

AFRICA SEED TRADERS ASSOCIATION (AFSTA)

RWANDA SEED SECTOR BASELINE STUDY

NKULIYIMANA Gabriel

C/O ADENYA

B.P 226 BUTARE- RWAND

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Part I. BACKGROUND REPORT

0. Introduction

The process of harmonization and rationalization of seeds policies and regulations started as a pilot phase for East African countries in 1999 which were Kenya, Uganda and Tanzania. The process was undertaken as all inclusive and involved national, regional and external resource persons, seed industry players and regulatory and policy players, with ASARECA'S ECAPAPA playing an oversight role. In order to operationalize the agreements arrived at in the harmonization process, a Seed Regional Working Group (S-RWG) was constituted during a regional seed stakeholder meeting held in Arusha on 4-6 June, 2001. The S-RWG operated till June 2004, when its operations were expanded to include representatives responsible for policy issues. A new outfit called Eastern Africa Seed Committee (EASCOM) was inaugurated by the Secretary General of EAC.

In order to effectively operationalize the agreements, EASCOM agreed to work through Technical Working Groups (TWGs). A TWG on certification was formed to develop harmonized certification standards for selected major economic crops.

The output of the TWG on certification is the harmonized seed certification and laboratory standards for the 10 selected crops, covering East Africa, including Rwanda. Those crops are beans, maize, rice, Irish potato, wheat, soybeans, peas, groundnuts, sorghum and cassava.

The COMESA has decided to harmonize seed regulations and policies in its 19 Member States according to the declaration of COMESA Ministers in Seychelles in March 2008.

Following an agreement signed between COMESA and the EU for support of a Regional Agro-Inputs Programme (COMRAP) being implemented by the COMESA's Specialized Agency, the Alliance for Commodity Trade in Eastern and Southern Africa (ACTESA). The programme will target 8 landlocked countries namely Burundi, Ethiopia, Malawi, Rwanda, Swaziland, Uganda, Zambia and Zimbabwe.

Through COMRAP, ACTESA expects to achieve three main results:

- Improvement of the nature and delivery of credit to smallholder farmers
- Strengthening and establishing agro dealers network and output trade for the value chains, and
- Supporting of policies aimed at improving smallholder farmers' access to high quality seed.

To facilitate the process, ACTESA will work through the national coordinators in the ministries of Agriculture who will collaborate with the international, regional and local organizations and farmers. The African Seed Trade Association (AFSTA) has been mandated to take the lead in this harmonization process according to the contact agreement signed between AFSTA and COMESA on 4th June 2010. And for Rwanda chapter, Mr NKULIYIMANA Gabriel, coordinator of ADENYA and President of STAR's National comity (Seed Trade Association of Rwanda) was designed by AFSTA to conduct the baseline study of the Rwanda seed sector to be used for the rationalization and harmonization of the seed regulations and policies in the COMESA Member States

The present report presents the findings which emerged from consultations with representatives of key Government institutions being responsible of seed certification, variety evaluation, release and registration; phytosanitary measures, Plant variety Protection (Intellectual Property Rights); Seed import/ export documentation and procedures and Membership to international Organizations. Representatives of local seeds outlets dealers were also consulted in order to identify key constraints and challenges that the Rwanda seed sector is facing today and alternative solutions formulated for a better services delivery and effective operational development of the seed value chain.

1. Context analysis

Seeds are very important in farming because they constitute a critical determining factor of production without which no other input or agricultural investment can be valorized. Therefore, it is very important to meet the demand for seeds meeting required standards as to various intensification schemes within various agro-bio-climatic regions.

The recent evolution of seed sector in Rwanda was marked by the establishment of the National Seed Service in 2001, the promulgation of the seed law in 2003, the implementation of a project supporting the seed commodity chain in 2005, and the promulgation of a national seed policy in 2007. Moreover, the agriculture value chain development policy has led to an increased demand for high yielding seeds for traditional farmers and the necessity to develop new plant material for new farmers engaged for the transformation of Rwanda agriculture from subsistence led to market oriented.

The National Agricultural Policy adopted by the Government in 2004 relies on the four following strategic axes: i) Transformation and modernization of agriculture; ii) Agricultural commodity value chains development; iii) Promotion of competitiveness for agricultural products; iv) Development of entrepreneurship spirit.

The Strategic Plan for the Transformation of Agriculture (PSTA) was adopted by the Government in January 2005 and was designed within the framework of implementing the national agricultural policy and poverty reduction programme.

The PSTA is based on the following programs: i) Intensification and development of sustainable productions systems; ii) Support to the professionalization of farmers; iii) Promotion of chains and development of agribusiness; v) Institutional development.

Under the implementation of the PSTA Program 1, a sustainable increase in production and productivity depends to a large extent on the development of high yielding varieties and on the establishment of an efficient seed supply system enabling farmers to easily have access to those quality seeds.

Regarding seeds in particular, the PSTA provides that the multiplication of seeds and seedlings must be carried out and supported through the support to professional organizations involved in this domain and through the promotion of private nursery profession. In this regard, the following measures are envisaged:

- Building the national capacity for production of foundation, basic and certified seeds
- Building the capacities of private seeds multipliers or groups of multipliers for the production of quality seeds within proximity to food production zones;
- Findings means needed to ensure seed quality certification and control.
- Supporting the organization of distribution circuits for quality seeds and seedlings by the organizations of producers.

1.1. Rwanda seed sector Institutional, legal and organizational frameworks

In Rwanda agricultural development context, seeds, in particular, are very important because they are the first deciding factors of production without which no other input or investment can have significant value. It is therefore highly needed to meet the seeds demand responding to different intensification schemes in various agro-bio-climatic regions of the country. The Government in formulating the National Seed Policy (NSP) expects this policy to provide an environment contributing to the consolidation of past achievements and lay down the foundations of an organized and strong seed commodity chain responding to the challenges of intensification and promotion of other agriculture chains, and adapted to the new context characterized by the imperative necessity to support the agricultural development, to support the country's economy and to ensure the national food security.

1.1.1. Institutional framework

1.1.1.1. At regional level

The regional integration is one of the pillars of the Rwanda Vision 2020 especially in the framework of NEPAD and COMESA.

Moreover, Rwanda has joined East African Community and it is already being involved in the efforts to harmonize agricultural policies and programmes through regional programmes like ECAPAPA¹ and ASARECA². In fact, the effective operationalization of free trade within member states of EAC has created a more positive environment for exchanges within the region.

Rwanda integration in regional organizations creates enabling environment for harmonization of procedures for seeds certification and subsequently for promoting regional exchange within the seed industry.

N° 31/2010 of 12/08/2010 is the Law authorizing the accession of Rwanda to the African Regional Intellectual Property Organization (ARIPO).

“Article One: Authorization of ratification of Rwanda’s accession into ARIPO

Rwanda’s accession into the African Regional Intellectual Property Organization (ARIPO) created by the Lusaka (Zambia) Agreement of 09 December 1976 and the Harare Protocol on Patents and Industrial Designs within the framework of the African Regional Intellectual Property Organization (ARIPO) adopted on 10 December 1982 and entered into force on 25 April 1984 and amended by the Administrative Council of ARIPO on 11 December 1987, 27 April 1994, 28 November 1997, 26 May 1998, 26 November 1999, 30 November 2001, 21 November 2003 and 24 November 2006 and its regulations, is hereby authorised for ratification”.³

The harmonization shall especially allow the development of an important regional seed market and shall facilitate the import/ export and exchange of varieties. While this regional market would attract investment from the big seed industries in the region, the national seeds traders associations should strategically eye this opportunity for business growth through improvement of the seeds supply chain based on exchange between these countries. These traders associations need to have strong technical and managerial capacities to deal with commercial competition.

1.1.1.2. At national level

Seed multiplication was under responsibility of ISAR since the independence up to early 70s when the “Service des Semences Selectionnees” (Service of selected seeds) was established within MINAGRI to deal with production of seeds.

¹ Eastern and Central Africa Programmes for Agricultural Policy Analysis

² Association for Strengthening Agricultural Research in Eastern and Central Africa

³ Official Gazette n° special of 02/09/2010

Currently, the Government provides institutional support in partnership with the Kingdom of Belgium through a project supporting the Rwanda seed commodity chain known as ASFAR⁴ which has been implemented starting June 2005 for four years. The Project which was supposed to end in June 2010 benefited of extension period ending with September 2010. The project is co-managed by MINAGRI and BTC and ran by the national seed service operating under MINAGRI/ RADA.

