

REPUBLIC OF RWANDA



National Agriculture Policy

MINISTRY OF AGRICULTURE AND ANIMAL RESOURCES

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Acronyms and Abbreviations

AFAAS	African Forum for Agricultural Advisory Services
ASWG	Agriculture Sector Working Group
CAADP	Comprehensive African Agriculture Development Programme
COMESA	Common Market for Eastern and Southern Africa
EICV	Integrated Household Living Conditions Survey
EAC	East African Community
E-Soko	Access market's information through ICT tools
FARA	Forum for Agricultural Research in Africa
GDP	Gross Domestic Product
GoR	Government of Rwanda
ISFM	Integrated soil conservation and fertility management
IWRM	Integrated Water Resources Management
MINAGRI	Ministry of Agriculture and Animal Resources
MININFRA	Ministry of Infrastructure
MINEDUC	Ministry of Education
MINIRENA	Ministry of Natural Resources
MINALOC	Ministry of Local Government
MIDIMAR	Ministry of Disaster Management and Refugee affairs
MyICT	Ministry of Youth and Information Technologies
NAP	National Agriculture Policy
NGO	Non- Government Organization
ODA	Official Development Assistance
PPPPs	Producer Public Private Partnerships
PSDS	Private Sector Development Strategy
PSTA	Plan Strategic pour la Transformation de l'Agriculture
SDGs	Sustainable Development Goals
SPS	Sanitary and Phytosanitary standards
VET	Vocation Education and Training

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Executive summary

The development of the National Agricultural Policy comes against the background of the fact that since the National Agriculture Policy of 2004, the sector has been operating in context of rapid changes and evolving dynamics in policy and institutional environments at national, regional, continental and international levels.

The Ministry of Agriculture, in partnership with a wide range of sector stakeholders, coordinated the preparation of a revised and updated National Agricultural Policy. This update responds to the changes facing agriculture and the food system nationally, regionally and globally. Rwanda's population is growing and the demand for more food, better nutrition and employment, and enhanced resilience is increasing.

This update is consistent with the ambitious targets that African leaders have defined under the Malabo Agreement in 2014 for increasing agricultural productivity, reducing food insecurity and increasing trade. Rwanda is working with regional bodies such as East African Community and Common Market for Eastern and Southern Africa (COMESA) to expand the opportunities created by agricultural growth and integrated regional trade. Meanwhile, Rwanda is increasingly recognized as a leader in its response to global goals and challenges, such as the Sustainable Development Goals (SDG) and climate change. In line with Rwanda's commitment to the SDG process, this policy targets the timeframe until 2030.

The revised National Agriculture Policy has identified four main strategic and enabling pillars upon which core policy guidance and actions have been based:

1. Productivity and Commercialization for Food Security, Nutrition, and Incomes
2. Resilience and Sustainable Intensification
3. Inclusive Employment and Improved Agrofood Systems' Skills and Knowledge
4. An Effective Enabling Environment and Responsive Institutions

The new National Agriculture Policy reflects best national and international practices, and focuses on agriculture as a theme, not only as a sector. Recognizing the multi-functionality of agriculture, it builds on a vision that draws –in formulation and execution– on the capacity of actors beyond the Ministry of Agriculture only. It recognizes agriculture as a shared opportunity and responsibility that requires concerted efforts of a wide range of governmental and non-governmental stakeholders.

Through this policy and while continuing to ***subscribe to a family-farm-centric model, enhanced farmer cooperation and private-sector-led development*** of the agri-food economy will be promoted. The policy will be furthering Rwanda's reputation as supplier of high-quality, sustainably produced agri-food products, especially for the increasingly demanding consumers in Africa's growing urban centers. It places added emphasis on principles of ***resilience*** to adverse factors stemming from changes in climate and markets. It seeks to seize opportunities offered by advances in ***digitalization*** and to leverage these also for vocational skill development and for a more effective sector administration. And this policy will promote inclusiveness through mainstreaming preferential treatment and better participation of ***women and youth*** in agriculture programs and development. This policy initiates the shift of Rwanda's agricultural

sector governance to a modernized set of priorities and values: Under this policy the ***role of government*** in agriculture will increasingly shift from market-actor to market-enabler.

1. Policy Context

1.1. Rationale for National Agriculture Policy Update and Development

The development of the National Agricultural Policy comes against the background of the fact that since the National Agriculture Policy of 2004, the sector has been operating in context of rapid changes and evolving dynamics in policy and institutional environments at national, regional, continental and international levels. This may have affected the sector sustainable performance and development. Hence, there is a urgent need to update the National Agriculture Policy as the governing leadership of the agriculture sector to align with the newly and different country sectors policies, and agriculture-related agenda at regional, continental and international levels, and further to streamline with the subsector policies and strategies that have been developed after the National Agriculture Policy of 2004.

1.2. Relationships between the update of the NAP and other policies and strategies

The update of the National Agricultural Policy must continue to be in line with major Country development orientations and be coherent with recent national policies, strategies and international agenda towards the agricultural and rural structural transformation. These are outlined in:

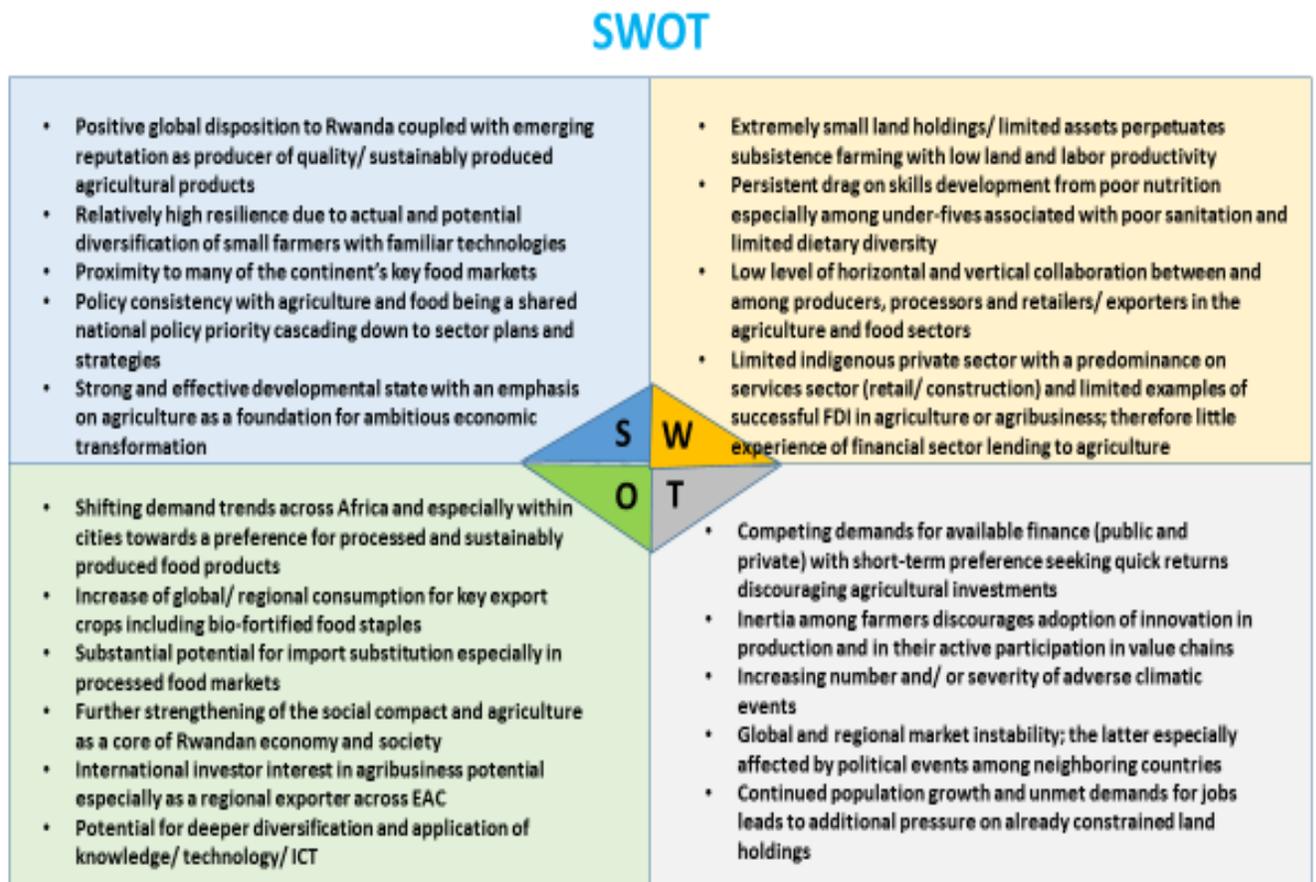
- Vision 2020 where Government has indicated the start of modernization of agriculture taking into consideration that it would employ 50% of the population. The entire Rwanda population would have access to substantial income allowing everyone to meet his needs;
- The Vision 2050 underdevelopment is expected to stress the importance of agro-processing: advanced food industry, technology intensive agriculture with a commercial focus under pillar III: transformation for prosperity;
- National Decentralization Policy in which institutions at grassroots level are expected to participate and to play a major role in the implementation of policies;
- The Girinka program, the one Cow per Poor Family is the cornerstone livestock. The Girinka program was approved as one of the implementation measures for national key leading policy, strategies and programs. It aims to enable every poor family to access a dairy cow for income, nutrition, and organic fertilizer;
- The Crop Intensification Program (CIP) is a cornerstone program for staples food activities within MINAGRI and the GOR. Launched in 2007, CIP was a pilot program with the goal of increasing agricultural productivity in high-potential food crops and ensuring food security and self-sufficiency. CIP activities include bulk buying of inputs by GOR, training of district and sector extension agents who provide farmer interface as a result of decentralization policy in improved production practices and the use of improved inputs, and the subsidized provision of inputs (with subsidy rates reduced in a stair step manner each year) and credit for input purchase. CIP post-harvest activities include promotion and provision of hermetic storage at the community level, organization of markets, collection and dissemination of market information, and credit facilitation;
- The EAC Vision 2050 whose one of its pillars is Agriculture, Food Security and Rural development that aims to enhance agricultural productivity for food security and a transformed rural economy;
- The Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods, adopted in 2014 during the 23rd Ordinary Session of the African Unions Heads of State and Government, provides further impetus to the CAADP process and gives the direction for agriculture on the continent for the next 10 years. This essentially constitutes the agricultural component of the first 10 years' implementation plan of the African Union 2063Agenda;
- In September 2015 world leaders agreed on 17 global goals for sustainable development. The 17 SDGs have built on the successes of the preceding Millennium Development Goals and came into force 1 January 2016. Agriculture has a central place in the SDGs with focus to sustain natural resources, overcoming hunger, malnutrition

