degrees of sectoral coverage. While the Vision 2020 provides indicative long-term guidance and has a broad number of national-level objectives, the EDPRS represents a multisector, medium-term programmatic framework seeking to integrate development efforts across key economic sectors. CAADP combines the long-term outlook of the Vision 2020 with the programmatic focus of EDPRS, applied to the agricultural sector. It thereby adds value to the former by translating the Vision into a programmatic content for the agricultural sector, and to the latter by developing a roadmap for the operationalisation of current and future agricultural sector components of EDPRS. The PSTA, on the other hand, has a strong short-term, operational nature and a primarily

---

<sup>10</sup> A draft law on cooperatives has been adopted by the Cabinet and is expected to be passed by the Parliament by April 2007.

subsectoral focus within the agricultural sector. It defines and helps implement the short-term investment and policy measures that are required at the subsectoral level to achieve the sectorwide objectives specified in the EDPRS and CAADP frameworks.

### RELATIONSHIP BETWEEN CAADP, EDPRS, AND PSTA



## Box 1: Definitions and Descriptions

**VISION 2020:** An indicative long-term, national-level strategic framework.

**EDPRS:** A medium-term, multisector, comprehensive framework guided by the Vision 2020, with a current time horizon to 2012.

**CAADP:** A long-term agricultural-sector specific framework, imbedded in but reaching beyond the current EDPRS.

**PSTA:** A set of agricultural subsector-specific operational programmes to be implemented with the objective of achieving the EDPRS and CAADP objectives in the medium and long terms, respectively.

## Box 2: Programmatic Relationships

**CAADP** programmatically translates the **Vision 2020** for the agricultural sector by giving it a substantive content.

**CAADP** provides sector-specific guidance for the definition of the agricultural sector component of current and subsequent EDPRS programmes.

**CAADP** sets the strategic framework that guides the implementation of the current and future PSTA or similar subsector investment programmes.

## PART B

### PAST PERFORMANCE AND FUTURE PROSPECTS FOR GROWTH, POVERTY REDUCTION, AND FOOD AND NUTRITION SECURITY

The main philosophy behind the CAADP process is to add value to country efforts, where necessary, to ensure that the growth and poverty objectives under the agenda are achieved. Doing so requires a review of past, current, and emerging future efforts against these objectives. The current section therefore reviews:

- the recent growth performance of Rwanda's agricultural sector as well as future growth and poverty outcomes based on the observed trends;
- how such outcomes compare with the targets that are set under the CAADP agenda and under the Government of Rwanda's current targets for the sector, as well as with Millennium Development Goal (MDG) poverty and nutrition objectives; and
- the prospects of meeting these targets and the implications for future sector growth and poverty-reduction strategies

#### I. IS RWANDA ON TRACK TO MEET CAADP'S GROWTH AND POVERTY TARGETS?

##### **1. Recent Performance and Current Trends Compared to CAADP Targets**

Rwanda's recent growth performance has been quite robust, with agricultural and overall GDP growth rates around 6 percent, resulting in GDP per capita growth rates of well above 2 percent between 2001 and 2005. Because the economic recovery following the genocide was at its peak during these years, it is unlikely that the same pace of growth can be exceeded or even sustained over the medium to long run. Future growth trends for the sector under the status quo are therefore projected to 2015 and 2020 based on the following assumptions:

- (i) A stabilisation of long-term crop-yield growth rates around the observed averages during the period 2000–2005, except for the rice and fruits/vegetable sectors, where productivity growth is expected to slow from 13 percent and 20 percent, respectively, to 2.9 percent and 6 percent per year.
- (ii) An annual expansion rate of crop area of around 0.5 percent, leading to an overall increase in cropland by 100,000 ha to a total of 1.8 million over the projection period.

The projected long-term trends are summarised in Figures B.1–B.3 below.

##### **2. Projected Growth and Poverty Outcomes under Current Trends**

As shown in Figure B.1(a), under these more realistic assumptions, future growth performance is projected to stabilise at around 4 percent annually both for the overall economy and the agricultural sector, with an average per capita income growth of 1 percent. Although positive, these growth rates are significantly less than the 6 percent CAADP has targeted for the agricultural sector. The projected performance is also less than required to achieve effective reduction in poverty rates by 2015. According to Figure B.2(a), the projected decline in poverty rates at the national level and for individual household categories in rural areas is below 10 percent. Given the faster population growth rate over the same period, the absolute number of poor people is projected to increase across all groups and by about 1.5 million for the country as a whole, as indicated in Figure B.3(a).

## II. WOULD EMERGING GOVERNMENT STRATEGIES ACHIEVE CAADP'S GROWTH AND POVERTY REDUCTOIN TARGETS?

### 1. Overview of Government's Strategic Objectives for the Agricultural Sector

The Government of Rwanda's objectives for the agricultural sector can be found in the four key strategic documents discussed earlier: the 2020 Vision, the National Agricultural Policy, the Economic Development and Poverty Reduction Strategy, and the Strategic Plan for the Transformation of Agriculture. In addition, strategic development plans exist for various subsectors such as rice, coffee, tea, and livestock, as well as for key investment areas such as fertilisers, marshland development, and research and extension. In many cases, long-run objectives are set in terms of output targets, crop areas, and/or yield levels. For the purpose of projecting the outcomes of emerging government strategies, subsector targets have been translated into equivalent yield growth rates. Although the different subsector strategies and plans specify different time periods for some subsectors, the projections assume that target yield growth rates will be reached by 2015 and maintained through 2020. There are three subsectors (sweet potato, beans, and banana) that are important for poverty-reduction and nutrition objectives, but for which targets could not be found in government documents at the time of the modeling exercise<sup>11</sup>. The projections assume annual yield growth rates of around 3-4 percent for these subsectors, which are more than 2 percentage points higher than current trends for the first two products.

### 2. Projected Growth and Poverty Outcomes under Government Plans and Strategies

The projection results presented in Figure B.2 indicate that achieving the targets that are defined in current government strategies would allow the country to meet the CAADP target of an overall sector growth rate of 6 percent by 2015. Successful implementation of these strategies would allow the country to sustain its recent strong performance over the next 10 years and beyond. Both overall GDP and agricultural GDP would continue to grow at around 6 percent. Per capita GDP growth would even accelerate to exceed 3 percent, leading to a decline in poverty rates by about 20 percent, or twice as much as under the continuation of current trends, according to Figure B.2(a). As shown in Figure B.3(b), the absolute number of poor people at the national level as well as among all household categories would still continue to increase, albeit quite slightly. The 20 percent reduction in poverty would, however, be significantly less than the MDG goal of halving poverty by 2015 (MDG1).

## III. ACHIEVING MDG1 REQUIRES GROWTH BEYOND CURRENT PSTA AND CAADP TARGETS

Achieving the MDG poverty objective (MDG1) would require cutting the national poverty rate to 30 percent from the current 60 percent. Such a decline in poverty rates necessitates higher agricultural growth rates than are achievable under current government targets or, for that matter, under CAADP growth targets. In other words, Rwanda could well achieve the CAADP target of 6 percent agricultural-sector growth, and still fail to achieve the MDG poverty-reduction objective.

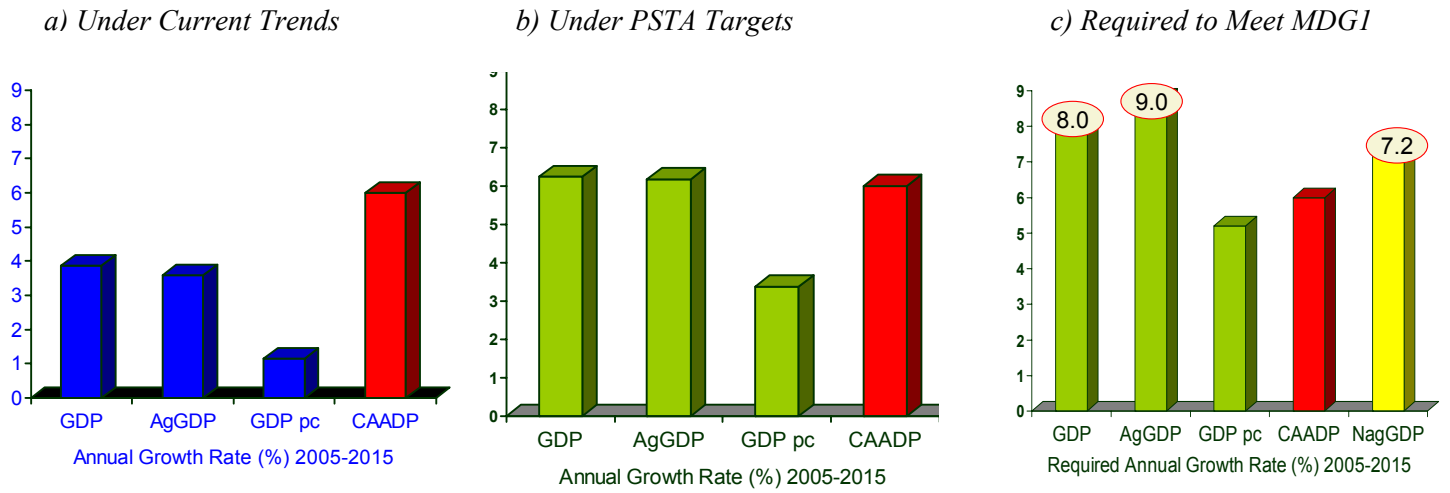
### 1. Required Growth Outcomes to Achieve MDG1 Objectives in Rwanda by 2015

Figures B.1 to B.3 show projected outcomes under alternative scenarios. The projected growth rates required to cut poverty by 50 percent by 2015 are presented in Figure B.1(c). They imply an

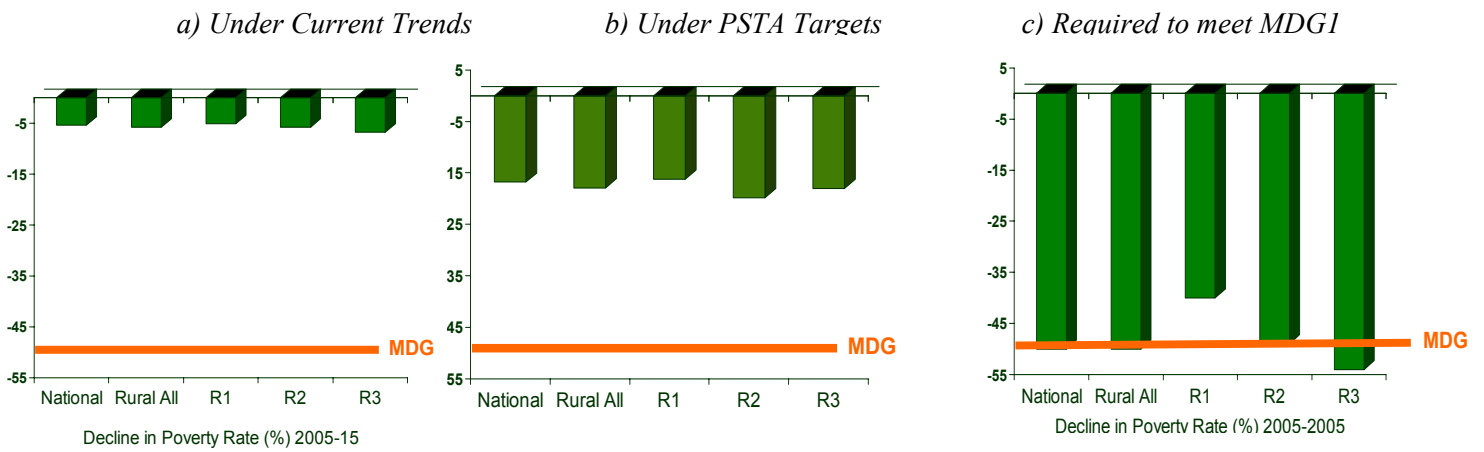
---

<sup>11</sup> These targets have been completed in the preparation of the PSTA/EDPRS programmes in March 2007.