The project's specific objective is “Quality seeds suited to local agro-biological and climatic conditions, produced in adequate quantities and accessible to farmers. Its main activities are following:

- Supporting the organization of the seeds commodity chain (regional and national frameworks for cooperation among operators in the chain)
- Implementing activities aimed at strengthening organizational skills, management and techniques of the various operators in the chain
- Designing, setting up and monitoring an information system within the chain
- Contributing to activities regulating seeds production
- Support to commercialization of private sector seeds production (training, exhibitions, monitoring and exchanges)
- Implementing actions that promote food security for the people
- Setting up and monitoring of tools for financing the seed sector
- Strengthening the facilities, equipment and materials of ISAR
- Designing, setting up and monitoring a system for inspecting quality seed production
- Supporting the setting up of a gene bank at ISAR

The ASFAR Project has the will to promote the emergence of professionalized seed commodity chain with particular emphasis on the role of private sector in seed production, marketing and distribution by focusing on strengthening operators' capability to take up their roles and responsibilities within the seed commodity chain.

These activities should lead to following targeted results;

- Establishment of an organizational and institutional frameworks
- Professionalization of operators in seed commodity chain

⁴ Appui a la Filiere Semenciere du Rwanda

- Growth of independent private sector seed production

Though ASFAR cannot on its own address all major problems prevailing in Rwanda agriculture sector today, especially the low level of incomes from agricultural activities and persistent food insecurity; it however complements with the Rwanda Government priorities actions in promoting agricultural development and its integration into the market, in improving production conditions for a great number of farmers and in the fight against poverty and enhancing economic growth.

Main stakeholders are:

- Private seeds producers, cooperatives
- MINAGRI
- Rwanda Agricultural Development Agency (RADA)
- Rwanda Institute of Agricultural Sciences (ISAR)
- Organizations providing finance for the agriculture sector

1.1.2. Legal framework

The writing of the seed law and the adoption of a policy to withdrawal of the State from production, handling and marketing activities has led to the reorganization of the seed commodity chain without guarantee in good coordination of activities and operators in the chain.

1.1.2.1. The Rwanda Seed Law

No 14/2003 of 23/05/2003 is the promulgated Rwanda Seed Law. The seed law focuses mainly on seed production, control, marketing and commercialization of quality seed in Rwanda. The law doesn't address the seed distribution occurring within the informal system where farmers do keep aside some quantity of their harvest to be used as seeds for the following agricultural season or distributed in internal local networks (Among farmers within a community).

And currently, some ministerial decrees have been drafted by the Ministry of Agriculture and Animal Resources and submitted to the Cabinet and the Parliament for approval. Those decrees were promulgated in the Official Gazette No 40/10/2010 as following:

- Ministerial Order No 002/11.30 of 18/08/2010 determining regulations on quality seeds production and control of seeds produced and marketed
- Ministerial order No 003/11.30 of 18/08/2010 <Setting forth conditions required for marketing quality seeds >

- Ministerial Order No 00411.30 of 18/08/2010 < Determining rices for services rendered in seed quality control>

1.1.2.2. The Rwanda seed policy

The Government vision on seeds is⁵:

“An organized and high performing seed commodity chain, which contributes to increasing agricultural production and productivity growth resulting from a coordinated and complementary action of its public and private stakeholders who can interact to produce and put at the disposal of agricultural farmers quality seeds, in due course, which are in adequate quantity and adapted to different agro-bio- climatic conditions in Rwanda”

The NSP comprehensive objective is “Promoting the collaboration of public services with private sector in order to ensure adequate production and supply of quality seeds and a strong awareness of farmers about the crucial importance of quality seeds in agricultural production”.

The specific objectives of NSP are:

- ✓ Promoting regular introduction of high performing and adapted varieties in the seed commodity chain through national capacity building in relation to variety development and regional cooperation in this domain;
- ✓ Promoting the central role of private sector in the production and adequate supply of quality seeds to agricultural farmers;
- ✓ Building national capacity related to seed commodity chain coordination, seed quality control and certification;

1.1.2.2.1. Institutional support for the coordination and implementation of seed policy

The implementation of National Seed Policy shall be ensured through strong partnership between public services for instance MINAGRI, its agencies and programmes/ projects with private partners involved in seed activities under the supervision of a National Seed Council which shall be created for this purpose.

For this reason, a NSC which shall be a supreme organ responsible for guiding and supervising the implementation of the NSP shall be created by a ministerial order.

It shall be composed of:

- Permanent Secretary in MINAGRI
- Director General of RADA

⁵ National Seed Policy. Ministry of Agriculture and Animal Resources. October 2007

- Director General of ISAR
- Director General of Rwanda Bureau of Standards
- Representatives from Agricultural Institutions of Higher Learning
- Head of the Unit in MINAGRI who have Planning and Policy Formulation in his/her attributions
- A representative from RHODA⁶
- A representative from the National Forest Agency
- Head of Seed Development Unit in RADA
- Head of Quality Control Department in RADA
- The Bureau of the National Consultative Framework Committee of the Seed Commodity Chain
- A representative from farmers' organizations
- A representative from seed production and marketing enterprises or cooperatives
- All other persons deemed pertinent by MINAGRI

The Council shall be chaired by the Permanent Secretary of MINAGRI and the Head of the Unit in charge of seed development at RADA shall assume the Permanent Secretariat.

The Government recognizes the importance of the consultative framework initiated by the seed commodity chain stakeholders and is committed to supporting its structuring and organization.

1.1.2.2.2. Definition of role of key actors in the implementation of the NSP⁷

1. The National Seed Council shall have the following role:

- ✓ Supervise and guide the implementation of NSP
- ✓ Formulate and update the political orientations and strategies of the seed policy
- ✓ Adopt the NSP and assure its implementation

⁶ Rwanda Horticulture Development Authority

⁷ National Seed Policy. Ministry of Agriculture and Animal Resources. October 2007

- ✓ Advice the Ministry having agriculture in its attributions on all affairs related to seeds

2. Rwanda Office for Agricultural Development

- ✓ Is the technical arm of the council
- ✓ Coordinates and monitor all seed commodity chain activities through its Seed Development Unit
- ✓ Ensures regular monitoring of seeds activities
- ✓ Ensure the promotion of seeds use
- ✓ Ensures capacity building for seed commodity chain stakeholders
- ✓ Ensures seed quality control at all levels through its quality control department
- ✓ Its Production Unit assumes the role of Permanent Secretariat of the National Seed Council

3. The Rwanda Agricultural Research Institute (ISAR)

- ✓ Insures the development of new varieties for producers
- ✓ Produces foundation seeds required
- ✓ Ensures the maintenance of varieties in circulation
- ✓ Is responsible for the conservation of plant genetic resources of the country

4. National Variety Evaluation Committee

This committee shall play the following role:

- ✓ Defines variety evaluation procedures
- ✓ Evaluates the potential the varieties are likely to contribute to agriculture
- ✓ Recommends the best varieties for release and introduction into the seed commodity chain
- ✓ Recommends the elimination of obsolete varieties.

The National Variety Evaluation Committee should among other be comprised of representatives from MINAGRI and its research institutions, extension services, farmers' associations and the private sector.

5. The National Variety Release Committee

The role of this commission shall be especially to:

- ✓ Propose for release and multiplication of new varieties
- ✓ Determine varieties eligible for certification
- ✓ Recommend relative charges for certification
- ✓ Advise the national department responsible for quality control

6. Rwanda Bureau of Standards

In collaboration with RAB quality control department, the RBS shall be in charge of seeds certification and in collaboration with RAB shall control the seed import and export activities.

7. Seed Commodity Chain Consultative Framework

It shall be comprised of representatives of all seed commodity chain stakeholders, and shall have the following mandate:

- ✓ Create a platform for exchange of information and consultation for seed commodity chain stakeholders
- ✓ Facilitate the implementation of the seed policy and the National Seed Master Plan
- ✓ Contribute to the critical examination of the seed policy and laws
- ✓ Represent the actors in different national for a.

8. Private seeds producers and traders

This group is comprised of individuals, associations, cooperatives and private societies involved in production, distribution and sale of basic or certified seeds.

1.1.2.3. Intellectual Property rights

The process of drafting the policy began with requests for technical assistance from the Rwandan Ministry of Trade and Industry – which handles the country’s IP law – to UNCTAD and to the International Centre for Trade and Sustainable Development.

At a stakeholder meeting held in Kigali, Rwanda in September 2008, it became clear that traditional knowledge, folklore and handicrafts were considered important areas

for the IP policy. UNCTAD⁸ and ICTSD⁹ then undertook a fact-finding mission, culminating in a national workshop on needs assessment prepared by UNCTAD and ICTSD and on a draft IP policy for the country. This took place in March 2009. On 24 March 2010, the draft policy was approved by the Rwandan Cabinet.

Intellectual property in Rwanda is governed by the **law of the protection of intellectual property No 31/2009 of 26/10/2009**.

This law protects the authors of the following categories; innovators, creators of industrial designs, creators of layout designs used in trade, authors of literary, artistic and scientific works and any other works of an original intellectual creation.

This law also protects owners of distinctive signs used in trade and broadcasting organizations.

Among many other objectives, the protection and enforcement of intellectual property rights is to contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to the mutual advantages of producers and users of technological knowledge and in a manner conducive to social and economic welfare of the population and to a balance of rights and obligations.