and food insecurity. The SDGs will shape national development plans over the next 15 years;

1.3. SWOT Analysis for Agricultural Development in Rwanda

To guide the NAP priorities, the below Figure 1 presents strengths, weaknesses, opportunities, and threats, that are likely to influence future agricultural development. Strengths and weaknesses represent respectively positive and negative characteristics of the Rwandan economy/agricultural sector, while opportunities and threats are external trends that are likely to influence future economic and social outcomes in the sector.

Figure 1: SWOT Analysis for the Agricultural Development in Rwanda



2. Policy Vision, Mission and Objectives

2.1. Policy Vision

A nation that enjoys food security, nutritional health and sustainable agricultural growth from a productive, green and market-led agricultural sector towards 2030.

2.2. Policy Mission

To insure food and nutrition security of Rwandans by using modern agribusiness technologies, professionalizing farmers in terms of production, commercialization of the outputs and then creating a competitive agriculture sector.

2.3. Policy Objectives

The update of the National Agriculture Policy seeks to shift the Rwanda's agricultural sector governance to a modernized set of priorities and values whereby the role of government in agriculture will increasingly shift from market-actor to market-enabler. This would be achieved through:

- a) Promote new strategies that will stimulate productivity growth for a broadened nutritional food production, while embarking on new opportunities for farm income diversification, in order to secure further reductions in rural poverty, and transform the dominant subsistence farming sector into a competitive and market-led agriculture sector;
- b) Develop and promote a sustainable agricultural intensification and a resilient agriculture sector to counter environmental degradation and climate change in ways that maintain sustainable agricultural growth;
- c) Address the knowledge and skills deficits in the agriculture sector to unlock significant additional agricultural as well as labour productivity gains for high quality produce and services;
- d) Enhance policy and institutional coordination and collaboration amongst different relevant stakeholders operating in the sector through the creation of an effective enabling environment to render institutions more responsive.

3. Policy Pillar 1: Productivity and Commercialization for Food Security, Nutrition, and Incomes

3.1. Policy Problem

During the last decades, Rwandan agriculture has made remarkable progress. Accounting for 32.7% of the GDP (2015), agriculture is also the most significant driver of economic growth (7.6%, 2000-15) and poverty reduction (contributing to 35% of the total drop in poverty rates over the past decade). The well-established policy framework, facilitating, in particular, an enhanced access to better agricultural inputs, has greatly contributed to the positive agriculture sector performance. As a result, the total production of cassava, maize, but also milk, meat, fish and eggs more than doubled between 2005 and 2015.

Despite these positive developments, Rwanda has yet to meet its production potential. Although key crop yields have greatly increased since 2000 (e.g. cereal and cassava yields have trebled, sweet potato yields have doubled etc.), they reached a plateau in 2011. At their current levels, they are estimated to be at about 40-50% of their production potential, which points to a still suboptimal use of production factors. In turn, livestock productivity remained consistently low over time. This is related to the scarcity of good quality (forage, feed, feed formulation, composition) and quantity of animal feed, low rates of cross-breeding, as well as to a lack of knowledge regarding livestock management (proper animal husbandry, animal health, disease management).

In particular, farm size is small – a rural household, on average, cultivates, 0.6 ha, and has 2-5 animals – and the majority of the rural households (96 %) are directly reliant on agriculture as their main or only source of income. The projected increase in the rural population, pointing to an additional 2.5-3.5 million people by 2032, is likely to add more pressure on land resources and farm incomes, unless alternative employment opportunities become available.

In addition, Rwanda remains challenged by malnutrition, with a stunting rate of 37.9%, while its food security index lies below the average of the Sub-Saharan African countries. Some 20% (2015) of the Rwandan households remain food insecure, and most of them are located in the western and northern parts of the country.

Considering these trends and projections, Rwanda will promote new policies that will stimulate productivity growth for a broadened nutritional food production, while embarking on new opportunities for farm income diversification, in order to secure further reductions in rural poverty, and transform the dominant subsistence farming sector into a competitive and market-led agriculture sector.

3.2. Policy Actions

3.2.1. Increase crop, livestock, fisheries and aquaculture productivity

Increase on-farm productivity and value

The increase of agricultural productivity and production increases, in both crops and livestock, have been the main driver of agricultural growth in the past decades, and the successes to date need to be continuously sustained. However, more needs to be done to enhance the productive efficiency, to prevent crop post-harvest losses, to continue increasing the access and use of good quality of improved seeds and livestock breeds, access to quality fertilizers and farm incomes in the future. Important productivity gains will be achieved by policies aimed at improving farmers' skills and resilience (see Pillars 2 and 3), with positive impacts on income, as well as the diversification of the farm outputs and required equipment like the greenhouses. At the same time, the on-farm value of agricultural production will be augmented in many different ways that will be concurrently encouraged through: (i) concerted action and economies of scale, (ii) diversifying agricultural production systems to favor higher-value added products and broaden the food-base, enhance nutritional status and provide round-the-year food supply, (iii) continuing to improve farmers' access to good quality and affordable inputs (for both crops and livestock), and (iv) facilitate better market linkages (see below). The policy will also prioritize horizontal zoning among crops as well as livestock based on the comparative advantage and ecological tolerance (see pillar 4). Agricultural parcels are very small. The farmers can increase their income by better capitalizing on their production factor and by means of diversification: firewood, honey, perennial and annual crops, fish, etc.

Enhance crop varietal development

Availability, accessibility and optimal use of good quality seeds enhance crop yields and their subsequent contribution to food security, balanced nutrition, value of the product in the market, and economic growth. It is therefore essential that seed is given the important role it deserves in the plan for structure transformation of agriculture. Increasing smallholder access to good quality seeds is often desirable for addressing yield gaps and increasing output, as most farmers would otherwise resort to using farmer-saved seed with low yield potential resulting in low agricultural productivity. This policy encourages policy reforms that shift role of governmental seed regulatory system from direct supervision of seed production toward technical and policy support for cost effective varietal development of wide range of seed provision options that are led by private seed industry.

Support and promote livestock productivity

Despite very limited land, the livestock sector of Rwanda provides major opportunities to increase further its contribution to economic growth while improving incomes to reduce poverty and improve nutritional security of many rural people. This potential has already been proven by the "One cow per family program" that has transformed dairying in Rwanda, and proven to be

the key to sustainably improving vegetable and legume production on once infertile hillsides by providing ample manure. With the growing population, increasing urbanization and rising incomes, the demand for meat, milk and eggs is expected to increase significantly for the foreseeable future. To continue sustaining the productivity of milk, meat and eggs, the policy will prioritize the increase in productivity per animal, by addressing the feed deficit, animal health, genetics and markets through: i) Improve breed performance through crossing local with improved breeds; ii) Improve availability of feed (produced, agro-industrial by-products and processed feeds); iii) Strengthen disease control targeting the control and prevention of priority livestock diseases ; iv) Strengthen extension services to improve the management skills of households raising livestock; v) Incentives to promote more value addition through processing and product transformation, combined with a clearer role of the public and private sector.