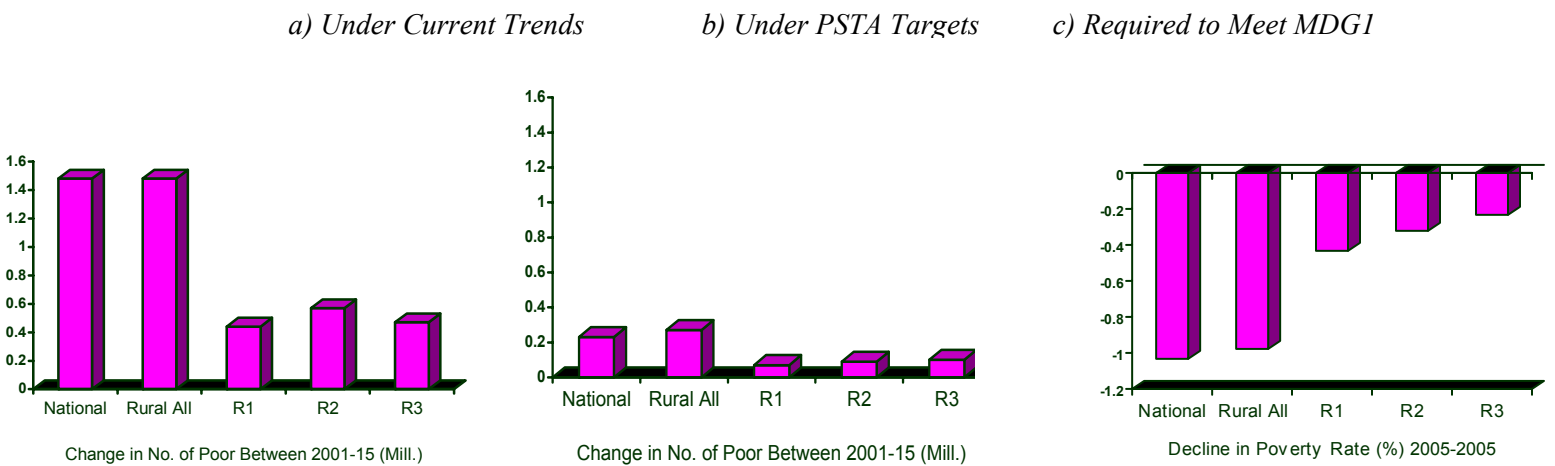
**Figure B.1: Projected Growth Outcomes**



**Figure B.2: Projected Changes in Poverty Rates**



**Figure B.3: Projected Changes in Absolute Number of Poor**



agricultural-sector growth rate of 9 percent, combined with a 7.2 percent growth rate in the nonagricultural sector, leading to an overall GDP growth rate of 8 percent and a per capita GDP growth of 5 percent. If strategies were to be developed and implemented to achieve such growth rates, the MDG poverty-reduction objective would not only be achieved at the national level, it would also be achieved for all household categories, except for households with less than 0.3 ha, as indicated in Figure B.2(c). Even in the latter case, the poverty rate would have dropped by more than 40 percent by 2015. Under this scenario, the absolute number of poor people would decrease significantly below current levels, by more than 1 million nationally and between 0.4 and 0.2 million across various household groups, despite a projected annual population increase of more than 2 percent over the same period, as shown in Figure B.3(c).

The results presented so far indicate that: (i) continuation of current growth trends in Rwanda would not achieve the CAADP growth targets or lead to significant reduction in poverty rates by 2015; (ii) emerging sector strategies under the PSTA would, in contrast, achieve the CAADP growth target but would still fall short of achieving the MDG goal of halving poverty by 2015; and (iii) meeting the latter objective would require a 30 percent higher agricultural-sector growth rate than projected under the PSTA.

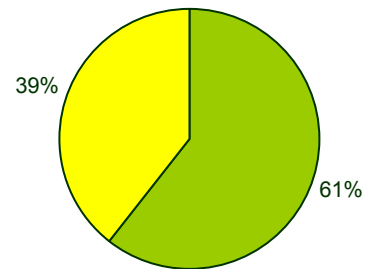
A closer look at the results already indicates significant variations across household categories. Because poverty is distributed unequally and growth may affect different households differently, the next section examines the distributional consequences of alternative growth strategies for the sector and their implications for poverty reduction across a broader category of households.

## PART C

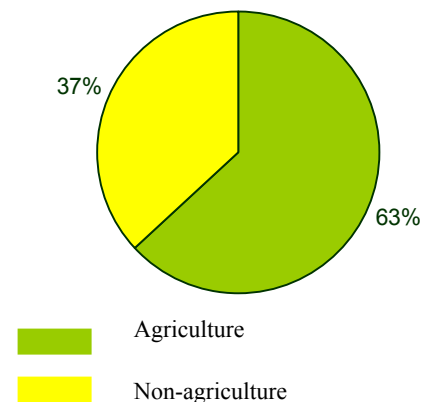
### SOURCES OF POVERTY REDUCING AGRICULTURAL SECTOR GROWTH IN RWANDA

Implementing CAADP as a centrepiece of a poverty-reduction strategy implies a primary role for agriculture and individual subsectors as leading sources of pro-poor growth at the national level and in the rural areas. Rwanda and of other African countries do not just want to accelerate growth, but also maximise and broaden the impact of such growth on poverty reduction. Therefore, successful implementation of CAADP should be guided by a good understanding of the impact of sectorwide growth as well as growth within individual agricultural subsectors on income and poverty levels among different categories of rural households. In the present case, a better understanding of the possible equity implications of the current strategies under PSTA would allow the Government of Rwanda to emphasise options that are more likely to balance growth and maximise the poverty-reduction impact.

**Figure C.1:** *Contribution of Agricultural Sector Growth to Poverty Reduction at National Level*



**Figure C.2:** *Contribution of Agricultural Sector Growth to Poverty Reduction in Rural Areas*



#### I. AGRICULTURAL-SECTOR GROWTH AND POVERTY REDUCTION IN RWANDA

If the current PSTA strategy were to be successfully implemented to reach the 6 percent CAADP target growth rate and were to be complemented by strategies to induce a comparable rate of growth in the nonagricultural sector, the contribution from growth in agriculture to poverty reduction would be about 50 percent higher than that from growth in the nonagricultural sector. For every 1 percent decline in poverty, in rural areas as well as nationwide, about two-thirds would be attributable to growth in the agricultural sector (Figures C.1 and C.2).

While accelerated growth in agriculture as a whole may be the most promising poverty-reduction strategy currently available to Rwanda, such a strategy needs to recognise that not all subsectors contribute to agricultural growth and poverty reduction in the same way. The size of the contribution of individual subsectors is determined by their initial shares in income and employment and their potential for incremental growth. The axis on the left and the bars in Figure C.3 show the projected contributions to agricultural GDP resulting from an additional 1 percent annual growth rate in individual subsectors. The line and the axis on the right show the corresponding contribution to the reduction in the rate of poverty. The staples and roots/tubers subsectors exhibit the highest levels of contribution to agricultural incomes and poverty reduction. An additional 1 percent growth per year to 2015 in either subsector would generate an incremental income of around, respectively, US\$ 80

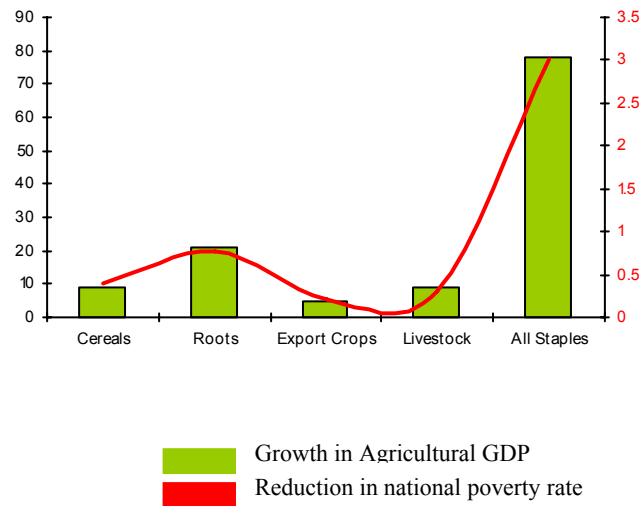
million and US\$10 million. The related decline in the overall rate of poverty is, respectively, 0.5 and 3 percent.

The long-term contribution to poverty reduction of alternative growth strategies to 2020 is plotted in Figure C.4. Each line depicts the decline in poverty that would be achieved if Rwanda were to choose a strategy focusing exclusively on the corresponding subsector(s) to achieve an overall agricultural growth rate of 6 percent. The top line indicates the decline in poverty rates under the continuation of current trends across all subsectors, which would result in a modest reduction from the current 60 percent to slightly more than 50 percent. The second line from the bottom shows the outcome assuming continued successful implementation of the PSTA agenda across all subsectors, which would cut poverty rates to 41 percent by 2020. The lines between these two denote the outcome of alternative, isolated strategies that would focus exclusively on single subsectors such as roots and tubers, livestock, cereals, or exports. These projected outcomes indicate that such efforts would

lower the rate of poverty at most by an additional 1 to 3 percentage points compared to current trends, and thus would be less effective than a more comprehensive, sectorwide strategy in terms of reducing overall poverty levels.

The bottom line illustrates the added contribution of stimulating growth in the nonagricultural sector to meet the 6 percent agricultural sector growth under the PSTA and CAADP agendas, which would further reduce the overall poverty rate to less than 35 percent by 2020, almost meeting the MDG1 objective. While it may be extremely difficult to achieve the very high rates of agricultural and nonagricultural sector growth that would be required to meet MDG1 by 2015 as implied in

**Figure C.3:** Subsector Contribution to Agricultural GDP (US\$. Mill) and Poverty Reduction Level(%)



**Figure C.4:** Poverty outcome by 2020 of alternative growth strategies

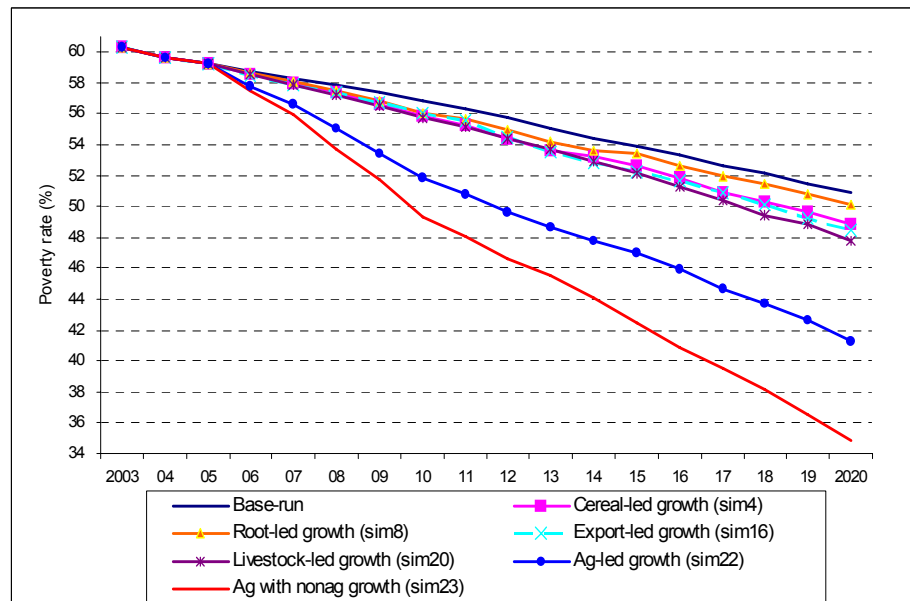


Figure B.1, the above results indicate that Rwanda can make significant progress toward MDG1 by 2020—by ensuring successful and sustained implementation of the PSTA agenda, coupled with an effective strategy to stimulate growth in the nonagricultural sector.