Implementing the New Law

The first stage in implementing the new policy is the creation of a Rwanda Development and Intellectual Property Forum, a collaboration of government ministries, universities and research institutions with the private sector and nongovernmental groups. Other aspects of implementation will follow from there, according to a timeline appended to the policy.

From the UNCRAD¹⁰ point of view, there are several unique aspects of Rwanda's IP policy.

One way to incentivize incremental innovation detailed in the law is through the use of "petty patents" or "utility model certificates." These provide for a shorter exclusivity period and do not have the requirement (or have a very low threshold requirement) for 'inventive step' that is normally a critical part of a patent application. Utility model certificates also tend to be registered rather than examined, making them useful in a system where there are few patent examiners. Based on the IP policy, these utility models "may provide the most important avenue for using IP to support development.

Enforcement measures, says the policy, "applied reasonably and in a balanced way, have benefits for local inventors, innovators and creative communities."

⁸ United Nations Conference on Trade and Development

⁹ International Centre for Trade and Sustainable Development

¹⁰ The United Nations Conference on Trade and Development

1.1.2.4. Regulations and procedures

This section details the provision on regulations and procedures that should be enforced for Rwanda Seed industry.

1.1.2.3.1. Production and seed certification system

Seeds produced in Rwanda are classified into 4 categories namely:

- ✓ Breeder/ Foundation seeds
- ✓ Basic seeds
- ✓ Certified seeds
- ✓ Quality declared seeds

Prior to certification, each produced seed has to undergo the following procedures:

Each variety to be produced in Rwanda should be released by a variety release committee appointed by the decree of the Minister having agriculture in his/ her portfolio. The variety producer provides to the variety release committee a precise description with the main morphological and physiological characteristics of the seed variety. The Minister having the Agriculture in his/ her portfolio publishes by decree an annual list of accepted seed variety in Rwanda.

1.1.2.3.2. Processing and commercialization of quality seed

Commercial quality seeds have to be processed, meaning that they have to be free from foreign materials, clean, well packed and labeled. The label must clearly indicate the characteristics of the seeds. The Minister having agriculture in his/ her portfolio defines by decree the quality seed processing standards.

1.1.2.3.3. Seed quality control

Produced and marketed seed have to undergo quality control. Without contracting the law creating the National Bureau of Standards, for instance RBS¹¹, the Minister having agriculture in his/ her portfolio fixes by decree regulations according to which produced and marketed seeds are controlled. Currently, the department for seed quality control operates within RADA at Rubirizi.

1.1.2.3.4. Concerning seed import and export

Seed import shall be authorized to bridge the gap between the seeds needed and the national seed production or to acquire high potential genetic seeds which are not locally produced due to require level of technology. In all such cases, seed import should not entail any risk for the environment, health and bio-security.

Imported seed destined for marketing or distribution for any reason in Rwanda must satisfy the established norms and regulations for seed produced in Rwanda. For those

¹¹ Rwanda Bureau of Standards

seeds which cannot be produced in Rwanda, international standards are applicable and the seeds must always be accompanied by an official certificate delivered by the country of origin and be subjected to controls referred to in this law. The control fees are charged to the seed importer.

Prior to seed import, the following should be considered:

- All seed imports should have prior *ad hoc* authorization from the competent department in the ministry having agriculture in its attributions;
- Seed import should respect quarantine rules and regulations to avoid entry into the country of diseases and pests which would otherwise compromise Rwanda agriculture;
- A sample of each imported lot shall be conserved at the department responsible for conservation of plant genetic resources;
- Imported seeds must comply with required quality standards related to genetic purity, have capacity to germinate and be free of diseases.

The seed export shall be envisaged for crops in which Rwanda has a comparative advantage in the sub-region. In any cases, such exports shall be regulated in order to avoid compromising the country's seed security. The authorized departments of Rwanda Bureau of Standards (RBS) in collaboration with those of the Ministry of Agriculture and Animal Resources shall ensure that exported seeds comply with related international seed export standards.

1.1.2.3.5. Seed control procedures

❖ Field control

The seed control system start from the field and is commonly known as **field inspection**. During the field control, following criteria are assessed:

- Rotation
- Isolation
- Purity
- Phytosanitary status
- General appreciation of the status of the crop

For the breeder seed production, the field inspection could be done as internal control from the researchers and submit the report to the certification agency.

For the basic seed and certified seed production, 100% field inspection is done by the seed control department which falls under RADA.

In seed production, the field inspection is done by sampling. That means that 10% of the total field is inspected using random sampling. In this case, the farmer is responsible for the quality of the seed. There are some procedures to be observed by seed producers depending of class of the seed and each producer must conform to those procedures.

❖ **Inspection in stores**

After harvest and proper handling, seed are stored in warehouse where inspection must be carried to make sure the seed lots are identified. The effective identification of lot is done by proper labeling which should give the following information: Name of the variety, the seed number of the crop and the number of the crop is the same as the number of the field. It is not allowed to mix seed lots harvested from different fields.

After processing, the producer informs the seed certification agency which sends inspectors to verify if every operation was carried with respect of enforced procedures. The inspectors take samples for seed quality control in lab.

❖ **Laboratory control**

The laboratory tests carried out cover: purity, moisture content, germination rate and some pathologies analyses especially for Irish potato. The procedures applied during the laboratory control are based on ISTA rules. Though Rwanda is not yet member of OECD¹², field and laboratory controls are based on OECD procedures.

1.1.2.3.6. Phytosanitary measures

In Rwanda, phytosanitary measures are regulated by the law of 2008 on the protection of plant health in Rwanda which defines the plant health inspections, regulation of imports, containment and eradication of pests, phytosanitary certification for export.

For effective and efficient implementation of the law, Rwanda Agriculture Development Authority RADA will take on the task along with Rwanda Horticulture Development Authority (RHODA) and Rwanda Bureau of Standards (RBS).

1.1.2.3.7. Plant Variety Protection (Intellectual Property Rights)

The Government of Rwanda made clear the position about the Intellectual Property rights within seed industry:

- Crop varieties developed by public research institutions remain the property of the particular performing institution and shall be used free of charge with regard to intellectual property rights issues;
- The Government shall adopt appropriate legislation on intellectual property rights issues concerning variety developers' rights as well as applicable modalities to be used in case private sector utilizes varieties developed by the public sector. This registration shall have the following objectives:

¹² Organization for Economic Cooperation and Development

- Give variety developers, whether public or private, the opportunity to enjoy compensation for efforts and means invested in the variety development process through a system of intellectual property rights sharing;
- Constitute incentive to support investment in the variety development activities;
- Encourage the private sector to invest in the production of basic and certified seeds;
- Encourage and reinforce a public variety development program through compensation mechanisms of public seed developers whom varieties are used by the private sector.

1.1.3. Organizational framework

1.1.3.1. Seeds distribution systems

The Rwanda seed commodity chain is characterized by the coexistence of formal and informal systems of distribution.

The formal seed system is rather new and has developed in response to an increase in agricultural productivity. It is based on services provided by the public sector stakeholders such as ISAR for the production of foundation seeds, the RADA Seed Development Unit and some agricultural development Projects for direct production of basic and certified seeds. This production is either done by the State or under contract with people of seed multiplication groups.

Participation of private sector in seed production and multiplication remains very low. It is only limited to some associations, cooperatives and enterprises, which produce and market seed in collaboration with RADA Seed Development Unit.

The informal seed system, which by far is the most important, consists of all actors who produce and market seeds without interacting with governmental institutions, which regulate seed production, control and marketing activities. It is mainly based on traditional practices/ indigenous knowledge of farmers who select and keep a portion of their production as seeds for next seasons. It is also characterized by multiple transactions and exchanges between farmers themselves or through traders from whom farmers can also purchase food commodities some of which are sorted to be used as seeds. The major shortcoming of this sector lies in poor quality of products and the risk of diseases propagation such as bacteria in Irish potato.

1.1.3.2. Main stakeholders in seed commodity chain

In Rwanda, there are two categories of stakeholders: institutional and non-institutional.

The institutional stakeholders are:

- ✓ Ministry of Agriculture and Animal Resources (MINAGRI) and Public Institutions affiliated to it (RADA, SNS, Projects/ Programmes);
 - ✓ Rwanda Bureau of Standards (RBS);
 - ✓ Agriculture financing institutions.
- MINAGRI is responsible for coordination and regulation of the whole seed commodity chain.
 - The Seed Development Unit within RADA is responsible for the production of basic and commercial seeds but intends to pull out gradually as the private sector engages in seed production activities. RADA is the operational wing of MINAGRI for all issues pertaining to seed quality control and coordination of seed commodity chain.
 - The Rwanda Agricultural Research Institute (ISAR) is the only institution in the country in charge of variety development and maintenance and ensures Foundation Seeds Production.
 - The Rwanda Bureau of Standards (RBS) is responsible for seed certification but is not yet fully equipped to effectively fulfill this mission.
 - The Agriculture Sector Financing Institutions such BRD¹³, “Union des Banques Populaires du Rwanda” which offers a countrywide branches network, MFIs¹⁴ are invited to play a key role in the development of Rwanda seed commodity chain. But cooperatives and associations involved in seed commodity chains are poorly financed due to the poor governance which characterized them in the recent years, lack of guarantee, and poor project planning and management capacity.