Support fisheries and aquaculture development

About eight percent of the entire country (210,000 ha) is covered by water, and this offers a big potential to the fishery and aquaculture which so far are still at the infancy stage. 100 lakes occupy about 128,000 ha, 861 rivers about 7,260 ha, and water in wetlands and valleys occupies about 77,000 ha. Now the lakes surveillance are playing a big role to stop illegal fishing. Though the surveillance committees needs some empowerment to efficiently perform.

The policy will put much emphasize to promote fishery and aquaculture through MINAGRI's partnership and Private sector involvement. In this case research center for fishery and aquaculture will be dedicated to maintain the production of high performing fish seeds.

3.2.2. Promote high-value addition for Rwandan agriculture

Broadening the range of farm products towards high-value crops and livestock is important for expanding exports and for sustaining higher incomes.

The development of livestock production, in particular, will play a significant multi-purpose role for Rwanda: (i) contribute in addressing food security and malnutrition by closing the protein- and iron-gap, (ii) improve soil-fertility with livestock manure to sustainably increase at the same time the quality of soil/land and the agricultural productivity, while reducing the dependency on fertilizer imports and local distribution, and (iii) generate revenues from sales or processing that provide additional farm income and create jobs.

Considering the abundant labor capacity in agriculture, Rwanda will continue to promote labor-intensive yet high-value sector development through e.g. putting more emphasis on horticulture production for import substitution, and expanding the range of cash crops (e.g. coffee and tea) by diversifying into specialty crops for export. In addition, bee-keeping and community-based agro-/eco-touristic offerings represent other activities that will be supported, as they can provide additional income with only marginal land requirements.

Productive diversification will actively be supported as a pathway to enhancing market- and climate-resilience, to furthering soil fertility and biodiversity, and to broaden nutritional diversity. Promotion of the adoption of enhanced genetic material in crop and livestock production is consistent with this approach and will be pursued through intensified local development and efforts to promote heightened mutual recognition of seeds and breeding material with regional trading partners. However, this policy discourages the use and transfer of genetically modified organisms, based on pre-cautionary principles and in absence of biosafety regulatory, diagnostic, and logistical capacities. Yet, this policy encourages the elaboration of a legal frame for research, development, use and support for scientific, technical or economic purposes, especially also considering property rights applicable to seeds.

3.2.3. Foster active policy response to land fragmentation, by furthering producer cooperation and land leasing

To improve productivity, increase production and commercialization, and address the challenge of land fragmentation, the development of farmer cooperation and cooperatives will continue to be encouraged. Experience to date has proven that such initiatives benefit individual farmers' access to agriculture inputs and financing, support their capacity and capabilities for making investments, and help improve food safety/quality standards needed to participate in agricultural markets. In addition, cooperatives have greater bargaining power within the value chain, and can improve post-harvest management, through better handling, storage and improved on- or off-farm agri-processing capacity. Future efforts will build on the successes achieved so far, while the cooperative federation will be strengthened and MINAGRI will transition into the enabler-role. To stimulate the furthering of such farm cooperation's, additional incentives should be considered to yield to self-help and diligence attitudes by beneficiaries.

Land leasing is another effective tool that facilitates voluntary consolidation of farm assets, thereby allowing for increased agricultural production efficiency. Rwanda is the only African country that completed a nation-wide, participatory, low-cost land regularization in 2012/13, and this is a significant asset to build on. In spite of this, land transactions in the rural areas remain highly informal, because of low awareness of relevant regulations, high travel costs to reach relevant offices etc. Going forward, public policies will focus on strengthening the legal and enabling environment in order to improve (formal) land market participation in rural areas, especially through leasing, in its various forms.

3.2.4. Encourage better post-harvest management, while also actively supporting the emergence of agri-food processing

Rwandan farmers and agri-food processors will benefit from a better enabling environment to reduce post-harvest losses. For this end, they can capitalize on supplying local farmers markets or larger domestic markets, such as urban centers which are expected to grow more in the next

fifteen years. At the same time, strategies need to be directed at improving their knowledge of post-harvest treatment of agricultural products, at increasingly using food preservation techniques (e.g. drying, canning, or small-scale processing in both crops and livestock), and at building storage and cooling facilities, as well as community-based seed banks, in order to limit the reliance on external/hybrid and more cost-intensive seeds, which are often unavailable in the qualities desired. Some of the latter could already be embedded in emerging value chains, such as the use of the cold-chain for milk leading to milk collection centers.

Rwanda accounts 70% of the labor force; yet the sector lowly contributes value added to GDP. This reflects low-slung agricultural productivity. Rwanda rural population has been unable to transform his basic economic activity – agriculture to high productivity levels. The transformation of agriculture should seek to reallocate workers from low-productivity agriculture into a high productivity jobs and hence bring more people out of poverty. Agri-food processing offers a viable solutions for an economy of Rwanda endowed with excessive less-skilled people given its potential competitiveness that is based on low wages costs and natural resources that supply raw materials. Agri-food processing needs to be strongly fostered to absorb the produce from a growing agricultural productivity, and create better paying-jobs.

3.2.5. Improve farmers' access to markets, particularly through better value chain integration

With an average size of 0.6 ha and 2-5 animals, Rwandan small-scale farmers are challenged to participate in emerging and lucrative market opportunities. Yet, the key for successfully accessing new markets (domestic or regional/international for exports) is being able to respond to market quality and quantity demands with reliable consistency. Besides addressing the challenge of land consolidation, producing abundant food with minimum safety and quality standards, creating an environment to attract private investors, encouraging an entrepreneurial mindset and facilitating market access are the main requirements.

Increased access to markets is important to continue driving farmers' capacity towards high agricultural productivity. Further, price of agricultural inputs/outputs need to be stabilized in order to sustain farm income in the short, medium and long-term. The price variability of agricultural inputs/outputs affects farm income and subsequently reduce farmers livelihoods i.e. reduction of expenditure, withdrawing children from school, reducing food consumption, and selling production asset such as land/livestock. Price and income stabilization through markets are policy interventions that could prevent the effects of inputs/outputs price variability

In foregoing context, contract farming will be actively promoted, in addition to producer cooperation. Contract farming is typically initiated by buyers (private sector) and includes specifications on the desired quantity and quality of agricultural produce, while guaranteeing a selling price to the farmers. In addition, buyers often provide upfront agriculture inputs, financing and technical advice to farmers. Suitable legal instruments will be developed to avoid farmers to refuse supplying their produce when prices become high at the market and traders to refuse honoring their contract once the market is selling at low prices. This regulatory framework should

enforce the ‘take or pay’ and the ‘supply or pay’ contracts to bring stakeholders in the contract farming arrangements to respect the contract terms. Contract farming is an effective coordination- and risk management-instrument leading up to vertical integration. Oftentimes, it may have positive spillover effects on neighboring (small) farmers (out-growers); following the example of a successful farmer, they may agree to produce the same crops and sell them to the same buyer. Introduction of futures in the agricultural business will also be fostered to support the contract farming arrangement. Though, the policy will continue to sensitize farmers about frugality to further contributing to future investments such as buying inputs.

On the side the finding markets for agricultural outputs, once niche markets are identified for some specific products like organic ones, efforts will be deployed to permit Rwanda farmers to benefit from those unusual buyers.

This policy is also emphasizing the quality of outputs by observing standards that will facilitate all the key players access to markets domestic, regional and international. The quality will be preserved from the farm through the promotion and implementation of legislation on mechanization, seed, land, fertilizer and pesticide use/management to ensure that correct agricultural practices are enforced.

3.2.6. Improve availability and access to affordable, nutritious and safe food in rural areas

Despite Rwanda’s impressive development in recent years, food insecurity and malnutrition remains pervasive. Chronic malnutrition (childhood stunting) has declined remains at 38 percent. Similarly food insecurity has improved substantially yet, according to latest estimates, one-fifth of households remain food insecure. Rates are worse among vulnerable groups such as female-headed households. Not only is stunting and food insecurity morally abhorrent, it also imposes a long-term cost on economic growth by limiting the mental and physical development. The causes of food security and stunting are multi-dimensional and include both food production, affordability, availability, dietary diversity, cooking habits, access to health care, sanitation, etc. Consequently the measures to achieve further progress in reducing malnutrition and food insecurity rates will need to be multifaceted. Many interventions are found in other Pillars of the policy and indeed in the policies and strategies of other Ministries. The Government as a whole is committed to more effective coordination on these issues.