**Summary:** The analysis of the alternative growth sources and poverty reduction outcomes yields the following lessons with respect to Rwanda’s efforts to successfully design and implement strategies to meet the CAADP growth target and achieve MDG1:

- (i) Agriculture will remain the main source of growth and poverty reduction in Rwanda during the next 10–15 years;
- (ii) A continuation of past growth trends in the sector would reduce the national rate of poverty by merely 6 and 9 percentage points by 2015 and 2020, respectively, to 54 percent and 51 percent;
- (iii) Isolated strategies targeting any of the major subsectors separately would lower the rate of poverty at most by an additional 1 to 3 percentage points;
- (iv) Realising a comprehensive, agricultural sectorwide growth of 6 percent by successfully implementing the PSTA agenda across all major subsectors would cut the rate of poverty to 47 percent and 41 percent, respectively, by 2015 and 2020, or by an additional 7 to 10 percentage points compared to current trend levels;
- (v) If, in addition, complementary strategies were implemented to achieve a similar rate of growth in the nonagricultural sector, the rate of poverty could be reduced further to 42 percent and 35 percent by 2015 and 2020, respectively; Rwanda would almost achieve MDG1 by the latter date.

## II. POTENTIAL EQUITY EFFECTS RELATED TO GOVERNMENT GROWTH TARGETS UNDER PSTA

### 1. Impact of Subsectoral Growth on the Reduction and Distribution of Poverty Among Household Categories

Planned strategies under the PSTA are projected to generate strong growth across all subsectors and for all rural household categories. The distribution of growth and its impact on poverty is shown, however, to vary significantly among categories. Incomes are projected to increase relatively faster among male-headed households, households producing export crops, and households with greater access to cropland, as compared to, respectively, households that are headed by females, produce no export crops, and have less than 0.3 ha of cropland. Since the latter groups of households tend to have initially lower incomes than the first set, the differences in income growth rates are likely to lead to a widening of the income and poverty gaps between the two, as indicated in Figures C.5 and C.6.

### 2. Possible Equity Effects and How to Address Them under Current PSTA Targets

Implementation of the PSTA will have to take the above potential equity effects into consideration. The purpose here is not necessarily to achieve equal outcome but rather to raise the overall level of income gain and poverty reduction impact by maximising the gains among household groups at the lower end of the income and poverty distribution. This can be done by emphasizing—in the design and implementation of programmes—those subsectors that contribute more immediately and to a greater extent to income growth and poverty reduction among the categories of households that would otherwise lag further behind.

Similarly to its effect on the overall pace of growth of the agricultural sector as a whole, the distribution of growth across subsectors also determines the spread of benefits from such growth across

categories of households. The benefit from future agricultural growth may vary among groups of households due to the following factors:

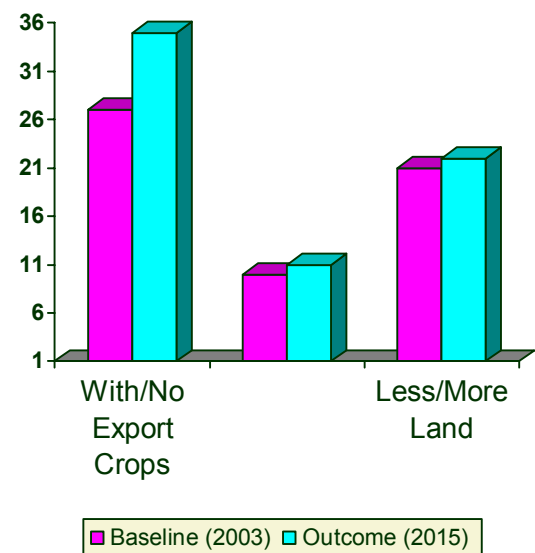
- (i) The importance of individual subsectors as a source of income and employment for different household groups;
- (ii) The scope for incremental growth in individual subsectors, given technological, market, and other conditions affecting demand and supply;
- (iii) The initial distribution of growth among individual agricultural subsectors and how growth in some subsectors affects growth in others through adjustments in demand, supply, and price conditions.

The importance of individual subsectors as sources of income growth and poverty reduction among key household groups is depicted in Figure C.7 below. The graphs illustrate the implications of export-crop adoption and of access to cropland for long-term growth and poverty-reduction strategies as well as the gender aspects that are involved. The various graphs confirm the predominance of the agricultural sector as a source of income growth for households in the rural areas. The three left-hand side graphs also highlight the role of the staples subsector as the single most important contributor to income growth and poverty reduction among female-headed households, households without export crops, and households with less access to cropland. These households tend to have lower average incomes, higher rates of poverty, and are projected to enjoy slower growth under current PSTA targets (Figure C.5). The importance of the staples sector is also strong among the remaining set of households. The latter are, however, relatively more diversified and would benefit equally strongly from growth in the livestock and export-crop subsectors as well. Moreover, this set of households would enjoy a much higher rate of growth among current PSTA targets (Figure C.5). The importance of the livestock subsector for households with less access to land has important operational implications for the PSTA agenda, as does that of the export subsector for households with more access to land. Finally, the strong contribution of the nonagricultural sector underlies the importance

**Figure C.5:** Projected Rates of Income Growth Among Rural Households under PSTA Targets(%)

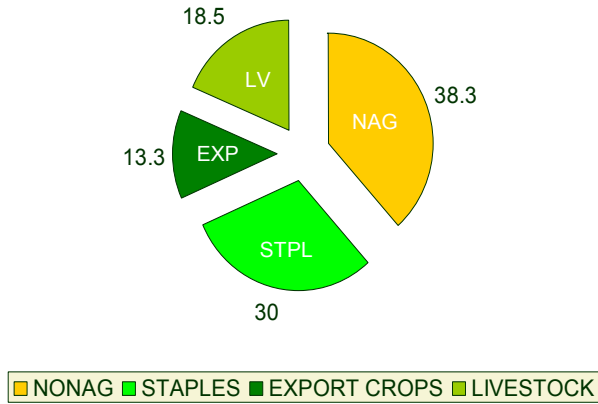


**Figure C.6:** Projected Gaps in Poverty Rates Among Rural Households under PSTA Targets

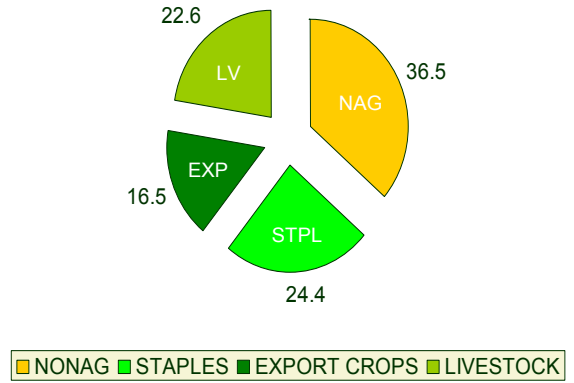


**Figure C.7:** Subsector Contribution to Poverty Reduction among Rural Household Groups by 2015 under PSTA Targets

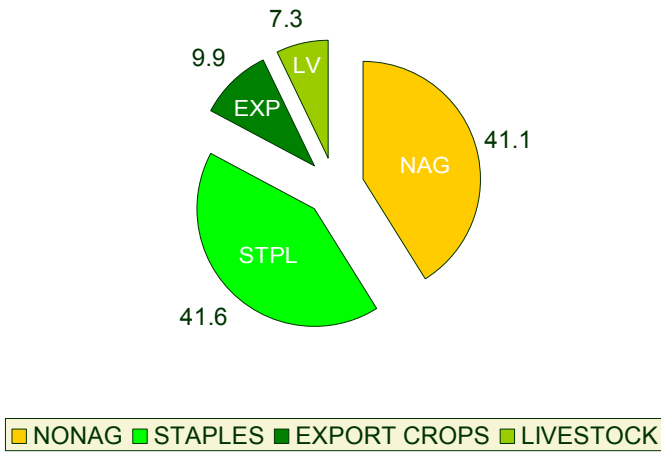
*a) Female-Headed Households*



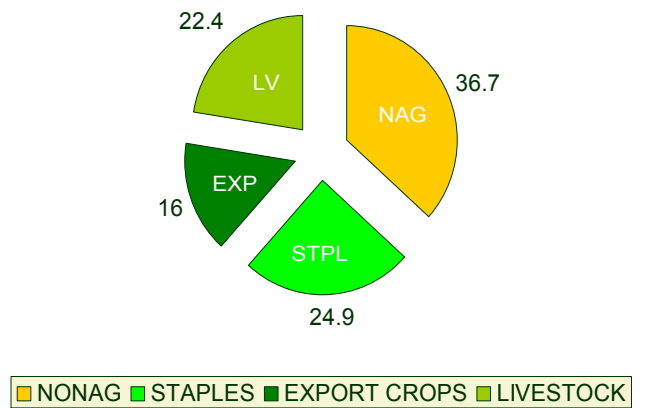
*b) Male-Headed Households*



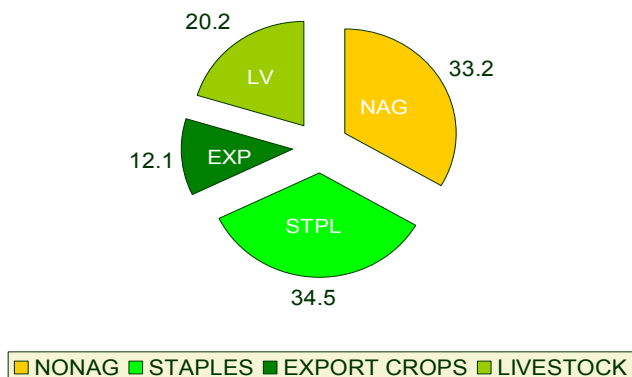
*c) Households without Export Crops*



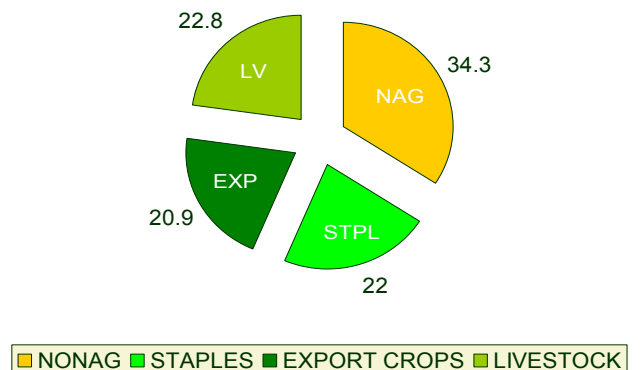
*d) Households with Export Crops*



*e) Households with less than 0.3 ha*



*f) Households with more than 1.0 ha*



of complementing current PSTA subsector targets with strategies to stimulate growth in that sector. The implementation of the PSTA agenda will need to reflect the above dynamics in order to ensure that the income and poverty-reduction benefits of future agricultural growth are widely shared and their potential equity effects are neutralised. If the design and implementation of future programmes under the PSTA agenda take into consideration the subsectoral and geographic distribution of vulnerable households, it should be possible to balance out the income and poverty-reduction benefits from these programmes and thus avoid outcomes such as the ones projected in Figure C.6. For instance, programmes that emphasise staples and livestock subsectors in areas with a high concentration of female-headed households or where access to land is severely limited would result in more balanced growth and poverty outcomes across households. In addition, it may be necessary to integrate targeted safety nets to augment the effects of slower growth and alleviate poverty among the more vulnerable household groups, in particular during the transition period and while waiting for growth to take hold.

**Summary:** The following lessons can be drawn from the above discussion regarding the design and implementation of programmes to stimulate growth and reduce poverty under the PSTA agenda:

- (i) As expected and already indicated for the overall growth process, the key role of agriculture as a source of growth and major contributor to poverty reduction is also highlighted in the case of individual rural households;
- (ii) The realisation of current government targets under the PSTA agenda is projected to stimulate growth across agricultural subsectors and for all household categories;
- (iii) The distribution of growth and its impact is expected to vary considerably across household groups, with differences in annual growth rates of income of up to 0.3 percentage points in favour of less vulnerable households;
- (iv) As a result, the poverty gap between the latter and other household groups is shown to potentially increase by up to 10 points under current PSTA targets;
- (v) The staples and livestock subsectors are major sources of future growth and contributors to poverty reduction among the most vulnerable household categories, accounting for 20-40 percent of the projected income growth among this group;
- (vi) Implementation of the PSTA agenda, consequently, needs to emphasise these two subsectors in areas with high concentrations of the most vulnerable household categories so as to better balance out and broaden the impact of growth and poverty reduction;
- (vii) The nonagricultural sector can potentially play a critical complementary role, including in the case of the most vulnerable households.