Non-institutional stakeholders are those who are directly engaged in seed production and marketing activities. These are especially:

- ✓ Seed producers:
 - Seed multiplication associations

¹³ Banque Rwandaise de Developpement / “Rwanda Development Bank”

¹⁴ Micro Finance Institutions

- Private seeds producers
- ✓ Cooperatives and entrepreneurs specializing in seed marketing and distribution
- ✓ End seeds users as individual or grouped in associations or cooperatives
- ✓ Agricultural inputs and equipment suppliers.

1.1.3.3. Mechanisms in place for farmers' access to selected seeds

As the Government of Rwanda has embarked on the transformation of the agriculture from subsistence-led to market oriented, the MINAGRI is implementing a Support Project for the PSTA. For improvement of services delivery to farmers, many innovative mechanisms and approaches are being implemented at grass root level.

a) Land consolidation

For a quick and effective spread of innovative technologies, farmers were sensitized and mobilized to operate in farmers' groups and cooperatives. Currently, the RCA¹⁵ counts more than 3 thousands registered cooperatives and among them 70% are agricultural oriented.

Under these structures, the land tenure remains individual but its management in term of radical terracing and commodity value chain development is carried out under a unique crop intensification technology package for a specific commodity under a managerial approach known as land consolidation.

This approach is being reinforced by MINAGRI as a motivation tool to enhance the use of improved agricultural inputs as it facilitates farmers accessing to Government subsidies in terms of seeds, fertilizers, access to credits, markets and capacity building programs.

b) Performance contracts

The mechanism of accountability of politicians and civil servants in services delivery to the population was reinforced in Rwanda public business starting in 2006 with the second phase of Decentralization.

In agriculture, the main components of performance contracts are areas planned for the following agricultural season. The planning process is done at all decentralized levels (Umudugudu¹⁶, cell, sector, District, Province, national). Starting from Umudugudu to national (ministerial) level, areas planned in each administrative decentralized entity are consolidated at following higher level till ministry level (MINALOC¹⁷ and MINAGRI/ RADA). The consolidated plans give detailed needs in seeds and fertilizers per commodity value chain for the main priority food crops which are maize, wheat, climbing beans, Irish potato, Banana, cassava and rice. The

¹⁵ Rwanda Cooperatives Agency (Operates under MINICOM)

¹⁶ Means Village (80- 150 households)

¹⁷ Ministry of Local Governance, Community Development and Social Affairs

consolidated plans are confronted with the MINAGRI targeted areas and a feedback is sent to MINALOC which will follow up with all decentralized entities till *Umudugudu*.

Following consultations with each Province, in most cases, the MINAGRI plan is endorsed giving to RADA the responsibility to make sure agro inputs are supplied to farmers under land consolidation management. RADA applies seed and fertilizer rates

c) Proximity Service Provision

Under the PSTA Program 1 “Crop Intensification and Development of Sustainable Production Systems”, the extension services to farmers will be directly provided by a proximity service provider (PSP) starting with agricultural season 2011 A (September 2010). RADA has already contracted one PSP per District whose mandate is to sensitize and mobilize farmers to operate in farmers’ groups that would later become cooperatives and to adopt the land consolidation management approach.

The Government ambition is to have in each administrative sector at least one operating agro dealer. The Government plans to switch from seasonal inputs supply normally done at the beginning of the two main agricultural seasons (September and March) to a permanent inputs supply. Farmers would then be able to access the year around to any inputs for any crop promoted in a given District or agro-bio-climatic zone.

The accountability measure is to have payment for services delivered made following an evaluation of the performance contract which should meet the minimum quantity of Ha under land consolidation, the quantity of provided fertilizers and seeds supplied to farmers using ID voucher system through a local agro dealer.

The eligible proximity operators are:

- Agricultural cooperatives/ companies/ enterprises
- Local NGOs (Example: TUBURA)
- Farmers’ organizations (Syndicate INGABO, IMBARAGA)
- Agricultural universities (ISAE, UNATEK) through extension/ outreach programs

d) Land registration

The current land registration carried out by the National Land Bureau countrywide uses GPS equipment and data centralized in software making agricultural planning much easier and effective. MINAGRI would be able to consolidated data on area under specific crop, quantity of improved seeds and fertilizers applied, volume of production and yields and quantity of agriculture produce used for consumption at household level and commercialized quantity, volume allocated to local seed security stock.

The private dealers would access to the data base as market information for the required quantity of seeds and eventual volume of seeds imports needs.

e) ID Voucher System

As pilot phase, the ID Voucher System will start with purchase of fertilizers (50% of value) for maize and wheat following the level of adoption of land consolidation in their farming systems and the importance of the two crops in national food security. In the same time, seeds will be free of charge. The improved seeds for the two commodities are being distributed to farmers for free. For Irish potato, farmers do buy fertilizers and seeds by cash given the incomes generated by farmers. RADA is currently piloting on climbing beans in 19 Districts out of 30. RADA plans to use the ID Voucher System on improved seeds once the level of their adoption by farmers becomes satisfactory in meeting MINAGRI' targets.

f) Local seed security stock

Given the current context of crop intensification, the Government plans to promote the establishment of local seed security stock in order to provide better proximity services to farmers. This will be determined by the dynamism of seeds multipliers in producing seeds according to local demand. Seed traders would also play a vital role in seed distribution by operating transportation of seeds to supply local agro dealers and local seed security stocks.

g) Hi-tech Auction

Another mechanism being promoted by RADA under Crop Intensification Program is Hi-tech Auction of fertilizers which becomes an important tool for promoting transparency and competition among private fertilizers distributors. The Government imports fertilizers and do auction them using a threshold prices to be paid by the farmers. To be eligible to participate in the auction, the private dealer must be registered trader.

This mechanism will be later applied to seed supply as well when the volume of seed distributed by the formal seed system will tremendously increase following the high level of their adoption and the supply.

Based on this reinforced mechanisms, there is a great need to build up the institutional and financial capacities of agricultural cooperatives in order to transform them into competitive commercial entities capable to face competition within a liberalized economy. The ideal would be getting agricultural cooperatives transformed into rural agricultural enterprises. And then, they would take the lead in provision of proximity services to the farmers including seed multiplication and commercialization.

h) Seed industry financing facility

To promote the intensification of agriculture through the use of agricultural inputs including seeds in particular, the Government intends to put in place efficient and appropriate financing measures for the seed sector so as to:

- Promote the utilization of improved seeds,
- Improve the access to credits by private operators involved in seed production and sale;
- Enhance poor farmers' access to seeds through credits which can be recovered after harvest.

Therefore, the Government intends to;

- Promote partnerships with financial institutions capable of giving efficient and sustainable services to seeds producers;
- Put at the disposal of these institutions a credit fund to finance the production, distribution and sale of seeds and/ or make already existing facilities more accessible to seed commodity chain operators;
- Put at disposal of MFIs a seasonal fund to seed users to enable them access seeds and other inputs during the planting season with possibility of recovery after harvesting;
- Put in place support and capacity building mechanisms for seed producers and traders in order to help them enhance their production and also access loans;
- Support initiatives aimed at promoting inputs saving systems.

1.1.3.4. Perspective role of Seed Traders Association of Rwanda (STAR)

The Rwanda Government' strategic orientation is to have private sector taking over services which were being provided by public institutions, what creates an encouraging environment for private sector development and a good opportunity for STAR to affirm her important role in seed trade.

The idea of creating STAR was introduced in 2004 after recommendations of the General Assembly of the EASCOM¹⁸ held in Kigali on 29 -30th November 2004. It was initiated by SNS¹⁹ later reformed into RADA as Seed Production Unit.

The main objective of STAR is to structure the service of selling selected seeds in Rwanda through:

- Identification of selected seeds sellers
- Inspection to ensure the quality of seeds and the services given to the country.
- Training of retailers
- Importation & exportation of seeds in case of overproduction.

¹⁸ East African Seed Committee

¹⁹ Service National Semencier

The ambition of its members is to have STAR legally established as cooperative of Seed Traders. Apparently, STAR would like to position herself as company running agro inputs outlets.

PART II. BASELINE INFORMATION

This section will cover what is happening in Rwanda seed commodity chain today based on criteria that would be considered in regional harmonization process within the seed industry.

2.1. Variety Development

Currently, the variety development is limited to the introduction and evaluation by ISAR of new varieties from regional and international institutions to identify those that adapt well to local conditions. The lack of variety development programme limits the range of varieties meeting varied requirements in terms of taste, adaptability to some

stressing conditions or to socio-economic conditions of farmers, which affect their acceptability and adoption.