Efforts to improve the availability and affordability to food have centered on promoting increasing production of food staples. This has been successful, as evidenced by improvements in Rwanda’s food balance sheet. Yet it has resulted in a focus on calorific intake at the expense of dietary diversity. Programs to promote the production and consumption of fruits and, especially, vegetables – such as the kitchen garden program – have achieved some success and will benefit from further refinements moving forward, such as greater attention to its specific nutritional contribution. Ongoing efforts to improve the nutritional content of food staples such as bio-fortification will be scaled up and present an opportunity for exports throughout the region. Safe food is also critical to reducing malnutrition and maintaining public health and will

become more important with growing urbanization and the implications this has for food supply chains (e.g. urban markets) and the demand for more processed and convenient foods. Greater attention will be paid to strengthening Rwanda's regulatory and inspection regime for food safety moving forward.

3.2.7. Pursue a deeper regional and international trade and knowledge integration with neighbouring economies

As a small and landlocked country, Rwanda faces many barriers that hinder the country's socio-economic development ambitions, including barriers to trade. The agricultural sector is critical to the Rwandan economic growth and as supply side to trade, a factor for integrating into regional and global economy. Rwanda has been pursuing the implementation of a set of strategies aimed at increasing both internal and external connectivity, in order to expand market and absorb production increases, generate economies of scale for export commodities and enhance the quality of products to meet the requirements of international trade.

Strategies set out by MINAGRI for boosting intra-regional trade in agricultural commodities and services include (i) the promotion of the private sector investment; (ii) diversification of exports and improvement of export quality requirements, particularly enhancing trade-relevant sanitary and phytosanitary (SPS) standards; (iii) strengthening collaboration with other government institutions to implement the cross-border trade agreements (not only these agreements but also trade facilitation agreement); and (iv) improvement of information systems and certification programs, and provision of incentives for export. As such, Rwanda aims to leverage the advantages offered by integration with the East African Community (EAC) and the Common Market for Eastern and Southern Africa (COMESA). These offer best opportunities for export markets, transport corridors, and cross-border trade cooperation, as well as poising the country to attract investment, stimulate competitiveness and transition from a subsistence-based farming economy to a commercial-based, export-oriented economy.

To be able to commit to harness markets and trade opportunities -locally, regionally and internationally- as a key strategy for accelerating economic growth and poverty reduction and enhancing food and energy security, Rwanda will continue to enhance policies, institutional conditions and support systems to increase and facilitate investment in markets and trade infrastructure; promote and strengthen platforms for multi-actors interactions; and strengthen and streamline the coordination mechanism that facilitates the country's position on agriculture-related trade negotiations and partnership agreements. As a critical ingredient to the targeted enhancement of productivity in primary production, Rwanda will particularly promote enhanced cross-border trade and collaboration in seeds/ planting material and livestock material.

The policy should also take into consideration of the application of ICT in agriculture to address challenges in the agricultural sector. The emphasis should be put in the use of existing tools such as e-Soko for market price information system; e-portal for import/export in agriculture.

3.2.8. Strengthening agriculture research for development

Agriculture research has widely and historically recognized as having the capabilities and abilities to underpin the technological and institutional innovations to many of the dynamics problems that agriculture has faced throughout centuries. Rwanda ambitions to structurally transform its agriculture and respond to the growing challenges of increase of urbanization and industrial use threatening agricultural lands, climate change and weather variability, depleted soils, require scientific and strategic investments in research for development to increase productivity and add value to its agriculture produce.

There has been increasing reliance on outsourcing of agro-technologies developed elsewhere as opposed to promotion of home-grown technologies through Rwandan basic research. Consequently, the high demand for agriculture produce by processing industry have prompted a drastic increase of imports of improved seeds of maize, wheat, cassava and soybean, which currently stand at 67 billion Frw per year. Up to 2013, imports of exotic and crossbred cattle breeds from overseas has been worth a conservative estimate of 77 billion Frw. These imports constitute a heavy burden and a risk to the national economy, which can only be mitigated through investing in research for the development of innovative, locally adapted agricultural technologies. Available statistics show that Rwanda has one of the lowest investments in agricultural research, reflected in levels of public spending on agriculture research (criterion for logic comparison: spending as percentage of Agriculture GDP) and full time equivalents (FTE) of scientists to engage in research.

This policy guides that Rwanda strategic research shall be articulated around four themes i.e. (i) upgrading RAB research capacity and institutional streamlining for research to better play its pivotal role of driving agricultural transformation, (ii) improving soil health and resilience to environmental stress for increased productivity and improved livelihoods, (iii) increasing crop productivity through innovative crop improvement and husbandry technologies for sustainable food security and income generation, and (iv) increasing animal resources productivity for current and future demands for livestock products in the domestic and export markets.

4. Policy Pillar 2: Resilience and Sustainable Intensification

4.1. Policy Problem

Rwanda's agriculture is challenged by topographic and climatic conditions, as more than 70% of its farming is carried out on slopes ranging from 5 to 55% inclination. This leads to erosion, soil degradation, and annually, soil losses can vary between 20 to 150 t/ha. Low pH (acidic soils) negatively influences availability and uptake of several essential nutrients, and also restricts root growth and access to water and nutrient leading to low productivity. According to the government's state of environment report (2015), about three-quarters of Rwanda's soils are acidic, with a pH below 5.5 and with deficiency in nitrogen, or in phosphorus.

Agriculture is dominated by small-scale, subsistence, rainfed farming (about 80% of farm households), relying on traditional technologies and practices that make it particularly vulnerable to climate variability or changes. As a result, average crop yields are low compared to potential yields, and are exposed to risks such as weather-related shocks, and pest and disease outbreaks.

Traditional pastoralism is giving way to intensification by means of confined grazing (zero-grazing, cut-and-carry) in most areas of the country. The livestock sector is also affected by drought, which results in reduced water and feed availability, poorer access, particularly in the east and parts of the south, and increased vulnerability to diseases. Production losses to the dairy value chain were most significant in major drought years.

With the scarce land and increasing population, and a depleting natural resource base, sustainable agriculture intensification is not an option for Rwanda's agriculture but a necessity. Developing a resilient agriculture sector will require technologies and practices that build on agro-ecological knowledge and enable smallholder farmers to counter environmental degradation and climate change in ways that maintain sustainable agricultural growth. Traditional breeds have low genetic potential and limit their milk and meat production. Efforts are deployed to improve the local breeds by introducing and crossing with exotic breeds. While this policy is encouraging to expedite the local breed transformation by introducing modern ways like the embryo transfer technology, it will also identify how to utilize local breeds for tourism development and perpetuate the indigenous variety.

The fishery and aquaculture sector is underdeveloped and has been exposed to a number of major issues: (i) climate variability often results in heavy rains and flooding in valleys with attendant increase in siltation of the water systems, (ii) lack of upgrading technologies associated with research on fishery and aquaculture and (iii) inadequate fish feeding in terms of accessibility and availability.

4.2. Policy Actions

4.2.1. Build a risk management framework for the agriculture sector to absorb market and production instabilities

Agricultural risks, especially pests and diseases but also erratic rainfall, are ever present across Rwanda. Although they do not cause large deviations from general yield trends or aggregate crop or livestock production on a national scale, their impacts on production likely explain part of Rwanda's yield gaps. In any given year, many districts may be hard hit by rainfall shortages, changes in the timing of rains, or flood hazards, while others are not. Agricultural risks thus have an important impact on the growth objectives and on the government's efforts to transform the sector. Agriculture will be sustainably increased only if farmers are provided with a framework helping to improve their resilience to both production and market risks.

Rwanda is already familiar with vulnerability assessments and mapping of the agriculture sector through different programs. Based on these efforts, it commits to building a risk management framework addressing current and future risks, which will integrate the risks assessment results into regular policy and practice, and disseminate data to concerned stakeholders. This will be achieved through a combination of different actions which will include:

Risk transfer, through agriculture insurance

Rwandan farmers are poorly equipped to deal with risk in agriculture: of all the population experiencing loss of crops, livestock or own business over the last 12 months, 44% did nothing, 35% cut down expenses, but 0% claimed insurance.

The uptake of insurance is very low in the general population (9%, 2016), mainly due to affordability and awareness constraints, and it is quasi-absent amongst farmers. The latter represent only 4% of the insured population; while low, this still represents an improvement from 2012, when no farmers were insured.

Some insurance companies are introducing crop/livestock insurances. Future efforts will continue to focus on improving the enabling environment to allow the private sector to play a greater role, and on enhancing access to information for both farmers and potential insurers to better estimate the risks. This will also require risk management products relevant to the Rwandan farming context including subsidizing farmers' insurance, to ensure that the proposed products are not increasing the vulnerabilities of smallholder farmers.