## PART D

### PROJECTED LONG-TERM OUTPUT, CONSUMPTION, AND TRADE TRENDS UNDER MDG1, GOVERNMENT, AND CAADP TARGETS

The growth and poverty-reduction impacts that are projected to take place under continued successful implementation of the PSTA agenda are the result of changes in production, consumption, prices, and trade flows that are expected to take place by 2015 and 2020. These changes and their implications for the different agricultural subsectors are described in the following sections.

#### I. SUBSECTOR SUPPLY, DEMAND, AND PRICE ADJUSTMENTS

Successful implementation of the PSTA agenda is projected to lead to strong increases in both production and consumption in all subsectors, as shown in the Tables D1 to D3. The expansion of output is strongest, with double-digit rates, for the rice, tea, pyrethrum, and poultry subsectors, followed closely by milk, coffee, maize, and wheat. In all cases, however, the anticipated growth rates fall short of the rates that are anticipated to achieve MDG1.

**Table D.1:** Projected Output and Consumption Growth Rates (%) under Current PSTA Targets by 2015 (to achieve MDG1)

	Cereals		Roots & Tubers		
	PRODUCTION TRENDS	CONSUMPTION TRENDS	COMMODITY GROUP	PRODUCTION TRENDS	CONSUMPTION TRENDS
Maize	8 (14)	3.2 (7)	Cassava	3 (4)	0 (2)
Rice	13 (13)	6 (7)	Potato	5 (9)	3 (6)
Sorghum	3 (5)	0 (1)	Sweet Potato	2 (4)	-1 (0)
Wheat	8 (9)	3 (6)	Other Roots	3 (5)	-1 (1)

**Table D.3:** Projected Output and Consumption Annual % Growth Rates under Current PSTA Targets by 2015 (to achieve MDG1)

LIVESTOCK SECTOR		
COMMODITY GROUP	PRODUCTION TRENDS	CONSUMPTION TRENDS
Beef	5 (10)	2 (4)
Mutton	5 (8)	2 (6)
Poultry	11 (19)	7 (16)
Egg	14 (24)	11 (21)
Milk	9 (13)	6 (12)
Hides/Skins	5 (8)	--

**Table D.2:** Projected Output and Consumption Annual % Growth Rates under Current PSTA Targets by 2015 (to achieve MDG1)

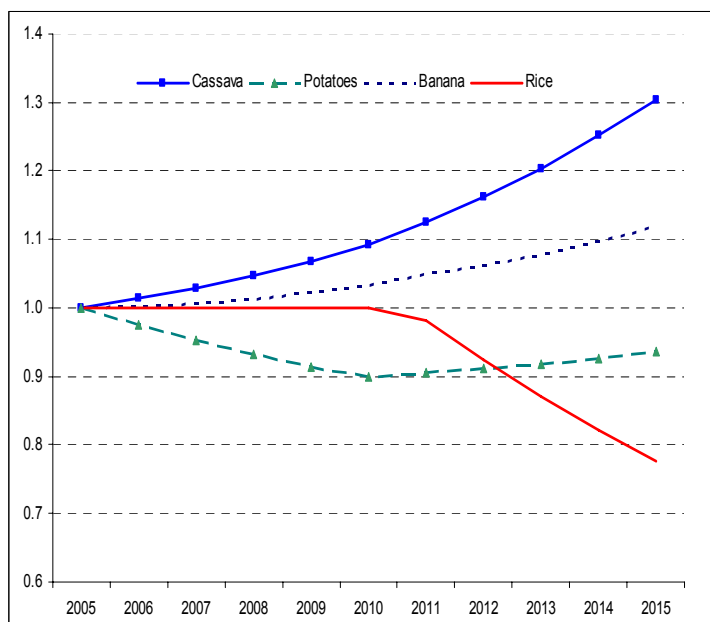
	Fruits & Vegetables		Traditional Exports & Oilseeds		
	COMMODITY GROUP	PRODUCTION TRENDS	CONSUMPTION TRENDS	PRODUCTION TRENDS	CONSUMPTION TRENDS
Banana	5 (6)	2 (2)	Peanuts	6 (6)	1 (4)
Beans	3 (5)	2 (5)	Soybeans	7 (13)	0 (7)
Peas	4 (5)	2 (5)	Sugar	7 (9)	3 (7)
Vegetables	7 (9)	4 (6)	Coffee	9 (13)	3 (3)
Fruits	7 (9)	4 (6)	Tea	10 (12)	3 (7)
			Pyrethrum	22 (22)	--

As expected, overall consumption levels are also shown to increase, in particular for poultry/eggs, milk, rice, and fruits and vegetables. The rates are much smaller than the output growth rates because consumption figures include imported quantities as well. Consumption is expected to stay flat for sorghum, cassava, and soybeans, and to even decline in the case of sweetpotato and other roots and tubers.

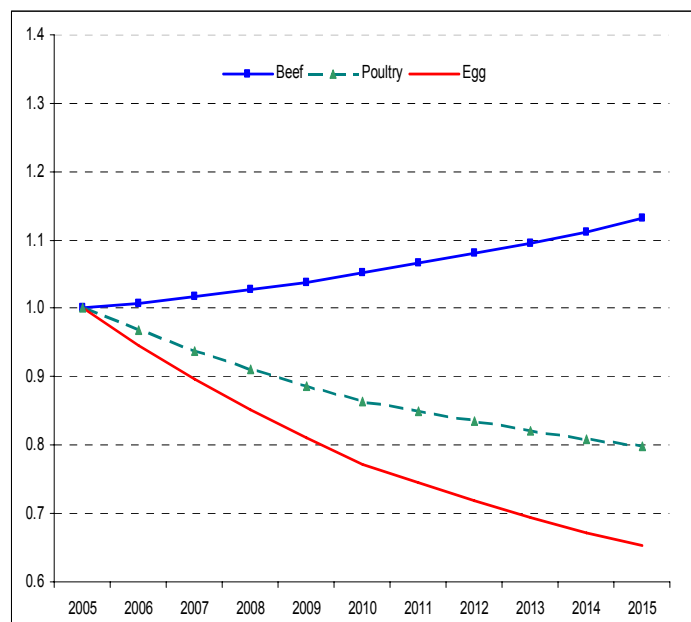
The changes in supply and demand conditions will lead to adjustments in commodity prices, which in some cases will have major strategic consequences. For instance, prices for cassava, banana, and beef are expected to rise, while those of rice and poultry products will fall steadily, as indicated in Figures D.1 and D.2 below. The price trends are consistent with the changes in demand patterns illustrated in Tables D.1–D.3, namely the slow-to-stagnating increase of consumption in the first set of subsectors compared to the much more rapid expansion in the case of the latter set.

The projected sharp decline in rice and poultry prices is a threat but is also a strategic opportunity. These two commodities can be developed into new export sectors. As can be seen from the above tables, a major reason for the downward pressure on prices is the predicted double-digit output rate of growth which, despite increasing demand, tends to result in excess supply in domestic markets. The strategic consequence of the above changes is that the export component of the PSTA agenda ought to go beyond the current export sectors and include elements to develop competitive export supply chains for these two sectors. Such measures would need to be initiated early, even if the real price pressure is expected to sharpen only in a few years, as in the case of the rice sector.

**Figure D.1:** Long-Run Price Adjustments under Current PSTA Targets (2003 = )



**Figure D.2:** Long-Run Price Adjustments under Current PSTA Targets (2003 = 1)



## II. PROJECTED LONG-TERM TRADE ADJUSTMENTS

Changes in output, consumption, and price patterns also have implications for commodity exchanges between Rwanda and the rest of the world. This is not just because changes in domestic production lead to changes in supplies from domestic sources. Changes in the level of production and prices, and hence in employment and other factors, generate changes in income that induce changes in consumption levels, and ultimately in the level of excess demand or supply.

### 1. Long-Term Trends in the Importable Sectors

Overall consumption levels are projected to increase under continuation of current trends and the pace will accelerate under successful implementation of the PSTA strategies. Under the latter scenario, domestic production in the cereals sectors will increase by 2 to 3 times the levels of 2003 by 2015. By 2020, maize and wheat production could even triple and rice production could grow fourfold (see Table A5 in the Annex). Equally strong increases are projected, in particular for the milk and sugar sectors, and to a lesser extent for beans. Due to the faster-growing consumption, imports are also projected to increase rapidly, especially for commodities such as maize, beans, sugar, wheat, and vegetable oils. The combined increase in production and imports across key food sectors, at rates much higher than population growth, means improved nutrition outcomes under PSTA targets.

The induced changes in import and export flows are summarised in Figures D.3–D.5. The first set of figures shows the changes in the share of imports in overall domestic consumption for key importables by 2015. The share of imports falls across all crops under continuation of current trends, compared to the 2003 baseline, except in the case of beans, the sector for which the smallest expansion of output in percentage terms is projected (see Table A5). Under PSTA targets, the share rises for maize and sugar and even exceeds the baseline levels in the case of the former. It falls further for wheat, rice, and milk. For the last two crops, Rwanda is projected to reach autarchy, where it neither imports nor exports significant amounts. By 2020, the shares of imports decline for all crops under the 2003 baseline levels, except for beans, due to continued expansion of output to progressively catch up with the expanding consumption levels.

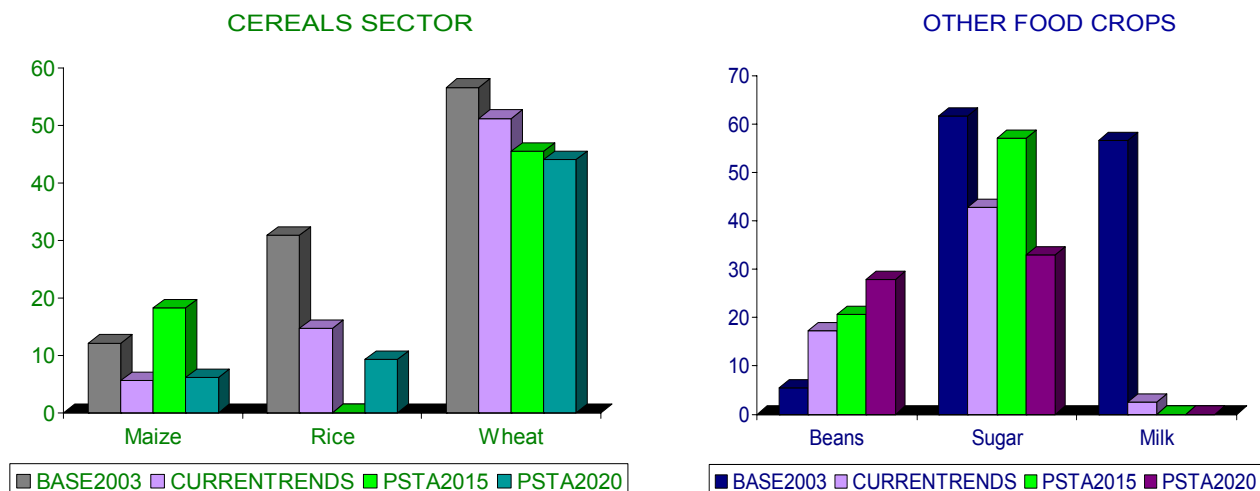
The higher shares of imports under PSTA targets are explained by the fact that demand for the concerned crops, fueled by the growth in incomes described earlier, increases much faster than can be met by growth in domestic production. In other words, the share of imports increases not because of stagnation in production but because of a loosened constraint on effective demand emanating from faster economic growth and higher household incomes. Thus, food consumption across households in Rwanda would increase significantly, fueled by increased capacities to produce and import food crops. The ultimate outcome would be reduced caloric malnutrition and improved food security across households.