On the other hand, the agriculture research performance is limited by the fact that research is almost funded exclusively by public sector through ISAR resulting in limited number of high trained personnel and lack of adequate equipment²⁰.

Today, high agriculture training institutions and private operators are not involved in agricultural research.

2.2. Variety evaluation, registration and release

The endeavors made in the last years to put in place a system for variety evaluation and release have not been successful. Therefore, varieties developed by ISAR are directly introduced in the seed chain without going through the whole process of evaluation, release and registration up to national catalogue. This lack of independent variety evaluation institution is likely to undermine the quality of disseminated seeds, especially in respect to the stability of newly introduced traits.

2.3. Variety maintenance and production of Foundation Seeds

Once approved, the characteristics of the new variety should scrupulously be maintained over years in order to provide the seed chain on a regular basis with foundation seeds meeting its characteristics. At present, the operation is not ensured for all approved varieties. This results in irregular supply of Foundation Seeds for some varieties.

The problem is particularly acute for Irish potato Foundation Seeds. Indeed, despite production of vitro plants by ISAR, the foundation seeds production capacity of the latter remains very poor in relation to unceasingly demand for potato seeds.

2.4. Intellectual Property rights

All varieties released in Rwanda were developed by ISAR and are sole property of the ISAR/ Government of Rwanda.

2.5. Seed production and conditioning

In Rwanda, the current and past trends of seed production reveals that seeds production systems were most focused on quantities to be produced than on actual demand to be satisfied resulting in discrepancy between supply and demand.

In fact, the formal seed sector accounts for approximately to 1.5% of the total quantity of seeds used in the country²¹.

The informal seed system has always managed to bridge the gap in formal sector in respect of the quantity of provided 'seeds', but the quality of the material thus used is

²⁰ National Seed Policy

²¹ National Seed Policy

in most cases poor and/or questionable, what affects considerably the country agricultural productivity.

RADA Seed Unit is the only institution which produces the basic seeds for most of the foods crops (beans, maize, rice, potato, wheat, soybeans, peas, groundnuts and cassava) but this department doesn't have sufficient means to fulfil its mission as it lacks lands and funds.

Efforts are underway to attract private producers to invest in the production of basic seeds and progressively taking over from public services.

For basic and commercial seeds production activities, all seed related projects are predominately supported by public sector. The public sector contributes to so far to more than 60% of the cereals seeds production, 79% of leguminous seeds, and 50% of potato seeds.

The demand for commercial seeds is not well known but it must be far higher than what is available. With the introduction of ID Voucher System and based on performance contracts signed at all decentralized levels, MINAGRI/RADA will be in position to capture the seeds demand for the whole country for a given agricultural season. This management mechanism will also permit to capture the volume of agricultural productions per District and sector.

RADA runs a seed warehouse at its headquarters in Rubirizi/ Kigali where the seed conditioning is just limited to the improvement of physical quality by eliminating foreign matter, application of pesticides to control infestation in stored seeds and short time storage of lots piled in 50 kg sacks placed on pallets. Though specifications for a given variety are kept by the storekeeper, the labelling covers the name of the variety and the place where it was produced.

Table 1: Seed production for the period 2000- 2010

Crops/ Seeds	Volume produced per crop per year, MT										
	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Maize	107	187	402	173	325	254	271	341	1680		
Rice	-	41	25	21	64	19	118	23	149		
Wheat	-	-	63	43	87	52	106	92	410		
Beans	115	86	153	133	163	108	224	69	218		
Soybean	33	67	78	108	96	20	74	19	51		
Irish potato	155	894	974	919	1223	751	2464	1328	3371		
Cassava x 1000	-	-	-	-	-	-	2100	8500	66760		

cuttings											
Peas											
Groundnut											
Sorghum											

N.B.: The data on seed production provided by RADA covers the period from 1999 up to 2007 and concerns seven crops only.

Table 2: Seed imported

Crops/ Seeds	Volume Imported per crop per year, MT										
	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Wheat											
Maize											

The seed import in Rwanda covers maize and wheat only, but detailed data on imported volume were not made available by RADA.

2.6. Seed marketing and distribution

The predominance of an informal seed system has led to a poorly organized and marketing and distribution system in which the quality of products available on the Market is not known due to storage, conditioning and transportations conditions which do not match required standards. This system is characterized by various exchanges among farmers themselves and food traders and it however gets its strengths from its sustainability and proximity service among farmers.

At the level of formal seed system, most of produced seeds are sold by RADA with price setting at the beginning of each agricultural season, which impacts on the prices set up by other seeds producers. Some Projects and NGOs provide subsidized seeds or distribute them freely. This practice constitutes an impediment to the development of an effective private sector in seed industry.

The seed marketing by RADA is done in a centralized system in which selling permits are issued at Headquarters in Kigali City, restricting seeds accessibility due to heavy administrative procedures and to sparse distribution network.

Moreover, there is no marketing strategy and no seed security stock which aggravates the risks of vulnerability in case of a bad cropping season.

2.7. Seed quality control

In the past years, the quality control department was under the National Seed Service and is now under the Seed Production Unit of RADA. This department is considered as an internal quality control structure whereas it should be an autonomous body so that it can cover all aspects regarding quality issues within the whole seed chain.

The department has a Seed Testing Laboratory which is not sufficiently equipped to carry out all required tests related to quality control.

The capacity to carry out field inspections, to take samples and analyze them remains very limited (on average 300 inspections and 1000 samples per year for the whole country).

A Seed Certification Department shall soon be established within the Rwanda Bureau of Standards.

As regards to legal and regulatory frameworks, the decrees to implement the seed law have not yet been adopted. There are some which were proposed by the MINAGRI to Cabinet and Parliament. As result, most of seeds are produced and sold outside the quality control and certification system.

2.8. Phytosanitary measures

Rwanda has ratified the International Plant Protection Convention as adopted at the Conference of the United Nations Food and Agricultural Organisation at its Twenty-ninth Session (November 1997) and which came into force on 2 October 2005 and includes any subsequent amendments which are in force.

The ratification constitutes a move that will see an increase in the trade of plant products. The treaty ratified proposed a plant health law to control pests and diseases across borders.

For effective implementation of the new plant health law, the National Plant Protection Service elaborated a reference list of quarantine pests and diseases (annex).

The National Plant Protection Service is established in fulfilment of Rwanda's obligations under the International Plant Protection Convention and to act as the Competent Authority for plant health matters. The NPPS is administered by MINAGRI/RADA.

2.9. Seed commodity chain coordination

The coordination of the seed commodity chain remains very weak and the information flow among various stakeholders very limited. This can be explained by the lack of appropriate structures and mechanisms. While RADA was supposed to perform regulation, coordination and organization of activities along the whole seed chain, it got strongly involved in production activities limiting its scope of activities in the chain value. The establishment of RADA and the Seed Commodity Chain Coordination Framework is a good starting point for the coordination and organization but the establishment of a national institutional framework integrating all components of the seed commodity chain is very crucial.

2.10. Regional and international harmonization

Rwanda has ratified the International Plant Protection Convention, a move that will see an increase in the trade of plant products. The law will give powers to inspect border posts like international airports, land crossings, and waterways, eradication and containment of introduced pests, post-entry quarantine of articles subject to investigation for security and experimental work on organisms otherwise prohibited.

Rwanda ratified the treaty with the aim to carry out her numerous initiatives like increasing agriculture exports with the aim of achieving the Economic Development and Poverty Reduction Strategy (EDPRS) and vision 2020.

The consolidation of fields and laboratory standards from the following organizations/ countries: OECD field schemes, ISTA rules, AOSCA, Kenya, Uganda, Tanzania and Rwanda resulted in the development of standards for EAC countries namely Kenya, Uganda, Tanzania and Rwanda. Those regional seed certification standards cover maize, sunflower, sorghum, dry bean, rice, wheat, cassava, potato, soya bean, and ground nuts. The standards criteria are defined per seed class and concern the following”

- Field standards :
 - Land requirement
 - Isolation (meters)
 - Maximum off-types
 - Number of inspections (minimum)
- Diseases : the specified diseases vary per crop
- Laboratory standards :
 - Pure seed %
 - Maximum inert matter %
 - Maximum other seeds %
 - Minimum germination %
 - Maximum moisture content %

The process on harmonization of seed policies and regulations within Eastern and Central Africa was piloted by ASARECA/ ECAPAPA through a long consultative process at national and regional levels.