Insurance is not the universal solution to the risk and uncertainties that farmers face. It can only address part of the losses resulting from some perils and is not a substitute for good on-farm risk-management techniques, sound production and farm management practices and investments in technology. These will also be part of the future integrated risk management framework.

This policy will amplify partnership with Meteorological centers upgrade ways of capturing reliable data regarding farming early warning. This will help to elaborate contingency plans in advance and share with responsible stakeholders in terms of taking prevention measures.

Risk mitigation and coping, through market price stabilization and other tools

Price volatility most strongly affects the milk and the exported crop (tea and coffee) sectors. There are several approaches to managing the risks that farmers face when deciding to produce a commodity, while facing variable or uncertain market prices. These approaches could include support to handling, storage and increased value addition, to allow spreading sales; facilitated direct selling to final consumers by linking farmers to distributors; contract farming, forward contracting, or strengthening price information systems throughout value chains. Before being translated into policy measures, these options will be assessed to take into account the economic viability of proposed services and the local context.

At the same time, significant efforts will be directed at improving farmers' awareness and adoption of tools and behaviors that can help prevent and minimize losses in case of adverse effects. In addition to better water use (see above), risk management efforts will be focused on: (i) improved feed and water access for the crop production and livestock sector; (ii) improved pest and disease management for crops and livestock; (iii) improved disease management infrastructure for livestock, and (iv) strengthened sanitary institutions and practices throughout the livestock supply chains.

4.2.2. Promote sustainable water management for climate-resilience in farming and rural areas

Development of more efficient irrigation systems, dams, and soil water management

Rwanda's agriculture is dependent upon rainfall with two rain seasons and intervening dry periods. Crop and livestock production is vulnerable to water-related stress resulting in significant productive losses - crops may suffer from insufficient rainfall or rainfall at the wrong time (coffee, for instance). Irrigation can alleviate these risks yet only 1.6% of agricultural operators have invested in irrigation. This is despite substantial Government (and donor) investment in large-scale irrigation schemes, and subsidized prices for high-tech (drip) irrigation equipment. Moving forward, the Government will renew efforts to expand irrigation usage within the context of both integrated water resources management (IWRM) and landscape approaches and while promoting greater private sector involvement in irrigation technology supply and management. Landscape planning and IWRM helps to maximize economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems. Providing access to water to farmers and their livestock remains critical, and will require better ways to capture water in both downhill marshland systems and hilltop crop production. This will require a combination of measures to: (i) increase the capacity of on-farm water harvesting and storage; (ii) groundwater development; (iii) expanding and modernizing irrigation infrastructures; (iv) enhancing soil moisture retention capacity; and (v) drainage and flood management.

Rwanda has invested substantially in large-scale irrigation development in recent years. While irrigation schemes have significant positive effects on production, two aspects warrant greater attention moving forward. First, such schemes can have important negative environmental impacts including soil salinization, alkalization, acidification or water logging. Moreover, upstream development can deplete groundwater resources and result in water loss or degradation for downstream users. Second, the economic returns to irrigation investments are often lower than they might be if the command area is utilized for higher value horticulture instead of food staples. Therefore, future investment in irrigation facilities will therefore take into account management strategies in compliance with the IWRM approach and in coordination with sector policies, strategies and plans for water use of MININFRA, MINIRENA and MIDIMAR, in order to mitigate the negative environmental and socioeconomic impacts of irrigation investment. At the same time, the economic feasibility of the various irrigation options and technologies will be carefully assessed, given the unique and diverse topographic conditions in Rwanda. Physical investments must go alongside support for diversification into high-value crops among irrigation beneficiaries. Incentivizing collective action will be critical in both coordinating the production and marketing of such crops as well as the maintenance of the infrastructure (through water users associations/ cooperatives/ farmer based organizations) which needs to be financially sustainable in the long term. Depending on the individual scheme, there may be scope for allocating a proportion of the command area for nucleus agribusinesses as ‘anchor tenants’ around which smallholder ‘out-growers’ can be organized – a model that has successfully integrated small-holder producers into horticulture value chains elsewhere and could be piloted in Rwanda. There may also be opportunities to contract agribusinesses with the construction and/ or maintenance of the primary infrastructure under public-private partnerships (PPPs) as has been done elsewhere in the region.

There is scope for promoting greater use of drip irrigation and similar technologies that enhances on-farm water productivity and improves resilience. This can be especially important for food insecure households. Ad hoc subsidies tend not to be cost effective and can retard private investment in the supply and distribution of equipment thereby achieving the opposite result to that intended. Where costs remain beyond the reach of farmers, despite large financial and/ or economic returns, innovative mechanisms such as voucher schemes can increase affordability while simultaneously promoting market deepening and will be investigated. Innovations in agricultural finance can also help.

Ultimately, irrigation only delivers the full potential if combined with proper soil management techniques and quality seeds/ planting material. Therefore efforts to promote fertilizer use and the application of improved seeds will be key. Selection of appropriate crops/ crop varieties specific to the soil type (identified through soil testing) is essential. In addition, good agronomic practices such as minimum tillage, cover crops and residue management to improve organic matter will be encouraged to improve infiltration and build ground water, and (re-)build soil fertility. Overall soil health will be monitored by regular soil testing and directly working with farmers. The future policy will strongly support the capacity building of farmers, farmer

organizations and extension personnel, as a critical intervention for proper implementation of integrated water management programs applied to appropriate irrigations systems.

Promote cultivars and animal breed adapted to the impacts of climate change

According to projections, increased rainfall variability and temperatures are the climatic hazards most likely to increase vulnerability of the agriculture sector. To cope with the effects of climate change and variability, Rwandan agriculture will need to focus on promoting high quality plant varieties and animal breeds. Ensuring that appropriate genetic resources with relevant traits for climate change adaptation and mitigation are available and accessible is important for coping with climate change through the regulated introduction of superior planting material including transgenic materials.

The Rwandan seed sector is dominated by the use of farmer-saved seed with low yield potential which may expose the vulnerable to the effects of climate change and variability. While it has proven that the genetic potential, economic importance, traditional value, and climatic adaptability, of local plant cultivars, play a big role in the seed sector, their integration into the seed policies and framework is still weak and there are risks to erode their genetic potential. Germplasm collection proper conservation needs to get more attention in order to continue improving the genetic potential and diversity of local varieties to render efficient breeding programs.

Livestock breeds more suited to drought conditions, increased productivity and resistance to pests and diseases. Consideration of improved livestock breeding programs including enforcement of sanitary standards would help drive the sector forward.

Strategies will focus on supporting investment in research, release and adoption of high performing varieties, and animal breeds and practices, fishery and aquaculture that are adapted to the observed and forecasted impact of climate change. These will include drought tolerant crop/ varieties, animal breeds and fish seeds, and early maturation varieties; improved forage management practices; pest resistant/ tolerant varieties etc.

A conservation strategy that safeguards the diversity of genetic resources is crucial for maintaining and enhancing the resilience of agricultural production. The agricultural sector will receive sustained investment by the government and the private sector in research and dissemination of both crop and animal improvements, and capacity building in that area.

4.2.3. Restore, preserve and enhance landscapes and natural resources by, promoting sustainable farming practices and livelihoods

To achieve food security and improved livelihoods, agricultural production needs to be integrated in ways that maintain ecosystems that are crucial for crops, livestock, rural livelihoods and other sectors. Resilience of farming systems will be supported through ecosystem restoration and management, preventing soil erosion, maximizing the effectiveness of input use through integrated soil fertility management, and integrated livestock management.

Integrated soil conservation and fertility management is critical for the Rwandan farming system. One needs to acknowledge that the current levels of inorganic fertilizer used by smallholder farmers are low and, in many cases, insufficient to increase crop yields. Therefore, the agriculture policy will support more albeit judicious use of inorganic fertilizers to increase crop productivity. Integrated soil fertility (nutrient) management (ISFM) approaches, which combine agri-environmental practices, resource recovery and reuse of fertilizer-enriched products, will require improvements in current farming systems to better incorporate livestock, crop residues and composting. Incorporation of livestock would also require use of high quality forage or fodder crops to enhance productivity of livestock.

The government will follow a landscape approach to land restoration, in order to restore the productivity of degraded landscapes. This will be done through policies to (i) rehabilitate degraded land, by using a combination of natural and protective forests, (ii) improve the management of existing woodlots, and (iii) stimulate the adoption of agroforestry.