### 2. Long-Term Trends in the Exportable Sector

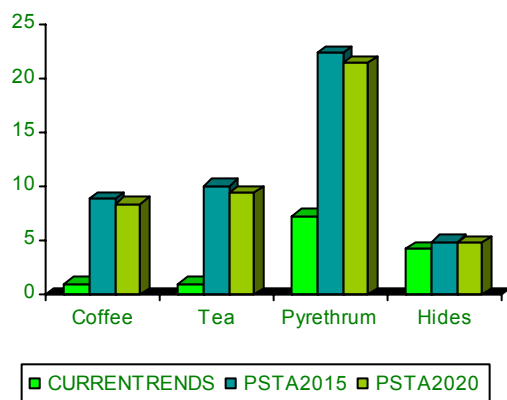
On the export side of the agricultural sector, Figure D.4 shows that a continuation of current trends is projected to lead to limited expansion for the traditional coffee and tea sectors. Pyrethrum and hides, to a lesser extent, would enjoy a much more robust growth but starting from relatively low levels (See also Table A6 in the Annex). As a result, the level of agricultural export surplus is expected to rise only slightly from about US\$15 million in 2003 to US\$19 million in 2015 (Figure D.5). Under continued successful implementation of the PSTA agenda to 2015, exports would grow significantly faster, absolutely and in relation to agricultural imports, resulting in a surplus of nearly US\$70 million.

If the programme were to be sustained, exports would continue to expand at high rates and the surplus would increase by an additional US\$30 million by 2020 (See Table A7 in Annex). These numbers do not include the potential contribution of exports from the rice and poultry sectors, which could become a reality under the PSTA agenda.

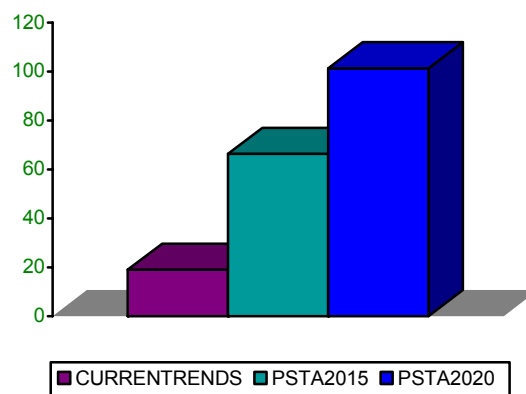
**Figures D.3:** Projected Changes in the Share of Imports in Total Consumption



**Figures D.4:** Annual Growth Rate of Agricultural Exports (%)



**Figures D.5:** Annual Agricultural Export Surplus (US\$ mill.)



**Summary:** The successful implementation of the PSTA programmes would not be enough to achieve MDG1 by 2015, but it would significantly contribute to raising production and consumption levels and thus, improving food security in Rwanda. The implications of meeting PSTA targets for food supply, consumption, and trade by 2015 and beyond can be summarised as follows:

- (i) Production levels would increase considerably across all major commodity subsectors, with double-digit rates in some cases, and a tripling of output in some subsectors, in particular by 2020;
- (ii) The induced increase in incomes and purchasing power would lead to faster increases in imports for some crops, concomitantly to an increase in domestic production, allowing even higher levels of consumption;
- (iii) Five key subsectors would face strong price adjustment pressures: upward for cassava, banana, and beef; and downward for rice and poultry;
- (iv) The strong surge in production in the rice and poultry subsectors and the projected decline in prices will require the incorporation into the PSTA agenda of a component to develop competitive export supply chains for these sectors;
- (v) Overall agricultural imports and exports would increase rapidly, the latter at a rate twice as high, leading to more than a three-fold and five-fold increase in the agricultural trade surplus by 2015 and 2020, respectively, compared the projected levels under continuation of current trends.

## PART E

# FINANCING AGRICULTURAL GROWTH TO MEET GROWTH AND POVERTY-REDUCTION TARGETS UNDER PSTA TARGETS AND MDG1

## 1. The Relationship between Agricultural Spending, Growth, and Poverty Reduction

The required level of funding to achieve the different growth and poverty outcomes projected above is calculated based on the estimated, historical relationships between: (i) the rate of agricultural GDP growth and the change in the poverty rate; and (ii) the level of agricultural funding and the rate of agricultural GDP growth.

Estimates of the first relationship yield elasticity values of -1.16 and -1.18 at the national and rural levels, meaning that a 1 percent growth in agricultural GDP leads to nearly a 1.2 percent reduction in poverty rates. The value of the elasticity of agricultural growth with respect to spending, on the other hand, is estimated at 0.17, that is a 1 percent increase in agricultural spending raises the sector growth rate by 0.17 percent. The estimated elasticity in this case is quite low compared to the average value across Africa, which is twice as high at 0.366.

The relatively low level of the growth elasticity of agricultural spending can be partly explained by the fact that it is estimated from data collected during the immediate post-genocide period (1995-2005). For the better part of this period, a large share of spending was allocated to recovery and reconstruction activities. At the same time, the significant damage to the productive base seriously limited the supply responsiveness of the sector. The long-term projections discussed below are therefore carried out using both the estimated elasticity for Rwanda and the Africa average. Projections based on the lower elasticity value are presented in the annex for the sake of comparison (Figures A1 to A3). As expected, the estimated funding requirements are much larger, with a factor of 3 to 5..

## 2. Long-Term Funding Requirements to Meet PSTA Targets and MDG1 in Rwanda

Tables A8.1 and A8.2 in the Annex summarise the results of the projection. Successful implementation of the PSTA agenda, which implies the realisation of the growth and poverty outcomes discussed in Part B and summarised in Figures B.1–B.3, requires annual agricultural spending growth rates of between 15 and 30 percent, depending on the level of the growth elasticity. These required rates are not just high, they also imply a reversal of the negative trends from 2001–2006, in which there was a growth rate of -6.5 percent. Achieving MDG1 by 2015 would require even higher increases in agricultural spending—46 and 23 percent, respectively, based on the low and high growth elasticity/responsiveness values. The projected agricultural spending growth rates needed to finance the PSTA targets and achieve MDG1 may seem on the high side, in particular for the low elasticity scenario. This is understandable, however, because of the low level of funding to the sector and the short time period that is covered by the projections. And the rates seem more realistic when looking at the overall increase in total government spending that would be involved. Assuming that the ratio between nonagricultural spending to nonagricultural GDP is held constant, the increase in total spending is estimated to range from 7 to 12 percent annually.

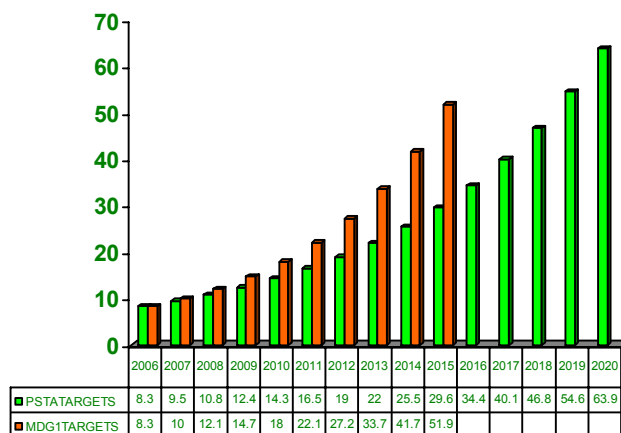
Financing the PSTA agenda to meet its growth and poverty-reduction targets by 2015 is projected to raise the share of agricultural spending in total government from a current average of 4 percent to between 7 percent and 18 percent, depending on the value of the growth elasticity. Sustaining the PSTA growth targets to 2020 would require the share of agricultural spending to continue to increase

to between 10 percent and 41 percent, again based on the elasticity value. The latter are similar to the share of agricultural spending that is required to reach MDG1 by 2015 (10-35 percent). The estimated shares of agricultural spending under the low elasticity scenario may seem high but are not uncommon in the history of many Asian countries. Nevertheless, it is safer to assume values closer to the high elasticity scenario to be more realistic than the low elasticity one, in particular when looking at the next decade and a half. The reason is that Rwanda has come out of the recovery process to a large extent and that the many changes and investments that are taking place in the sector will significantly increase the level of supply responsiveness to sector spending.

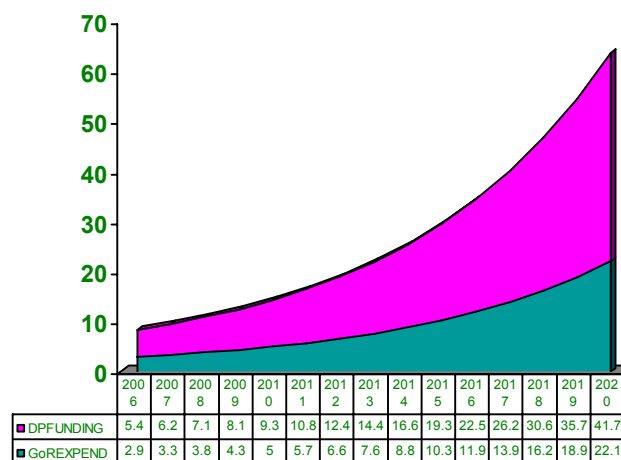
### 3. Internal and External Resource Mobilisation to Achieve PSTA Targets and MDG1

It appears from the above estimates that Rwanda would meet the Maputo commitment of a 10 percent share of agricultural spending at the latest by 2015. The higher estimates required to achieve MDG1 make clear the need to move even quickly toward achieving the Maputo commitment. The graphs in Figure E.1 present the evolution of agricultural spending based on the higher growth elasticity value of 0.366. The top graph shows the amount of predicted annual agricultural spending in constant (1999) FRw to 2015. The lower bars represent annual spending required to achieve the growth and poverty-reduction targets implied by the PSTA agenda (see Figures B.1–B.3). The taller bars refer to annual spending levels that would be required for Rwanda to achieve MDG1 by 2015. As indicated by the numbers, annual agricultural sector spending to achieve PSTA targets will need to increase from 8 billion FRw in constant terms in 2006 to 30 billion FRw in 2015. Continuation of the PSTA agenda beyond 2015 to 2020 would require annual spending on the sector to increase to 64 billion FRw by the end of the

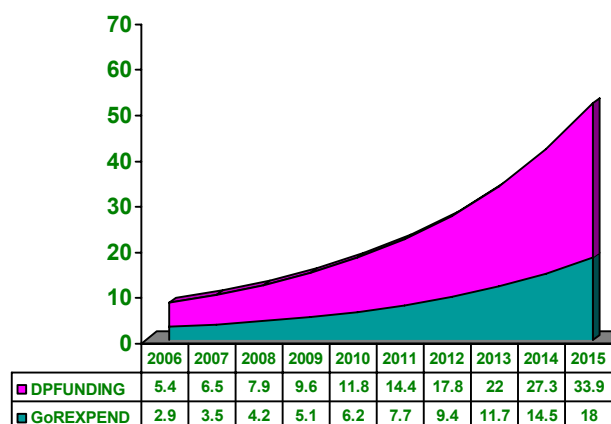
**Figures E.1:** Required Funding Levels under PSTA and MDG1 in Const-99 Billion FRw (High Elasticity Scenario)



**Figures E.2a:** Financing Sources under PSTA Targets in Const-99 Billion FRw (High Elasticity Scenario)



**Figures E.2b:** Financing Sources under MDG1 Targets in Const-99 Billion FRw (High Elasticity Scenario)



period, still in constant terms. Achieving MDG1, on the other hand, would require annual spending to increase to 52 billion FRw by 2015.