Table 3. Progress in implementation of harmonization agreements in ECA²² countries

Policy milestone	Achievements by country to date	Work in progress
Enacted legislation (Seed Act) that accounts for harmonisation agreements;	Burundi (Seed Act 2009), Kenya (Seed Bill and draft Plant Act 2008, and Seed Regulations 2009); Rwanda (Seed Act 2003), Tanzania (Seed Act 2003), Uganda (Seed and Plant Act 2006)	Review of: Madagascar Seed Act 1994; Sudan Seed Act 2006; Ethiopia Seed Proclamation 2000; Uganda draft Plant Variety Protection Bill of 2008
Finalised seed Act implementing regulations;	Kenya (NPT Regulations 2009); Tanzania (Seeds Regulations 2007)	Uganda Seeds Regulations to implement the Seed and Plant Act of 2006, Rwanda, Burundi, Ethiopia, Madagascar Rwanda is planning to revise the 2003 seed act in line with the 2007 national seed policy
Finalised Plant Breeders Rights Act in accordance with UPOV 1991 and its implementing regulations	Ethiopia (PBR Proclamation 2006 requires significant revisions); Kenya (UPOV 1978), Tanzania and Uganda (largely UPOV 1991 compliant)	Burundi, Rwanda, Sudan, Madagascar, Eritrea, DRC have no <i>Sui Generis</i> systems based on UPOV (1991)
Autonomous certification agency	Kenya Plant Health Inspectorate Service (KEPHIS), Tanzania Official Seed Certification Institute (TOSCI) and Plant Breeders' Rights (PBR) Office in Tanzania in 2005	Uganda considering autonomous seed Service to oversee variety evaluation, release and registration In Rwanda, the seed quality control unit still ran by RADA
National Seed Trade Association	Burundi (COPROSEBU) 2009, Sudan (SSTA) 2008, Ethiopia (ESGPA) 2008, Rwanda (STAR) 2003, Kenya (STAK) 1982, Madagascar (AMPROSEM), Uganda (USTA) 2003, Tanzania (TASTA) 2002	DR Congo is reviving the Interprofessional Association of Seeds Producers of Congo (AISC) STAR has not yet registered as legal recognized organization
Acceded to OECD and ISTA seed testing rules	Kenya	Tanzania and Uganda are in the process of acceding to OECD and ISTA Burundi, Ethiopia, Madagascar and Rwanda considering South Sudan is shifting from the

²² Eastern and Central Africa

		American classification system to OECD Rwanda refers to OECD and ISTA rules but has not yet joint those organizations because has not met the requirements for affiliation.
Developed quarantine pest list	Burundi, Ethiopia, Kenya, Madagascar, Rwanda, Sudan, Tanzania, Uganda	Validation and publishing The Rwanda quarantine list is just a reference list which needs
Simplified export/import documentation procedures	Burundi, Sudan, Madagascar, Tanzania, Uganda	Kenya, Ethiopia

2.11. Coordination of Seed Policy Implementation

Institutional structures	Operational status		Comments
	Already in place	Already operational in playing assigned role in NSP	
National Seed Council	No	Will be put in place after revising the 2003 seed law	
Rwanda Office for Agricultural Development	Yes	Till the 2003 seed law is revised, RADA is carrying seeds production and quality control operations	The quality control should be an autonomous unit
Rwanda Agricultural Research Institute (ISAR)	Yes	Produces foundation seeds or conduct adaptability assessment on some imported seeds before their dissemination in different agro-bio- climatic zones	The volume of seeds produced remains insufficient when compared to the national demand.
National Variety Evaluation Committee	No	The national seed policy was developed after the seed law and new decrees would be drafted following the revision of the 2003 seed law and approval of the new one	Activities to be carried by National Variety release committee: 2 teams of technicians in charge of evaluation and variety homologation (decrees). They will be appointed by a Ministerial order
National Variety Release Committee	No	Idem	
Rwanda Bureau of Standards	Yes / No	Is a public institution established by Rwanda Government Legislation No.	Seeds quality control being carried out by RADA Seed Production Unit

		03/2002 of 19/01/2002 but the quality control unit will be established within RBS once the 2003 seed law will be revised and approved	
Seed Commodity Chain Consultative Framework	Yes/No	Currently, there is a stakeholders consultative platform in seed commodity chain (ISAR, RADA, seeds multipliers and outlets agro dealers)	The seed commodity value chain is embryonic and is lead up by RADA.; it doesn't display the characteristics of a value commodity chain (creation of added value at all stages as some are missing for example conditioning and packaging; linkage between actors through production, financial and information flow; self governance)
Private seeds producers and traders	Yes	In Rwanda there is no seed company as such	Though STAR was initiated in 2003, it has not yet reached the status of a national seed company since there is no seed supply structured/ organized network. RADA still leads in carrying operations (production, conditioning, distribution). The seed chain value lacks self governance.
Rwanda Development and Intellectual Property Forum	Yes	In general, the law is being reinforced but for seed, only ISAR remains the only institution with variety intellectual Property	No other stakeholders in developing new varieties
Seed Master Plan	Yes	Was developed in 2008 but still wait to be approved by the cabinet.	It should align with the new seed law (not yet developed)

N.B.: The institutional arrangements defined by the seed policy have not yet put in place because they have to be reinforced by the seed law. But the current seed law of 2003 doesn't address the same structures as defined in the national seed policy. They will be put in place once the 2003 seed law is revised in line with the national seed policy.

2.12. Addresses of contact persons for harmonization process

Regional Harmonization criteria	Names of contact person		Addresses		
	First	Last	Physical	Telephones	Email
Seed certification	Gervais	Ngerero	RADA Headquarters in Rubirizi/ Kigali P o Box:	0788301086	gngereronkuriza@yahoo.com
Seed quality	Scolastica	Nyiransengiyum va	RADA office in City Center	0788603268	nyirascho@yahoo.com

control			P o Box:		
Phytosanitary Seed Inspection	Leon	Hakizamungu	IPM Project Office/ City Center P o Box:	0788686690	lhakizamungufr@yahoo.fr

2.13. Challenges and perspectives for the future

2.13.1. Main Challenges

The prevailing challenges in Rwanda seed commodity chains can be examined at three levels: policy, implementation and organizational levels.

a) At policy level

- The provisions of national seed policy developed in 2007 which could not be implemented without having the Rwanda 2003 seed law revised.
- The writing of the seed law and the adoption of a policy to withdrawal of the State from production, handling and marketing activities has led to the reorganization of the seed commodity chain without guarantee in good coordination of activities and operators in the chain. MINAGRI needs to revise the 2003 seed law in order to have structures defined by the national seed policy be established and enhancement of mechanisms to ensure proper and effective implementation of the national seed policy.

b) At implementation level

- The private sector in Rwanda is still on embryonic stage and the Government ambition to withdrawal from seeds production and distribution to private dealers face an absent involvement of private sector in seeds development. Apparently, production of foundation seeds requires a lot of funds and a relatively long period, making the private sector not attracted to venture in such business.
- The private sector also displays little knowledge of required procedures and regulations in seed commodity development and subsequently do offer poor services in terms of preservation of the quality of seeds and provision of proximity services to farmers.
- Apparently, the closure of ASFAR project will create an institutional vacuum as the private sector has not yet effectively taken over from Government institution activities such seeds production, marketing and distribution.
- STAR planning to register as a cooperative instead of an association.

Being an association, STAR would stand for a representation, lobby, facilitation and advocacy organization. Taken into consideration that all members of STAR are business people/ organizations, the idea to register as cooperative sends a business-minded ambition.

The best option would to have STAR as association while business would be ran through a cooperative of seeds traders but on condition that to be member of that cooperative, seed trader must be member of STAR. The cooperative would be RWASTRACO (Rwanda Seed Traders Cooperative) or RWASCO (Rwanda Seeds Cooperative).

In fact, being an association would limit STAR to benefit from all opportunities offered through mechanisms put in place to strengthen the service delivery in the seed industry (seed distribution, transportation and marketing) but still the individual members could target that business partnership.

As cooperative, RWASTRACO/ RWASCO would be able to venture and eventually play the leading role in the local platforms at sector level and national network of agro dealers and also bid for fertilizers distributions services.

- The RADA Seed Development Unit has weak technical capacities to handle all operations reinforcing policies and regulations on seed certification.
- The capacity and expertise of the National Plant Protection Organization is limited and scattered across ISAR, MINAGRI, NUR and ISAE and there is little coordination
- Prevailing fraud and pirating on insecticides used to preserve stocked seeds causing farmers heavy losses. The most unpredictable consequence may result at some stage in development of strains of insects resistant to insecticides.
- The plant Health law is based on inter-agency model and professional at MINAGRI/ RADA have skills very specific to their respective roles. There is therefore the need to build their capacity to implement and enforce the laws and thereby expand their roles through translation of the Plant Health Law into roles and a responsibility for enforcement needs to take place.

c) Organizational level

- STAR existing since 2003 but has not yet established as a legally recognized organization.
- The Government targeting agricultural cooperatives as entry point for farmers' access to subsidies channeled on agricultural inputs, credits and capacity

building programs while those structures are still struggling to identify themselves as competitive commercial entities; meaning not capable to provide proximity services to their members (transfer of knowledge on seeds use, seed loans/ credits to members..). Cooperatives should manage local agro dealers' networks as the Government introduces the ID Voucher System for farmers operating in farmers' groups and cooperatives. Individual private agro dealers need also to work on anticipated strategy by opening new branches in rural areas in order to target this opportunity offered by PSTA Program 1. Hoping that the Rwanda Association of Seeds Traders should equip its members with knowledge and mechanisms to access to information on seeds markets dynamisms.