In addition, policy measures will encourage the adoption of other sustainable farming practices that would allow integration of livestock along with crops; this will lead to an efficient use of nutrients, by recycling the animal waste into the crop production systems and soil improvement. At the same time, the policy package will encourage feeding animals with forage or fodder crops and biomass; integrated pest management; improved grazing management; promoting the maximum use of organic manure; and climate smart agriculture. The incentives will be delivered as payments for environmental services, such as compensating farmers and farming community for maintaining ecosystem services and practicing sustainable farming.

4.2.4. Build a reputation as a provider of quality, sustainable food products (*"Naturally Rwandan"*)

As a landlocked country, Rwanda suffers from high transport costs that affect the marketing of its goods. A competitive export strategy will focus on high-quality niche products which compete in higher-price and lower-volatility markets. Given Rwanda's growing international recognition for commitment to green growth practices, this will be achieved through promoting a set of environmentally sustainable farming practices in combination with adequate monitoring, branding, and marketing practices.

This policy will rely on a sound assessment of the resource requirements and economic potentials of such an approach. The expected advantages will be particularly strong on the regional stage, where Rwanda aims at becoming a recognized supplier of high-quality, sustainably produced agri-food products, especially for increasingly demanding consumers in Africa's growing urban centers. But also on the global stage, it will contribute to furthering Rwanda's reputation and position as a major provider of high-value specialty agricultural products for discriminating consumers in higher-price markets.

In essence, Rwanda's commitment to environmentally sustainable intensification principles is based on its interest in conserving water, soil, and biodiversity as a foundation of long-term productivity growth and resilience, as well as on its interest in expanding market opportunity.

Consistent with this, Rwanda will support the production technologies that integrate natural production principles, including organic principles. To support building market opportunities also in this segment, Rwanda will pursue further development of an enabling environment, conducive to establishing the legal, diagnostic and logistical preconditions for markets that require formal certification in these areas.

5. Policy Pillar 3: Inclusive Employment and Improved Agrifood Systems' Skills and Knowledge

5.1. Policy Problem

Since 2000, Rwanda's rapid economic development (7.6%, 2000-15) and fast urbanization (7%, 2000-15) have contributed to a decline in the share of agricultural employment, from 88.6% in 2000 to 68% in 2014. Yet, demographic projections show that, by 2032, rural areas will need to absorb 2.5-3.5 million additional people. Concurrently, the rural working age population will increase from 5.2 million (2014) to 6.6 million, calling for more and better rural on- and off-farm jobs. As 4 million of these are expected to be youth (14-35 years old), providing adequate employment opportunities for this group will be paramount.

Agriculture development has been the most potent vehicle for reducing rural poverty and improving nutrition, and its role will remain strong in the coming years. Tackling technical constraints, by enhancing access to fertilizers, seeds, improved animal breeds etc., has been the main source of productivity and production increases over the past two decades. Going forward, knowledge and skills deficits will be the key stumbling block that, if addressed, can unlock significant additional productivity gains in the sector. Education and skill levels are also the strongest predictors of revenue gains for the employed, and Rwanda still has important gaps to fill, particularly in agriculture: 22% of its farmers never attended school, while 50% have started but not completed primary education.

5.2. Policy Actions

5.2.1. Foster skills development through strengthened agriculture knowledge and information systems

Vocational education and training

Vocational education and training (VET) can provide farmers with time- and cost-effective access to knowledge, thus allowing them to develop specific job-related skills in rapidly changing conditions. VET will be properly articulated with the formal education system, and its effectiveness rests on availability of adequate funding, regulatory framework and monitoring, to ensure timely adaptation and labor market relevance of its curricula.

Rwanda can best achieve this by taking a systematic and horizontal approach to its VET program for farmers. While relying on some of the existing delivery mechanisms (e.g. extension agents, farmer field schools and cooperatives), it will place particular focus on improving the quality of the curricula and service delivery, and on using incentives that empower farmers to provide actionable feedback on the usefulness of the knowledge and skills they acquire. Embedding the VET program into a sound institutional structure, such as a multi-stakeholder monitoring

committee that provides regular oversight and steering, is an effective way for ensuring coordination and market-responsiveness.

Given the need to better integrate agriculture production with both upstream and downstream markets/industries, Rwanda will take a holistic and integrated approach to skills development. As such, VET will not be limited to crop, livestock and fish production alone, but will also be extended to the connected industries, and will cover e.g. management, marketing, product packaging and labeling, provision of various services to farmers (e.g. mechanic repairs, masonry etc.). In addition, MINAGRI will rely on a strong partnership with MINEDUC to properly articulate VET with and balance against the university programs

Access to information for farmers and other sector stakeholders

Timely access to accurate information is a critical principle underpinning a private sector-led development of the agriculture sector. This is important for making better production, marketing and financial decisions, among others. To operate effectively, farmers, food producers, traders and other actors need to access to a broad range of data, covering markets and prices, technologies, regulations etc.

Currently, Rwandan smallholders have limited means for obtaining proper market and price information, which puts them at a disadvantage when they try to sell their produce. Information asymmetry along agri-food value chains leads to greater transaction costs, which small producers bear disproportionately.

On the flip side, Rwanda has recorded a mobile phone penetration that is estimated at 78%, with a high concentration in urban centers. At the same time, 60% of Rwandans own a radio, and many of those using a cell phone have access to an embedded radio service. These are important advantages that will be used for shaping future public efforts to improve access to sector information.

Data needs to be available and accessible for farmers and other value chain actors to internalize it into their daily activities and being able to provide feedback on a timely basis.

As regards data availability, the public sector will take the lead in setting up and maintaining relevant data information systems, such as on markets and prices, and in disseminating information to subscribing farmers. Local administrations will also play a role in conveying information that is relevant on the local level (e.g. local fairs).

As regards data accessibility, the existing conveyors of information, such as local administrations and extension agents, will continue to play an important role in the near future. At the same time, efforts will be increased to take advantage of the high radio and cell phone penetration in rural areas. Introducing dedicated radio shows that target farmers is an important direction to consider. Strengthening the cellular network data access in rural areas, and thus broadening and improving farmers' access to information, is another. The latter will require concerted institutional efforts to expand internet penetration in rural areas, through broader cellular

network infrastructure and better bandwidth, improve the affordability of cellular phones to farmers, enhance the (digital) literacy of farmers, and make relevant internet content accessible in Kinyarwanda, the only language spoken by 70%-90% of the population.

5.2.2. Promote on- and off-farm income diversification through fostering entrepreneurship

On-farm income increases can be achieved in many ways: gains in farm-level productivity and better marketability, diversification of a farm's commodity portfolio (with added market risk mitigation and environmental benefits), or addition of on-farm income generating activities (such as small-scale food processing or agri-tourism). There is a strong correlation between a household's capacity to generate additional income outside primary agricultural production and its poverty status: greater dependence on agriculture is associated with higher poverty levels.

While Pillar 1 focuses on ways to enhance farm incomes through more efficient farm production systems, Pillar 3 refers to means to promote additional, non-agricultural activities on- and off-the farm. Together with the on-farm income diversification, off-farm income generation, through the promotion of rural enterprise creation outside agriculture, will play a key role in absorbing the growing rural labor that is expected to enter the market by 2030.

The public sector will play a significant role in incentivizing entrepreneurship both on- and off-farm (such as through competitive matching grant programs), but also in providing the adequate enabling environment: e.g. regulatory framework, entrepreneurial skills, and basic infrastructure. Rural areas continue to lag behind urban particularly with regard to access to electricity (9% versus 82%), and markets (57 minutes versus 24 minutes). At the same time, much greater emphasis will be given to developing feeder roads, storage, processing and marketing facilities, all of these contributing to increased market access, smaller transaction costs and reduced food spoilage and waste.

Effective inter-institutional coordination is critical for ensuring the proper enabling environment. Of particular importance will be aligning/integrating the on-farm and off-farm investment priorities and incentives with the Local Economic Development Plans.

5.2.3. Enhance nutritional literacy skills in the broader population

[Commitment to work with consumers to inform on healthy diets](#)

Consumer awareness is a key component of good nutrition outcomes, and should complement the efforts for improving food availability, affordability and access. Nutritional education programs are key to bring about behavior changes of Rwandans (on-farm and off-farm occupants) towards a more nutritious and healthy balanced diet (see Pillar 1).

Interventions will give priority to vulnerable groups (such as pregnant and lactating mothers, as well as infants and young children), but they will need to go beyond the First 1,000 Days campaigns, and aim to reach the broader population. Close inter-institutional collaboration, and attention to regional differences are very important for reaching this goal.

Diversified supply of agriculture products and food preservation

Households can and should play an increased role in ensuring better nutrition outcomes. In addition to diversifying their commodity portfolio (food insecure households grow 2.3 crops, on average, compared to 3.3 crops in food secure households), they can get increasingly involved in preserving food (through e.g. canning, drying), which would help alleviate seasonal food access issues. Agriculture extension services, or other local actors, will be encouraged to take up the training role.