The remaining two graphs of Figure E show the sources of financing required to cover the above spending levels, assuming the same share of external development assistance funding (DPFUNDING) in total spending for the sector as observed in 2006—that is, 5.4 billion FRw out of a total of 8.3, in constant (1999) billion FRw. The amount of annual resources from internal sources (GoREXPEND) needed to finance the PSTA agenda is projected to grow from 2.9 billion FRw to 10 billion FRw and 22 billion FRw by 2015 and 2020, respectively. The related level of annual external funding required from development partners will increase from 5.4 billion FRw to 19 billion FRw in 2015 and to 42 billion FRw in 2020.

While successful implementation of the PSTA agenda would help reduce Rwanda's poverty rate by about 25 percent, as shown in Part B, it would almost be possible to achieve the full poverty MDG by 2020, when the poverty rate is projected to drop to below 35 percent from the current 60 percent. Achieving MDG1 by 2015, on the other hand, would require a much faster growth rate, as indicated in Figure B.1. That level of growth would require annual spending from domestic sources to jump to 18 billion FRw by 2015 and from external sources to jump to about 34 billion.

## PART F

### STRATEGIC ANALYSES AND KNOWLEDGE SUPPORT SYSTEMS TO INFORM AND GUIDE THE CAADP IMPLEMENTATION PROCESS

The New Partnership for Africa's Development (NEPAD) has made political and economic governance a cornerstone of its strategy, as illustrated by its adoption of and commitment to the African Peer Review Mechanism (APRM). At the sectoral level, this philosophy translates into a recognition of the need to improve policy and strategy planning and implementation. This in turn calls for tools to help generate the necessary knowledge to inform and guide sector policies and strategies in order to facilitate a successful implementation of the Comprehensive Africa Agriculture Development Programme (CAADP).

#### I. CAADP AS A STRATEGIC FRAMEWORK

CAADP is a strategic framework by which to guide country development efforts and partnerships in the agricultural sector. Similar to the broader NEPAD agenda, it embodies the principles of peer review and dialogue, which, when adequately followed and applied, will stimulate and broaden the adoption of best practices, facilitate benchmarking and mutual learning and, ultimately, raise the quality and consistency of country policies and strategies in the agricultural sector. The following are some of the most important CAADP principles and targets:

- (i) Designating agriculture-led growth as a main strategy to achieve the Millennium Development Goal of poverty reduction (MDG1);
- (ii) Pursuing a 6 percent average annual sector growth rate at the national level;
- (iii) Allocating 10 percent of national budgets to the agricultural sector;
- (iv) Exploiting regional complementarities and cooperation to boost growth;
- (v) Adopting the principles of policy efficiency, dialogue, review, and accountability, shared by all NEPAD programs;
- (vi) Strengthening and expanding partnerships and alliances to include farmers, agribusiness, and civil society communities;
- (vii) Assigning programme implementation to individual countries, coordination to designated Regional Economic Communities (RECs), and facilitation to the NEPAD Secretariat.

The successful application of these principles and the broad realisation of the targets require knowledge tools to encourage and support: (a) the move toward evidence-based and outcome-oriented programme design and implementation; (b) the practice of inclusive policy review and dialogue within and across countries; and (c) effective coordination and advocacy at the regional and continental levels.

#### II. REVIEW AND KNOWLEDGE PROCESSES FOR A SUCCESSFUL IMPLEMENTATION OF CAADP

Achieving the CAADP objective of broad-based agricultural sector growth across Africa cannot happen without greater efficiency and consistency in the planning and execution of sector policies and programmes; increased effectiveness in translating government expenditures into public goods and services; an adequate level of these expenditures to sustain an annual sector growth rate of 6 percent; and the expertise and mechanisms to regularly and transparently measure performance against targets and keep policies and programmes on track.

The review and dialogue processes under the CAADP agenda operate at three different levels:

1. ***Mutual Review at the Continental Level:*** There are two main mechanisms for review and dialogue at the continental level. The first is the African Partnership Forum (APF), which targets African leaders and their G8 partners and is supported by a technical secretariat at the Organisation for Economic Co-operation and Development (OECD). It is a forum for dialogue and review, at the highest level, with respect to programme performance and progress across the broad NEPAD agenda. The second mechanism, the CAADP Partnership Platform, focuses more specifically on the CAADP agenda. It brings together representatives of the leading RECs and other regional organisations dealing with agriculture, major bilateral and multilateral development agencies, and private-sector and farmers' organisations.
2. ***Peer Review at the Regional Level:*** The leading RECs facilitate dialogue on and review of the CAADP implementation agenda through two distinct processes. The first regroups country representatives at the level of permanent secretaries and directors of planning and focuses primarily on a collective review of implementation performance in individual countries and mutual learning to spread and accelerate progress toward CAADP goals and targets. The second process allows the leadership of the RECs and representatives from the private sector, farmers' organisations, and development agencies to track program progress and performance at the regional level and align development assistance and country policies and strategies with the CAADP targets and principles.
3. ***Progress Review at the National Level:*** Country-level implementation requires an inclusive dialogue and review process to ensure that policies and programmes, including budgetary policies and development assistance, are aligned with CAADP principles and are on track to meet CAADP objectives. The choice of mechanisms to facilitate this process depends on individual countries' institutional and technical realities, but each country must carry out a transparent, broad, and inclusive dialogue that ensures the effective participation of the agribusiness sector and farmers' organisations. The identification of the appropriate mechanisms takes place during the country roundtable process.

The review and dialogue processes described above add real value to current and future development outcomes to the extent that they are well informed and are supported through accurate and intelligent data derived from rigorous analysis of: (i) the strategic and operational challenges of implementing the CAADP agenda at the regional and country levels; (ii) the adequacy of the conception and execution of the programmes and policy measures adopted to address these challenges; and (iii) the outcome of such programmes as well as their impact in terms of realising the growth, poverty, and food-security objectives of CAADP. This requires human capacities, technical infrastructure, analytical tools, and communications instruments to gather the relevant data and information and analyse it to generate credible, high-quality knowledge products, which can be stored and accessed as needed to inform and guide the debate associated with the review and dialogue processes.

The above capacities, tools, and instruments are needed both at the regional and country level and can be acquired by building upon and strengthening existing institutions and expert networks. In addition, these institutions and networks can be linked within and across countries at the regional level to create the necessary critical masses and exploit technical complementarities. To this end, three Regional Strategy Analysis and Knowledge Support Systems (ReSAKSS) have been established. The following sections describe the operation and key tasks of the ReSAKSS and provide an outline of the country-level knowledge system to be established to support the implementation of the CAADP agenda in

Rwanda, as defined through the Strategic Programme for the Transformation of Agriculture (PSTA) under the Economic Development and Poverty Reduction Strategy (EDPS).

### III. THE REGIONAL STRATEGY ANALYSIS AND KNOWLEDGE SUPPORT SYSTEMS (RESAKSS)

As part of the CAADP implementation process, three of the leading RECs—the Common Market of Eastern and Southern Africa (COMESA), the Economic Community of West African States (ECOWAS), and the Southern African Development Community (SADC)—are working to establish the ReSAKSS in collaboration with the four Africa-based centres of the Consultative Group on International Agricultural Research (CGIAR): the International Institute of Tropical Agriculture (IITA) in Ibadan, Nigeria; the International Livestock Research Institute (ILRI), in Nairobi, Kenya; the International Crop Research Institute for the Semi-Arid Tropics (ICRISAT), in Bulawayo, Zimbabwe; and the International Water Management Institute (IWMI), in Pretoria, South Africa.

The objective of the three ReSAKSS nodes, which have been established in Ibadan, Nairobi, and Pretoria and are being coordinated by the International Food Policy Research Institute (IFPRI), is to facilitate access by the RECs and their member states to policy-relevant analyses of the highest quality in order to generate the necessary knowledge to improve policymaking, track progress, document success, and derive lessons that can feed into the review and learning processes associated with the implementation of the CAADP agenda. They operate under coordination and governance structures chaired by the RECs. Although facilitated by the CGIAR centres, the ReSAKSS are not research entities or projects within these centres. The main tasks of the ReSAKSS can be summarised as follows:

*Knowledge Management:* to mobilise existing networks and centres of expertise at the international, regional, and national levels to assemble the needed capacities and knowledge and provide first-rate analytical and advisory services to countries and RECs in the design, implementation, and evaluation of CAADP programs.

*Building Country-Level Knowledge-Management Capacity:* to provide assistance to countries in the establishment of national knowledge system nodes, and to promote cooperation with respect to generating, disseminating, and accessing knowledge products to support CAADP implementation, particularly shared standards and protocols for the collection, storage, and exchange of data as well as cutting-edge methodologies for policy and strategy analysis.

*Support to Review and Dialogue Processes:* to work with the national nodes to provide relevant and timely information to guide mutual review at the continental level, peer review at the regional level, and progress review at the country level. The corresponding support forums are the African Partnership Forum and the CAADP Partnership Platform at the continental level; the REC-specific coordination and governance structures at the regional level; and the review and dialogue mechanisms to be established at the country level as part of the CAADP implementation process.

### IV. THE COUNTRY STRATEGY ANALYSIS AND KNOWLEDGE SUPPORT SYSTEM IN RWANDA (RWANDA-SAKSS)

The aim of the knowledge-management component of the CAADP agenda is to add value to the efforts of individual countries, where necessary, to ensure that they have an information and knowledge system that aids dialogue and evidence-based decisionmaking. As a complement to and an extension of

the ReSAKSS described above, Rwanda will establish a Country Strategy Analysis and Knowledge Support System (Rwanda-SAKSS) as a technical component of an inclusive review and dialogue mechanism to facilitate better policy design and implementation and thus ensure successful implementation of the PSTA/EDPRS agenda.

### **The Need for a Rwanda SAKSS Node under the PSTA/EDPRS Agenda**

At the moment, the development policy processes in Rwanda are very dynamic and require a knowledge and information system that will support the ongoing debates and decisions that have to be made. Rwanda is also nearing the end of a broad planning phase under the EDPRS process, which will lead to the implementation of the PSTA programmes—the centrepiece of the country’s CAADP agenda—in the very near future. The establishment of a Rwanda SAKSS node will provide a framework within which targeted knowledge products emanating from policy-relevant research, objective analysis, and high-quality local data can be made available and used during the policymaking processes related to the design and implementation of these programmes.

During the analytical phase of the roundtable process, strategy elements and options for agricultural growth, poverty reduction, and food security in Rwanda have been defined. Although critical questions regarding the EDPRS/PSTA agenda have been answered, it is certain that additional gaps will be identified as the process moves toward the operational, post-roundtable phase. The 2007-2011 timeframe of the EDPRS corresponds to the first phase of the implementation of the PSTA agenda. A host of design and execution questions will emerge that will require immediate answers in order to ensure steady and successful implementation of the programmes. A number of policy and strategy issues will also require attention. Leaving such questions and issues unaddressed, working with less-than-satisfactory answers, or having to rely on time-consuming, ad hoc, and sporadic consultancy services to provide the necessary answers would significantly reduce the chances of success. Moreover, policy and strategy design and implementation are ongoing processes that require steady access to high-quality information.

Therefore, the establishment of a country node, combined with the large expertise network of the East Africa ReSAKSS, will be invaluable for policymakers and other actors within and outside of the government who are involved in the implementation of the EDPRS/PSTA agenda. It will also help build institutional and technical capacities and foster collaboration among the various centres of expertise as well as other suppliers and users of the country’s knowledge products.

### **The Role of the Rwanda SAKSS**

The ultimate goal of the Rwanda SAKSS node is to improve the quality of policy and strategy design and implementation in Rwanda through the facilitation of well-informed planning, review, and dialogue processes. When it is established and fully functional, its main functions will be to

- (i) generate, compile, and share analyses and data relevant to Rwanda’s agricultural and rural development in line with EDPRS/PSTA objectives;
- (ii) perform strategic investment analyses for the agricultural sector, especially for the different subsectors, providing practical policy and investment options;
- (iii) undertake monitoring and evaluation of the EDPRS/PSTA programmes to facilitate evidence-based planning and implementation;
- (iv) produce knowledge products for dissemination and outreach through a combination of real (stakeholder forums) and virtual (interactive multimedia services) mechanisms;

- (v) contribute to fostering constructive, cross-sectoral policy debates on future agricultural and rural development alternatives;
- (vi) encourage dialogue and the exchange of data and knowledge among the different stakeholders at national, regional, and international levels;
- (vii) facilitate access to a growing analytical and visualisation toolkit using information and communication technologies (ICTs); and
- (viii) strengthen local capacity to conduct objective, timely, and relevant policy research and analysis through a variety of short- and long-term training processes.