2.13.2. Perspectives for seed sector development

The seed policy gives clear strategic orientations of the Government on future perspectives for meeting farmers' seed needs and better services delivery:

- ❖ Production of seeds based on effective demand. It is within this framework that MINAGRI developed a Seed Master Plan involving main stakeholders of the seed commodity chain (wait to be approved by the cabinet). This plan determines the effective needs for different seed categories and determines production methods, necessary investment and possibly imports to be made so as to respond to farmers 'demand for quality seeds.
- ❖ The Government is focused to support ISAR to improve its capacity to produce high quality foundation seeds, in required quantity for subsequent multiplication. To this end, it will mobilize funds to provide laboratories and lab equipments and shall provide additional scientific and technical personnel. The private sector shall be encouraged to invest in this domain.
- ❖ MINAGRI Information System shall be adapted to the needs of seed chain in such was as to ensure the collection and dissemination of the information especially on the preferences and needs of seeds users, supply as well as distribution circuits and prices.
- ❖ The Government departments shall continue to produce basic and certified seeds and progressively withdraw as when conditions for the private sector to take over are in place.
- ❖ The Government shall build the capacities of associations and cooperatives which already intervene in seed production and encourage the emergence of private companies progressively as the agricultural sector modernizes.
- ❖ Particular support shall be granted for the promotion of hybrid seeds taking into account their high productive potential. In this framework, the Government shall facilitate the private enterprises to import those hybrid seeds or produce them in the country.

- ❖ Support to the emergence of decentralized technical service providers shall be contemplated to build the capacities of seeds producers.
- ❖ The Government recognizes that the informal seed system plays a predominant role in seed supply to farmers and that it needs to be improved. For that reason, it intends to improve the quality of seeds distributed by the informal sector in order to increase its contribution to the agriculture intensification. The following is envisaged:
 - Identifying the most active actors in the informal sector and strengthening their capacity in order to help them improve the quality of their seeds and help them progressively integrate into the formal sector.
 - Promoting the introduction of new, high yielding varieties in the informal sector in order to accelerate their distribution. This shall especially be done by distributing seeds samples.
 - Organizing demonstration sessions on the best seed selection and conservation techniques.

Finally, Seed traders need to formalize their association by putting in place operational structures in order to take advantage in opportunities being offered through mechanisms reinforced in proximity seed supply services.

3. RECOMMENDATIONS

The recommendations are directed to key players in the Rwanda Seed Industry: Government, agro inputs dealers for instance STAR and end users (Farmers).

3.1. For STAR

The members of STAR need to capitalize their ambition in anticipated manner how to take the lead in local platforms and national network of agro dealers. There is a strong need of institutional capacity building for STAR as organization and for its members on representation, anticipated lobby, and negotiation for binding a PPP²³ with MINAGRI/RADA.

There is a need for capacity building program of private agro dealers how to develop marketing incentives in order to boost their sale and proper seed use by farmers.

²³ Private Public Partnership

3.2. For MINAGRI/ RADA

MINAGRI needs to speed up the revision of the 2003 Rwanda seed law in order to have structures defined by the national seed policy put in place and made operational.

There is a need for institutional capacity building in terms of laboratories and equipment, training of the personnel and effective implementation of mechanisms to ensure the implementation of the national seed policy and the reinforcement of the seed law and decrees.

3.3. ACTESA

For COMRAP to achieve targeted results in Rwanda, much support needs to be directed to institutional capacity building of STAR, MINAGRI/RADA for improving services delivery in seed production and distribution, quality control and farmers' cooperatives in order to boost the knowledge of farmers on comparative advantage of use of improved seeds.

4. CONCLUSIONS

The Rwanda seed sector operates in environment characterized by weak institutional capacities due to lack of actualized seed law constraining the creation of structures and mechanisms reinforced in the national seed policy. MINAGRI needs to speed up the revision of the 2003 Rwanda seed act.

The Rwanda seed commodity chain is characterized by lack of interaction between actors and subsequently the creation of added value at every stage of operation since some are even missing such as seed conditioning, packaging and storage. The seed chain is predominated by informal distribution systems. The chain lacks self governance and the central government has put up mechanisms to induce the use of improved seeds by the majority of farmers. Up to STAR to position as a professional and business minded organization able to take over operations being carried out by the public institutions.

The private sector for instance the seeds dealers display weak technical, organizational and financial capacities and therefore is unable to take over from the State the basic operations in seed industry such as production/ multiplication and marketing/ distribution.

For COMRAP to achieve the target results, ASFTA need to focus most on institutional and technical capacity building directed to MINAGRI/ RADA, STAR and farmers.

5. Annexes

Annex 1 : Organismes nuisibles dont l'introduction est interdite au Rwanda²⁴

Organismes vivants du règne animal à tous les stades de leur développement:

- *ANASREPHA spp.* ou mouche des fruits
- *ANTHONOMUS GRANDIS*
- *BOSTRYCHOPSIS VILLOSULA*
- *CERATITIS spp.* ou mouche des fruits
- *CHILO SPP*
- *COCCUS HESPERIDA*
- *DACUS spp.* ou mouche des fruits
- *DITYLENCHUS spp.* ou nématode
- *HETERODERA spp.* ou nématode
- *LEPTINOTARSA DECEMLINEATA* ou doryphore de la pomme de terre
- *LIRIOMYZA spp.*
- *NILAPARVATA LUGENS*
- *ORYCTES RHINOCEROS*
- *PHENACOCCLUS MANIHOTI* ou cochenille farineuse du manioc
- *PHORACANTHA SEMIPUNCTATA*
- *POPULIA JAPONICA* ou coléoptère des arbres fruitiers
- *PROSTEPHANUS TRUNCATUS* ou grand capucin du maïs
- *RADOPHOLUS SIMILIS* ou nématode du bananier
- *RASTRACOCCLUS INVADENS*

Cryptogames

- *HELICOBASIDIUM PURPUREUM*

²⁴ The list of quarantine pests and diseases being used as reference before issuing a certificate for import.

- TILLETA CARIES
- STACHYLIDIUM THEOBROMAE et TRACHYSPHAERA FRUCTIGENA
- USTILAGO AVENAE

Bactéries

- CORYNEBACTERIUM FASCIENS
- PSEUDOMONAS PASSIFLORA
- PSEUDOMONAS SYRINGEA PV. PHADEOLICOLA
- PSEUDOMONAS FUSCOVAGINAE
- XANTHOMONAS TRASLUSCENS
- XANTHOMONAS STEWARTII

Virus

- BANANA BUNCHY TOP VIRUS (BBTV)
- BANAN STREAK VIRUS (BSV)

Phanérogames

- CUSCUTA SPP.
- STRIGA SPP.
- EICHORNIA CRASSIPES

Annex 2

- Produits ou produits végétaux dont l'importation est subordonnée à la présentation d'un certificat phytosanitaire et au contrôle de la Direction de l'Agriculture, Protection des Végétaux.

N° du tarif douanier	Désignation des végétaux ou produits végétaux
06-01-10 (partie)	- Bulbes, oignons, tubercules, racines tubéreuses, griffes et rhizomes en repos végétatif, en végétation ou en fleur
06-02-10	- Autres plantes et racines y compris les boutures et greffons
06-03-20	- Fleurs et boutons des fleurs frais
06-04-10 (partie)	- Feuillage, feuilles et autres parties des plantes, herbes, mousses, et lichens pour bouquets ou pour ornements frais
07-01	- Légumes et plantes potagères à l'état frais ou réfrigérés
07-05	- Légumes à cosses secs, écosés, même décortiqués ou cassés
07-06 (partie)	- Racines de manioc, d'arrow-root, et de salep, topinambours, patates douces, et autres racines et tubercules similaires à haute teneur en amidon ou en insuline à l'état frais
08-01	- Dattes, bananes, ananas, mangues, mangoustes, avocats, goyaves, noix de coco, noix du Brésil, noix de cajou, (acajou ou d'anacarde) frais ou secs avec ou coques
08-02-10	- Agrumes frais ou secs
08-03-10	- Figs fraîches ou sèches

08-04-10	- Raisins frais ou secs
08-05-10	- Fruits à coques (autres que ceux du n° 08-01) frais ou secs, même sans leurs coques décortiqués
08-06-10	- Pommes, poires et coings frais
08-07-10	- Fruits à noyaux frais
08-08	- Baies fraîches
08-09	- Autres fruits frais
08-12-10	- Fruits séchés (autres que ceux des n° 08-01 à 08-05 inclus)
08-13-10 (partie)	- Ecorces d'agrumes et de melons fraîches ou bien séchées
10-01	- Froment et méteil
10-02-10	- Seigle
10-03-10	- Orge
10-04-10	- Avoine
10-05-10	- Maïs
10-06	- Riz
10-07 (partie)	- Sorgho, millet, éleusine et autres céréales
11-01	- Farines des céréales
11-02	- Graux, semoules: grains mondes, perles concassés, aplatis ou en flocons à l'exception du riz du 10-06; germes de céréales entiers aplatis en flocons ou moulus.