5.2.4. Promote youth and gender sensitivity

Coherent mainstreaming into the general sector policy and strategy frameworks

Women outnumber men (92% compared to 77%, as per 2012 population census) in the rural population working in agriculture. About 25% of the (rural) households in Rwanda are headed by women, and working age youth (ages 15-34) are 77% of the rural population. Women are less represented in agribusiness -they account for only 24% of the agro-dealers in Rwanda-.

Women and men farmers in dual households are characterized by unequal power relations, which leaves the women with very limited decision making powers. This affects their control over agricultural assets, inputs, produce and capacity building opportunities, which at the end results into low agriculture productivity. For example their low access to credit limits their participation in agribusiness. Given this, their plots are typically less productive than those operated by men. Additionally, women in agriculture are more vulnerable to climate change and land degradation because they generally do not have other alternatives to earn their family's living.

The policy will promote gender mainstreaming at all levels, specifically in strategic plans, programmes and projects. Also behavior change through mass communication, application of quota and specific women empowerment programmes will be promoted to increase the number of women participants in different agricultural opportunities. The "Men Engage" approach will be used as a measure to enhance men's participation in women empowerment in agriculture as one of the strategies to ensure sustainability.

Similarly and despite potential, engagement and contribution of the Rwandan youth to agri-food value chains remains insignificant. This is largely due to a general perception that farming is unprofitable and unattractive, and not desirable for those with higher education levels. However, attracting qualified youth is critical for transforming the Rwandan agri-food sector into one that is driven by genuine entrepreneurship and one that is capable of delivering more value added, particularly through the development of food processing and high quality produce. It is equally important to create the premises for attracting young entrepreneurs into businesses

auxiliary to agriculture (e.g. input/output distribution, provision of mechanical and other services to farmers etc.), as these are likely to have positive spillover effects on farming itself. This will address the dependency mindset linked to social protection benefits and leading to the sustainability of the unity and reconciliation.

This policy will promote increased participation of particularly women and youth in agriculture programs and agri-food development, through mainstreaming and preferential treatment (e.g. for applicants below a certain threshold age), and, if applicable, tailored instruments (e.g. specific incentives for women in agriculture finance, application of women/youth quota in decision making, better awareness and enforcement of safety rules targeting women in agriculture, such as those regulating exposure of pregnant/breastfeeding women to agro-chemicals, tailored extension methods and materials that factor in women's heavy household workloads and low literacy levels etc.).

In this vein, it will promote increased access to productive resources for women farmers so they can cope better with the impact of climate change and raise agricultural output. This will include focus on improving women's access to agricultural loans, and addressing their limited financial literacy, their ability to provide collaterals and their insufficient access to information.

Priority will also be given to increasing the representation of women in public functions and services in the agriculture sector; extension services are such an example, where women currently represent only 18% of the district and sector agronomists.

For youth, in particular, this policy will focus on addressing constraints to accessing start-up capital, as well as on targeting students in agri-sciences and increasing their levels of engagement in the sector early on, through e.g. participation in extension and advisory activities, public-private partnerships and initiatives in the agri-food sector (see Pillar 4) etc.

More broadly, the public sector will play a stronger facilitating and monitoring role in promoting economic empowerment for women and youth. This will be done through coordinated efforts on: (i) capacity strengthening, especially through awareness raising and affirmative action to empower their participation in agribusiness and various governance structures within the sector; as well as (ii) monitoring systems, to allow for gender and age-sensitive data collection and analysis tools for agricultural surveys and assessments.

6. Policy Pillar 4: An Effective Enabling Environment and Responsive Institutions

6.1. Policy Problem

Agriculture has wide interfaces with many other sectors: water management, environment, trade, land administration, education, transport, social protection, health. Defining its policy mandate, ensuring effective complementarities and synergies with other sector portfolios, and translating these into an effective implementation structure are all valid concerns for any given administration. It is important to ensure that sector policies do not overlap or leave gaps in serving their target populations. It is also important that various interventions are aligned, in order to maximize the benefits to their beneficiaries.

In Rwanda, there are numerous government agencies interfacing directly with MINAGRI. In addition to these, there are a myriad of private (agribusiness, financial institutions), public (research institutes, schools, universities), non-governmental and international stakeholders, who play key roles in how farmers are served.

The recent decentralization of the Rwandan public administration empowers local governments to deliver agricultural policies to farmers and, more broadly, serve as the focal point in representing the needs of the local communities and coordinating multi-sector responses. They absorb the functions of the previous local branches of MINAGRI, and rely on a new partnership with the central government. Going forward, it is key to ensure that feedback loops between the central and local levels work effectively, and that proper checks and balances are in place.

Compared to their urban peers, rural dwellers require better access, but also quality and suitability of financial services. Currently, only 18% of the people primarily employed in agriculture use the services of a bank, but 47% of them rely on other formal financial institutions (FinScope, 2016). Credit to agriculture remains at a low [12%](#) (2011), relative to other sectors, in spite of an increase in its share since 3% in 2006. Financial constraints affect farmers particularly at post-harvest stage, and producers involved in staple crops. It should also be noted that efforts to permit young people to join the sector will be fostered by the ease for them to get funds from financial institutions and by helping them to get cheap loans, to prepare bankable projects, obtaining long-term loans and giving them facilities related to the collaterals.

6.2. Policy Actions

6.2.1. Facilitate shifting the role of the government from market-actor to market-enabler

Aligning with the economic targets envisaged in the Vision 2020 and the strategic objectives defined under the Private Sector Development Strategy (PSDS), agriculture will contribute to the overarching goal of Rwanda becoming a middle income country. With the objective of economic growth, increasing off-farm employment and exports, the government will strive to enable an environment for private-sector investments, while redirecting public support.

Farmers and the rural dwellers are at the forefront of this strategic program. Improvements in the policy framework for agriculture and agribusiness are of paramount importance, increasing transparency and more effective use of public spending, and leading to an environment that encourages the engagement of the agribusiness sector. The government will take the role of an enabler, by assisting private actors to buy and sell agriculture inputs and outputs. Committing to a more business-oriented approach will further generate private-sector market opportunities, while strengthening the capacity for the value chain development.

6.2.2. Strengthen intra-governmental coordination on agricultural policy and strategic cross-cutting issues (*horizontal coordination*)

Many areas such as nutrition, water management, environment, climate change, land use, trade or rural infrastructure require strategic coordination between public (and private) institutions, and agriculture is at the forefront of many such interfaces. Overall, the complementarity between the mandates of MINAGRI and the other ministries of the central government is well defined on strict, sector-specific agendas. However, increased efforts will continue to be made to clarify, adjust or put in place the coordination mechanisms that are required for an effective management of important, cross-cutting domains.

6.2.3. Enhance the effectiveness and efficiency of service-delivery, facilitating decentralized administration (*vertical coordination*)

Effective coordination between the vertical layers of the public administration, i.e. between central and local levels, or between MINAGRI and its subordinate agencies, is just as important as coordination between line agencies.

Zoning is one example of such a domain that will be addressed requiring both horizontal and vertical coordination with highest priority. As population and urbanization rates increase, inherent competition ensues between the use of land resources for urban development and for farming. This needs to be carefully managed through transparent, equitable and enforceable zoning regulations country-wide. Priority will be given to strengthening cooperation between the Ministry of Local Government (MINALOC), who holds the mandate for zoning, and its stakeholder

ministries, which, in addition to MINAGRI, include the Ministry of Infrastructure (MININFRA), the Ministry of Natural Resources (MINIRENA) etc.

The recent decentralization process in the Rwandan public administration has redefined the roles and responsibilities at local level, and the relations with the central institutions.

Going forward, MINAGRI will work with MINALOC, the districts and the other relevant agencies on: (i) addressing institutional shortcomings that impede on the effectiveness of extension service delivery; (ii) tackling the human capacity challenge, to allow for greater beneficiary outreach; (iii) increasing ICT use, to support knowledge transfer to farmers, and to improve the performance of extension services, (iv) improving the quality of the knowledge content; (v) Strengthening the agricultural extension services and innovation through the existing efforts such as Twigire Muhinzi extension model among others.

At present, agricultural research is carried out mainly under RAB and the university system. Some of the key challenges of agriculture research relate to its insufficient responsiveness to market needs, insufficient inter-institutional coordination, and weak dissemination of results.