### **Operation and Governance of the Rwanda SAKSS Node**

It is necessary to set up an inclusive steering committee or other oversight structure whose role will be to ensure that the agenda of the SAKSS node remains relevant to the planning and implementation of the PSTA. The current Rural Development Cluster is best placed to do this because it is very active and has a broad representation of the key stakeholders in agriculture and rural development in Rwanda. The oversight structure will review both the outputs and the agenda of the SAKSS node. The activities of the node will be identified through an inclusive and dynamic process involving all major stakeholders and in constant dialogue with EDPRS/PSTA implementers on the government side (MINAGRI, local governments).

A technical unit or secretariat will need to be created to carry out the day-to-day activities of the node. The unit will be of a limited size and will rely on a network of both users and suppliers of knowledge at the national and regional levels, in particular the ReSAKSS-ECA node, the existing national centres of expertise, and the technical organs of existing professional organisations in the country. The most important operations to be carried out within the unit are: (i) the coordination of the collaborative and network framework to mobilise the available expertise in order to generate targeted knowledge products to support implementation of the EDPRS/PSTA agenda as defined above; and (ii) the packaging, accessible storage, and dissemination of such products.

The Rwanda SAKSS node will not be operate in a vacuum. Several SAKSS-relevant initiatives are in their early stages in the country, all of them capable of contributing to review and dialogue mechanisms to support the successful implementation of the EDPRS/PSTA agenda. They include the Institute of Policy Analysis and Research (IPAR), which is to serve as a policy and research think tank for Rwanda; the Belgian-funded Agricultural Information Centre (AIC), which will be established at MINAGRI; and the International Fund for Agricultural Development/World Bank-supported Community Information Centres (CIC).

The node should ideally be hosted by one of these institutions. After consultation with various stakeholders, ReSAKSS-ECA (which visited Rwanda as part of the roundtable process) concluded that IPAR is best placed to host the SAKSS node, for two main reasons: first, IPAR is an autonomous institution outside of the government bureaucracy, thereby providing the necessary environment for the SAKSS node to carry out objective analyses. Second, placing the SAKSS node at IPAR would contribute to building the capacities of the Institute, which is in its formative stage.

### **The Relationships between the ReSAKSS and Rwanda SAKSS Nodes**

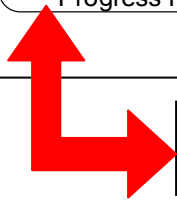
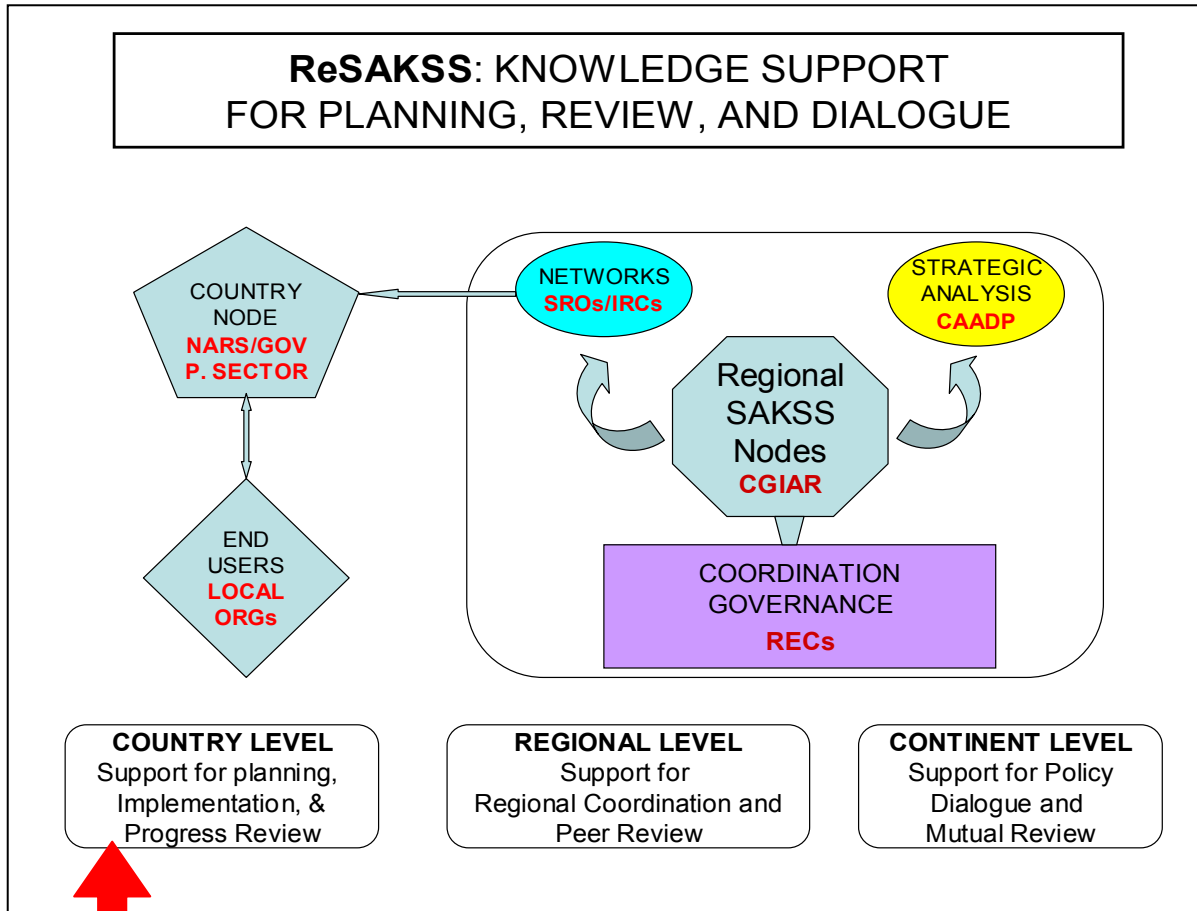
The diagram below illustrates the structures of and relationships between the regional and country SAKSS nodes. The ReSAKSS node, which operates under the coordination of the respective REC (in this case, COMESA) and with technical assistance from the CGIAR (in this case, ILRI), focuses on

generating strategic analysis and information to guide the CAADP agenda in the region. It collaborates with subregional research organisations (in this case, the Association for Strengthening Agricultural Research in Eastern and Central Africa) and other international research centres and uses their networks to mobilise expertise and generate the required knowledge products. The ReSAKSS also provides assistance to country nodes and help foster collaboration and exchange among the various nodes in the region.

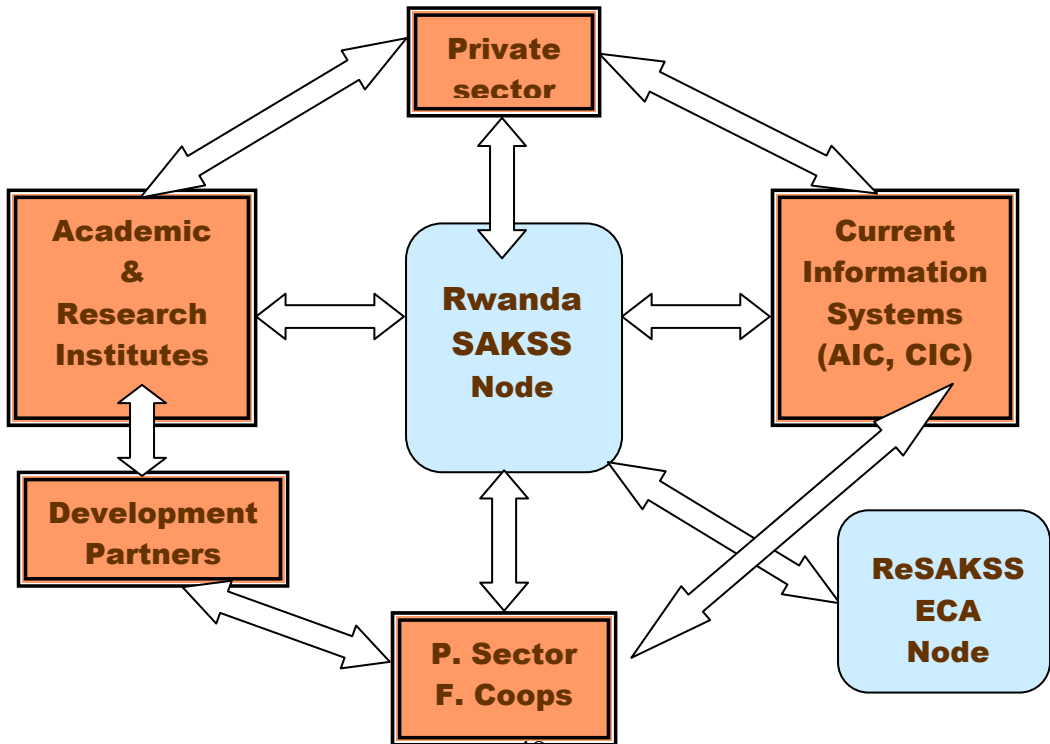
In general, the country nodes operate under the coordination and technical support of the government and of research institutions that are involved in the design and implementation of policies and strategies linked to the CAADP agenda and also in the creation of knowledge and other information to support these policies and strategies. At the forefront of these institutions are the National Agricultural Research Systems (NARs), universities, statistics offices, technical arms of professional organisations, and other relevant research entities. The country nodes do not just cater to the needs of national institutions and stakeholders, but also serve the needs of local organisations and administrations.

The Rwanda SAKSS node is not an institution, but rather a mechanism by which to bring together the users and generators of knowledge by working with existing institutions and individuals within Rwanda, as well as by establishing links with the ReSAKSS node and international partners. A small secretariat composed of a coordinator and two or three technical staff will be sufficient to run the node, which will rely on people from other institutions in the country to satisfy the large demand for knowledge products. The bottom part of the diagram shows a schematic representation of the links between the Rwanda SAKSS node and various stakeholders in the country.

The L-shaped red arrow symbolises the link between the Rwanda SAKSS node and the ReSAKSS node. The ultimate goal of both is to complement each other in supporting the review and planning processes mentioned in the middle of the diagram and described earlier in the text: (i) implementation planning and progress review at the national level; (ii) implementation coordination and peer review at the regional level; and (iii) strategy dialogue and mutual review at the continental level.