11-04	- Farines de légumes à cosses secs repris au 07-05 ou des fruits repris au chapitre 8 ; farines et semoules de sagou et des racines et tubercules repris au n° 07-06
12-01	- Grains et fruits oléagineux même concassés
12-02-10	- Farine de graines et des fruits oléagineux, non déshuilés à l'exclusion de la farine de moutarde
12-03	- Graines spores et fruits à ensemercer
12-07-10 (partie)	- Plantes ou parties des plantes graines et fruits des espèces utilisées en médecine ou en usage insecticides, parasitiques et similaires frais ou secs
18-01	- Cacao en fèves
44-01-10	- Bois de chauffage en rondins, bûches, ramilles ou fagots, déchets de bois y compris les sciures
44-03-10	- Bois bruts même écorcés ou simplement dégrossis
44-04-10	- Bois simplement équarris
44-05-10	- Bois simplement sciés longitudinalement tranchés ou déroulés d'une épaisseur supérieure à 5 mm
44-07-10	- Traverses en bois pour voies ferrés

Annex 3

Végétaux et produits végétaux dont l'importation est interdite

N° du tarif douanier	Désignation des végétaux ou produits végétaux
06-01-10	- Bulbes, oignons, tubercules, racines tubéreuses, griffes et rhizomes, en repos, végétatifs ou en fleurs, des végétaux racines ou plantés avec terres adhérente
06-02-10	<p>- Autres plantes et racines vivantes y compris les boutures et greffons des végétaux suivants:</p> <ol style="list-style-type: none"> 1. Végétaux racines ou plantes avec terre adhérente 2. Végétaux appartenant aux genres ou espèces suivantes: arbre à pain (<i>Artocarpus cummunis</i>) et espèces voisines (<i>Artocarpus spp.</i>) <ul style="list-style-type: none"> - Ananas - Avocatier (<i>persea spp.</i>) - Bananier et autres musacées (<i>espèces et hybrides des genres Musa, Ensete, Heliconia, Strelitzia, Orchdantha et Ravenala</i>) - Canne à sucre - Citrus, Fortunella, Poncirus, Citropsis, Aeglopsis, Afraegle, Pamburus, Clansens, Anacaria et leurs hybrides - Café (<i>Coffea spp.</i>) - Manguier (<i>Mangifera spp.</i>) - Palmiers - Papayer (<i>Carica papaya</i>) - Vignes (<i>vitis spp.</i>) 3. Plantules des végétaux suivants : <ul style="list-style-type: none"> - Arachide (<i>Arachis hypogea</i>) - Cucurbitacées: Concombre, melon, pastèque, courgette et espèces voisines - Manioc (<i>Manihot spp.</i>) - Riz (<i>Oryza sp.</i>) - Pyrèthre (<i>Chrysanthenum cinerariaefolium</i>) - Soja (<i>glycine sp.</i>) - Solanées (aubergine, piment, poivron, tomate et espèces voisines)
07-01	- Légumes et plantes potagères à l'état frais et avec terre adhérente

07-06	- Racines et tubercules utilisées pour la plantation des végétaux suivantes: - Manioc (<i>Manihot sp.</i>), Patate douces (<i>Ipomea sp.</i>), Pomme de terre (<i>Solanum tuberosum</i>)
44-01-10	- Bois non écorcés

Annex 4: Conditions particulières

Espèces végétales	Parties de plantes	N°dutarif douanier	Imputation autorisée sous réserve du respect des conditions particulières
AGRUMES (genres <i>citrus</i> <i>FORTUNELLA</i> et leurs hybrides	Fruits frais	08-02-10	1 Fruits débarrassés de leurs pédoncules et de feuilles, lavés et brossés. 2 Le certificat phytosanitaire doit attester l'absence de: - <i>XANTHOMONAS CITRI</i> - <i>CANCROSIS B</i> - <i>DEUTEROPHXOMA TRACHEIFILA</i> - Mouches des fruits (<i>ANASTREPHA spp.</i> , <i>DACUS SPP.</i> , <i>CERATITS sp.</i>
ALLIUM spp. (ail, oignon, poireau)	Bulbes et plantes	06-01-10 et 06-02-10	Le certificat phytosanitaire doit attester l'absence de: - <i>DITELENCHUS DIPSACI</i> - <i>PHYTOPHTORA PORRI</i> - <i>SCLEROTIUM CEPIVORUM</i> - MALADIES A VIRUS
ANANAS	Graines	08-03	- Absence de <i>TOMATO SPOTTED WILT VIRUS</i> dans le pays d'origine
ARACHIDE (<i>Arachis hypogea</i> et toutes les espèces du genre arachis	Semences	12-03	- Absence de <i>PUCCINIA ARACHIDIS</i> et de <i>GROUNDNUT MOTTLE VIRUS</i> dans le pays d'origine
BANANIER (<i>Musa spp.</i> , <i>Enseta spp.</i>) Ainsi que leurs hybrides et	Graines	06-02	Absence dans les pays d'origine de : - <i>PSEUDOMONAS SOLANACEARUM</i> (maladie du Moko) - <i>XANTHOMONAS MUSACEARUM</i> - <i>MYCOSPHAERELLA FIJENSIS</i> - <i>ERWINIA</i>

toutes les autres musacées des genres et hybrides <i>Heliconia</i> , <i>Strelitzia</i> , <i>Orchidantha</i> <i>Ravenala</i>)			<ul style="list-style-type: none"> - <i>BUNCH TOP VIRUS</i> - <i>MOSAIQUES</i> - <i>ELEPHANTIASIS</i> - <i>FUSARIUM OXYSPORUM f. spp CUBENSE (maladie de Panama)</i>
CAFE (coffea spp.)	Semences et grains non torréfiés	09-01	Absence dans les pays d'origine de <ul style="list-style-type: none"> - <i>MYCENA CITRICOLOR</i> - <i>COFFEE RING SPOT VIRUS</i> - <i>BLISTER SPOT VIRUS</i> - <i>MELOIDOGYNE AXIGUA</i>
Canne à sucre (<i>S. Officinarum</i> et <i>Sacharum</i> spp.)	Semences	10-03	Le certificat phytosanitaire doit attester l'absence de maladies à virus et de <i>SCLEROSPORA</i> spp. sur les plantes mères et de <i>XANTHOMONAS ALBILINEANS</i> sur les plantes mères.
CEREALES (<i>Triticum</i> , <i>Hordeum</i> , <i>Ivena</i> , <i>Secale</i>)	Semences	10-01 à 10-04	Absence dans les pays d'origine de : <ul style="list-style-type: none"> - <i>WHEAT SOIL BORNE</i> - <i>MOSAIC VIRUS</i> - <i>WHEAT STRIATE MOSAIC</i> - <i>TILLETIA INDICA</i> Absence de ravageurs de denrées stockées
	Grains Farines	11-01	
CHOU (<i>brassica</i> spp.)	Semences et plants	12-03	Absence de <ul style="list-style-type: none"> - <i>XANTHOMONAS CAMPESTRIS</i> - <i>HETERODERA SCHACHTII</i> et - <i>PYRENOPERZIZA BRASSICAE</i>
COLOCASE (<i>colocasia</i> et <i>xanthosoma</i>)	Tubercule	06-01-10	Les tubercules doivent être: <ul style="list-style-type: none"> - Coupés en dessous du collet - débarrassés de toutes trace de terre et

<i>spp</i>)		soigneusement lavés
CONIFERES (<i>Cupressus</i> , <i>Pinus</i> , <i>Picea</i> , <i>Sequoia...</i>)	Semences Plants Coton	Absence dans les pays d'origine de: - CERCOSPORA SEQUOIA - PHELLINIUS WEIRII - POTEBNAMYCES - CONIFERARUM - CORYNEBACTERIUM - SEPEDONICUM
COTONNIER (<i>gossypium</i> <i>spp</i>)	Semences plants graines	Absence de : - PHYTOPHTORA CINNAMONI - PHORACANTHA - SEMIPUNCTATA
FRAISIER (<i>Fragaria</i> <i>spp.</i>)	Fruits plants	Absence de : - DACUS DORSALIS - PHYTOPHTORA FRAGARIAE - CORYNEBACTERIUM FASCIANS
HARICOT (<i>phaseolus</i> <i>vulgaris</i>)	Semences	Absence de CORYNEBACTERIUM