Given these, improving the agriculture research sector will be directed towards: (i) promoting demand-responsive agricultural research, as initiated through the innovation platform approach (which involves wide stakeholder interface); (ii) improving institutional articulation between MINAGRI, and the College of Agriculture, Animal Sciences and Veterinary Medicine, in order to set research priorities, avoid overlaps and improve the use of resources and results; (iii) strengthening cooperation efforts with key research networks such as the CGIAR institutions or various regional and global initiatives promoting research in agriculture such as universities

6.2.4. Partner with farmers and improving civil society engagement

Sustainable growth in Rwandan agriculture requires an inclusive process of all actors from farmers to policymakers. Policy formulation must start with a bottom-up involvement of farmers, in order to address their aspirations and challenges. To facilitate this process and provide a regular dialogue, MINAGRI will create a platform for regular agri-food stakeholder participation in agriculture policy programming and implementation. Thus, a “Forum of Farmers’ Organizations” will be created that will allow farmers to meet regularly with MINAGRI, in order to plan and evaluate strategies, programs and projects under implementation. The policy will put emphasis on ensuring that any civil society initiatives that concern farmers will contain built-in mechanisms to ensure that farmers’ interests are duly represented and that there is adequate farmers’ ownership in these activities.

6.2.5. Promote evidenced-based policy programming, by leveraging data and using integrated information technologies to improve current monitoring on performance indicators, and digitalization

Rwanda already benefits from a strong performance-driven culture known as IMIHIGO, well embedded in its public administration. Its current performance system rests on clearly defined *output* indicators¹, monitored regularly and serving as anchors for public service accountability.

MINAGRI will take steps towards improving the policy process in agriculture, including the necessary feedback loops, by creating an effective policy programming, implementation, monitoring and evaluation system, that will rely on the following: (i) broadening the current system to cover sector *outcomes* (or results, documenting behavior changes in the policy beneficiaries²), or even sector-wide impacts; (ii) introducing regular monitoring and evaluation, to analyze how agricultural policies contribute to sector outputs, outcomes and impacts; and (iii) establishing a data collection and management system (that could be integrated with a land parcel identification system, and with farm and animal registers).

To be most effective, the data collection and management will be automated, and integrated into an electronic data system, which would ensure data accuracy, as well as timely and properly disaggregated data analysis (e.g. through the generation of status update reports etc.). To obtain assurance on the quality of data, reinforcing farmer organizations and agribusiness network will be of paramount importance, in order to develop feedback mechanisms that can help design, plan and allocate budget for more effective policies. Moreover, the sector will make sure it is using up-to-date technology in all data collection and analysis.

6.2.6. Improve the regulatory environment to agriculture input, factor and output markets

Private sector participation and investment is critical for achieving Rwanda's strategic goals in agriculture.

The government and MINAGRI, in particular, will continue to increase their efforts to improve private investor involvement, on several levels: (i) improving the regulatory framework that governs the business environment in the agri-food sector; (ii) providing incentives to increase private sector investment; (iii) attracting/developing public-private-partnerships in strategic areas such as agriculture infrastructure, research and innovation; and (iv) increasing the role of private sector as provider of finance, knowledge and technology to farmers.

As regards (i), particular attention will be given to improving phytosanitary requirements and other food safety standards, increasing private sector involvement in seed production,

¹ E.g. number of farmers trained

² E.g. number of farmers who adopt new technologies as a result of training

registration and certification, as well as strengthening regulations and enforcement related to fertilizer quality.

As regards (ii), focus will be given to addressing post-harvest management, creating cold storage facilities, infrastructure setting like feeder roads, irrigation and erosion control, strategic grain reserves, increasing food processing (and thus creating additional jobs and incomes), better integrating farmers into value chains through outgrower and contract farming type arrangements, as well as increasing access to financing for farmers and processors through credit guarantee funds.

As regards (iii), particular attention will be given to creating the regulatory framework and institutional capacity that will allow for such projects to be set up and managed effectively.

As regards (iv), particular attention will be given to strengthening intra-value chain cooperation on knowledge and financing (including with financial institutions), as follows:

Down- and upstream business partners of agriculture for knowledge and technology transfer

Knowledge and technology transfer through the value chain is the most effective for ensuring its timeliness and market-relevance. At the same time, it benefits both farmers, and their business partners, be they downstream (processors, market aggregators), or upstream (input and service suppliers).

Its expansion will go hand-in-hand with the private and public efforts to strengthen value chain integration (see Pillar 1). Knowledge and technology providers within the value chain may become eligible for additional incentives if they commit to knowledge- and technology sharing initiatives with farmers.

Predictable access and suitability of financial services to farmers and agri-processors

Rwandan farmers are in a good position to use land as collateral for getting loans, and many do. Following the country-wide land titling efforts, 85% of cultivating households now have the right to sell their land or use it as a guarantee for a loan. Among households that accessed a loan from a formal source of credit, 41% used land as collateral to obtain the loan.

Yet, although there is variety of financial actors already on the market³, the availability of services to rural smallholders remains insufficient. Smallholders face high transaction costs when applying for loans, but suffer from a lack of repayment discipline due to a grant culture. Financial institutions lack appropriate expertise and loan products for agriculture and often perceive the risks as being greater than they are. Encouraging farmers to establish or join cooperatives can better position them in accessing loans.

³ To include the Rwanda Development Board (RDB), commercial banks, microfinance banks and other microfinance institutions

Going forward, joint public-private dialogue and efforts will be increased to expand rural outreach of financial services, facilitate partnerships between financial institutions and farmers, capacity building, and developing better tailored loan products for farmers, among others.

Value chain financing can effectively complement conventional financing. As it is usually commodity-focused and short term, the former cannot cover the full spectrum of financial needs that a farmer has. Nevertheless, it can be delivered through many tools – to include product financing (by e.g. traders or input suppliers), receivables financing, physical asset collateralization, and risk mitigation products – but interventions are very chain-specific.

In Rwanda, value chain financing in the agri-food sector is at very low levels, given difficulties to ensure better value chain integration, asymmetry of information amongst value chain actors and lack of trust between actors. Much of it remains informal, and borrowing from agricultural buyers or farmers organizations accounts for 8% of the use of informal financial market access.

Jointly with the efforts to improve value chain integration (see Pillar 1), MINAGRI will focus on actions to improve the regulation of value chain financial instruments, approaches for optimal financial inclusion and contract enforcement.

7. Implementation Framework

7.1. Institutional Framework

MINAGRI is the key leading institution to deliver on the implementing of the four pillars of the policy through the four core mandate of the MINAGRI central namely (i) Sectoral policy setting, (ii) Sectoral strategy planning; (iii) Sectoral M&E; (iv) Sectoral capacity building. MINAGRI Central will strongly rely on its implementing agencies i.e. RAB and NAEB to deliver on the National Agriculture Policy through their respective mandates.

Given the complexity of the agricultural development in Rwanda with involvement of several line ministries and that the actual development activities take place at decentralized levels of districts, sectors and cells, MINAGRI will closely collaborate in the policy implementation with a range of public institutions that influence the sector (MINALOC, MINICOFIN, RDB, MINEACOM, MINISANTE, MINIRENA, MIFOTRA, MINIFRA, MINEDUC, MyICT) through the creation of collaborative platforms.

MINAGRI will engage all the stakeholders of the sector in the implementation of the policy per the following mechanisms:

- i. The Agricultural Sector Working Group (ASWG). It is an essential forum for coordination around key agricultural development issues. Members include development partners, NGOs, the private sector, civil society, farmer organizations, financial institutions and Government agencies.

- ii. The Sector-Wide Approach (SWAp) Group. It brings together MINAGRI and key budget support development partners with its instrumental role in discussing issues related to budget support in the agriculture sector.
- iii. Sub Sector Working Groups (SSWGs) of four permanent specialized clusters: crop development, livestock development, agribusiness, markets and export development, and planning & budgeting. SSWGs will seek to enhance stakeholders' roles in the processes of planning, monitoring, advisory, coordination and financing for the sector.
- iv. The Forward looking Joint Sector Review (JSR) forum on the agriculture sector brings together the Sector Working Group (SWG) stakeholders to discuss prioritized areas in the implementation of the Strategic Plan for Transformation of Agriculture that falls within the Economic Development and Poverty Reduction Strategy for the next fiscal year.
- v. The backward looking Joint Sector Review (JSR) forum on the agriculture sector brings together the Sector Working Group (SWG) stakeholders to monitor the progress in the implementation of the Strategic Plan for Transformation of Agriculture that falls within the Economic Development and Poverty Reduction Strategy of the past fiscal year.

7.2. Strategic Framework

The purpose of the NAP is to provide an overall high-level guidance on long-term policy priorities and overall objectives in the agricultural sector. More detailed policy guidance on a specific policy-area are to be defined by subsidiary policies. Specific actions are and timelines are to be defined by subsidiary strategies.