### RWANDA KNOWLEDGE NODE FOR PLANNING, REVIEW, AND DIALOGUE



**PART G**

**ANNEXES**

**Table A1 : Production Figures for Key Crops 2000-2005**

<b>Crops</b>	<b>2000</b>	<b>2001</b>	<b>%change 2000- 2001</b>	<b>2002</b>	<b>%change 2001- 2002</b>	<b>2003</b>	<b>%change 2002- 2003</b>	<b>2004</b>	<b>%change 2003- 2004</b>	<b>2005</b>	<b>%change 2004- 2005</b>	<b>%change 00-05</b>
Sorghum	155,106	175,904	13.4%	184,351	4.8%	170,093	-3.7%	163,772	-3.7%	227,972	39.20%	46.98%
Maize	62,502	80,979	29.6%	91,686	13.2%	79,124	-13.7%	88,209	11.5%	97,251	10.25%	55.60%
Wheat	6,444	8,209	27.4%	7,434	-9.4%	15,305	105.9%	16,772	9.6%	21,942	30.83%	240.50%
Rice	11,654	15,610	33.9%	20,976	34.4%	28,191	34.4%	46,191	63.8%	62,193	34.65%	433.67%
<b>S/total cereals</b>	<b>235,706</b>	<b>280,702</b>	<b>19.1%</b>	<b>304,446</b>	<b>8.5%</b>	<b>292,713</b>	<b>-3.9%</b>	<b>314,944</b>	<b>7.6%</b>	<b>409,358</b>	<b>29.98%</b>	<b>73.67%</b>
Beans	215,347	242,157	12.4%	246,906	2.0%	239,679	-2.9%	198,224	-17.3%	199,648	0.72%	-7.29%
Peas	15,342	16,293	6.2%	16,027	-1%	17,707	10.5%	16,759	-5.4%	18,853	26.48%	38.15%
Groundnuts	7,032	9,635	37.0%	10,414	8.1%	10,287	-1.2	10,785	4.8%	10,099	40.05%	114.80%
Soybean	13,922	16,336	17.3%	17,088	4.6%	19,947	16.7	18,251	-8.5%	23,702	-10.39	17.48%
<b>S/total legumes</b>	<b>251,643</b>	<b>284,421</b>	<b>13.0%</b>	<b>290,436</b>	<b>2.1%</b>	<b>287,620</b>	<b>-1.0</b>	<b>244,019</b>	<b>-15.2%</b>	<b>252,303</b>	<b>3.9</b>	<b>0.26%</b>
Banana	2,212,250	1 784 058	-19.4%	2,784,870	56.1%	2,410,357	-13.4	2,469,741	2.5%	2,593,083	2.38	14.29%
<b>S/total Banana</b>	<b>2,212,250</b>	<b>1,784,058</b>	<b>-19.4%</b>	<b>2,784,870</b>	<b>56.1%</b>	<b>2,410,357</b>	<b>-13.4</b>	<b>2 469 741</b>	<b>2.5%</b>	<b>2,593,083</b>	<b>2.38</b>	<b>14.29%</b>
Irish potato	957,198	1,012,269	5.8%	1,038,931	2.6%	1,099,179	5.8%	1,072,772	-2.4%	1,314,051	22.49	37.28%
Sweetpotato	1,032,916	1,156,359	12.0%	1,292,361	11.8%	860,614	-33.4%	908,306	5.5%	885,467	-2.51	-14.27%
Colocase & Yams	90,945	112,871	24.1%	122,845	8.8%	138,920	13.1%	136,359	-1.8%	136,894	0.39	50.52%
Cassava	820,992	788,910	-3.9%	1,031,077	30.7%	1,004,878	-2.5%	912,108	-9.2%	781,637	-14.30	-4.79
<b>S/total root crops</b>	<b>2,902,051</b>	<b>3,070,409</b>	<b>5.8%</b>	<b>3,485,214</b>	<b>13.5%</b>	<b>3 ,103,591</b>	<b>-10.9%</b>	<b>3,029,545</b>	<b>-2.4%</b>	<b>3,118,050</b>	<b>2.92</b>	<b>7.44%</b>
<b>S/Total veget./fruits</b>	<b>205,675</b>	<b>211,038</b>	<b>2.6%</b>	<b>233,643</b>	<b>10.7%</b>	<b>712,027</b>	<b>204.8%</b>	<b>693,066</b>	<b>-2.7%</b>	<b>920,233</b>	<b>32.78</b>	<b>347.42%</b>
<b>TOTAL</b>	<b>5,807,325</b>	<b>5,630,628</b>	<b>-3%</b>	<b>7,098,608</b>	<b>26.1%</b>	<b>6,806,488</b>	<b>-4.1%</b>	<b>6,751,315</b>	<b>-0.8%</b>	<b>7,293,026</b>	<b>7.07</b>	<b>24.47%</b>

Source: Kanyarukiga, S and A. Mutijima (2006). Review and Stocking Taking Report on Ongoing Development Efforts and their Alignment with the CAADP Targets and Principles. Background document prepared for the CAADP Round Table Process.

**Table A2 : Food Crops Productivity vs. Potential Productivity**

Crop	Yield ( Kg/ha)						Average yield (kg/ha)	Potential yield (kg/ha)	% Average vs. potential yield
	2000	2001	2 002	2 003	2004	2005			
Sorghum	890	1 063	1 074	954	913	1 159	1 009	3 000	33,63%
Maize	702	767	876	767	825	889	804	3 500	22,98%
Wheat	642	764	617	738	756	908	738	3 000	24,58%
Rice	2 732	3 067	3 266	3 667	3 796	4 467	3 499	7 000	49,99%
Beans	646	704	690	671	621	638	662	3 000	22,06%
Peas	512	507	513	510	521	609	529	1 000	52,87%
Peanut	522	652	655	612	571	943	659	1 500	43,94%
Soya	471	553	546	553	497	388	501	1 500	33,42%
Banana	6 137	4 911	7 760	6 724	6 797	6 999	6 555	25 000	26,22%
Potato	8 783	8 622	8 313	8 208	8 041	9 689	8 609	25 000	34,44%
Sweetpotato	5 914	5 848	6 615	5 901	5 570	5 962	5 968	20 000	29,84%
Yam and Colocase	4 266	4 397	4 849	5 115	5 032	5 159	4 803		
Cassava	6 815	5 791	7 904	7 477	6 813	6 756	6 926	40 000	17,32%
Fruits and vegetables	4 933	4 792	4 927	12 223	14 391	11 253	8 753		

Source: Kanyarukiga, S., and A. Mutijima (2006).

**Table A3: Evolution of Livestock Population (2000-2005)**

Type	2000	2001	2002	2003	2004	2005
Cattle	755,123	814,124	960,450	991,697	1,006,572	1,079,206
Goats	756, 502	916, 753	919, 785	1,270,903	1,263,962	266,355
Sheep	232, 724	266, 539	300, 600	371, 766	686, 837	689,556
Pigs	177, 220	197, 081	207, 783	211, 918	326,652	456,041
Poultry	2043077	1, 277,706	1,055,644	2,432,449	2,482,124	2,943,703
Rabbits	338, 616	495, 290	488, 629	498, 401	643, 927	565696

Source: Kanyarukiga, S., and A. Mutijima (2006).

**Table A4. Vision 2020 Food Security Targets and Current Situation**

Daily individual food intake in terms of energy, proteins and lipids.	Standard needs	Average 2001_2005		Target by 2010		Target by 2020	
		Quantity	%	Quantity	%	Quantity	%
Energy (Kcal/person/day)	2100	1752	83.4%	2000	95 %	2200	104%
Proteins (g/person/day)	59	43	72.9%	55	92 %	65	110%
Lipids (g/person/day)	40	12	30%	-		-	-

Source: Kanyarukiga, S., and A. Mutijima (2006).

**Table A5: Long-Term Trends in Agricultural Imports**

	Base year 2003		Projected production in 2015	Projected imports in 2015	Annual Import growth rate (2005-15)	Projected production in 2020	Projected imports in 2020	Annual Import growth rate (2005-20)
	Production (1000 mt)	Imports (1000 mt)						
Maize	81	11	189	42	15.0	268	64	12.8
Rice	28	13	108	0		198	0	
Wheat	15	20	36	30	3.9	52	37	3.9
Beans	258	15	367	96	16.7	396	195	16.3
Veg oil	1	6	2	9	3.0	2	15	6.0
Sugar	7	11	15	20	5.7	21	26	5.8
Milk	129	3	323	0		460	19	11.0
Industry (US\$Mio)	286	100	552	124	1.9	736	264	6.5

**Table A6: Long-Term Trends in Agricultural Exports – Annual Growth Rate (%)**

	Production 2005-2015	Production 2005-2020	Exports 2005-2015	Exports 2005-2020
Coffee	8.8	8.3	8.9	8.4
Tea	9.9	9.3	10.1	9.5
Pyrethrum	22.4	21.5	22.4	21.5
Hides	4.9	4.8	4.9	4.8

**Table A7: Changes in Agricultural Trade Balance**

	2005-2015	2005-2020
Annual agricultural exports growth (%)	9.9	9.8
Annual agricultural imports growth (%)	5.3	7.0
Agricultural trade surpluses in (1000 \$US)	66,348	101,335

\*Note: Agricultural trade surplus in base year 2003 was US\$ 14.9 million

**Table A8.1. Economic Growth and Government Budget Allocation**

	1999	2000	2001	2002	2003	2004 est.	2005 est.	2006	growth rate (%)
1999 constant FRw, billions									
AgGDP	270	283	295	330	333	339	359		4.2
NonAgGDP	375	400	434	468	473	499	532		4.8
GDP	645	684	730	798	805	838	890		4.6
Ag spending			11.1	12.6	8.7	10.5	8.9	8.3	-6.5
NonAg spending			168	134	215	249	250	244	11.8
Total spending	174	124	179	146	224	260	258	252	10.8
<i>Percent (%)</i>									
Ag spending/Total spending			6.2	8.6	3.9	4.0	3.4	3.3	
Ag spending/AgGDP			3.8	3.8	2.6	3.1	2.5		
Total spending/GDP	27.0	18.1	24.5	18.3	27.8	31.0	29.0		

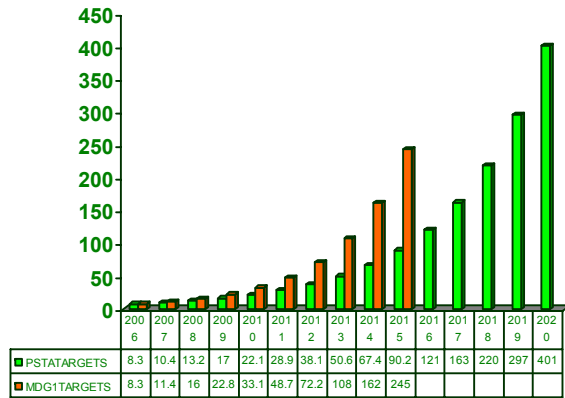
Source: Diao, X; S. Fan; S. Kanyarukiga; and B. Yu (2007). Agricultural Growth and Investment Options for Poverty Reduction in Rwanda. IFPRI Discussion Paper 00869.

**Table A8.2. Estimated Resource Allocation to the Agricultural Sector**

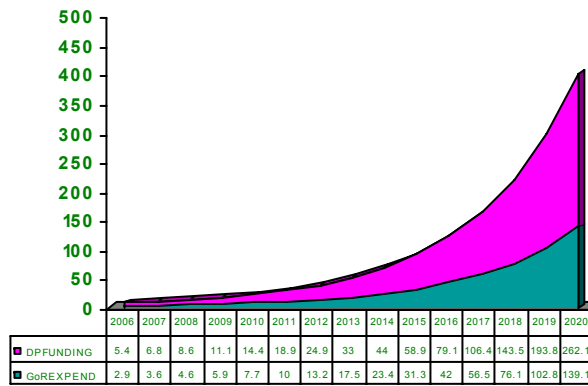
	PSTA targets		MDG1	
	low-elasticity (2)	high-elasticity (3)	low-elasticity (4)	high-elasticity (5)
<i>Growth rate (%)</i>				
AgGDP	6.2	6.2	8.8	8.8
NonAgGDP	6.2	6.2	7.2	7.2
GDP	6.2	6.2	8.0	8.0
Ag spending	30.3	15.2	45.6	22.6
Total spending	8.2	6.7	12.2	8.3
Ag spending/Total spending (%)				
2015	17.6	6.5	34.5	10.0
2020	41.2	10.0		
Ag spending/AgGDP (%)				
2015	14.1	4.6	30.7	6.5
2020	46.7	7.4		
Total spending/GDP (%)				
2015	32.1	28.3	38.3	27.9
2020	45.1	29.5		

Source: Diao, X; S. Fan; S. Kanyarukiga; and B. Yu (2007).

**Figures A.1:** Required Funding Levels under PSTA and MDG1 In Const-99 Billion FRw (Low Elasticity Scenario).



**Figures A.2:** Source of Funding under PSTA Targets Const-99 Billion FRw (Low Elasticity Scenario).



**Figures A.3:** Source of Funding under MDG1 Targets In Const-99 Billion FRw (Low Elasticity Scenario).

