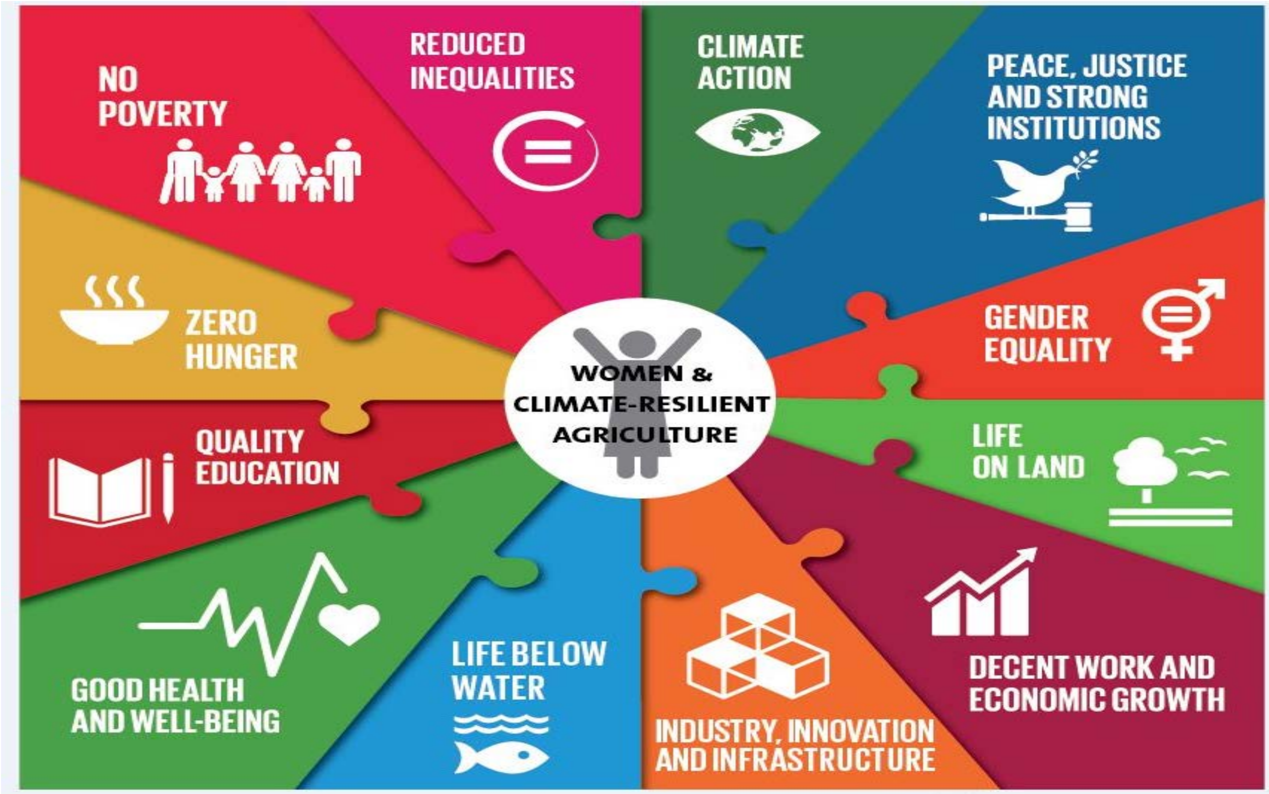
Project Number: To be confirmed
Geographic coverage: Senegal
Department ID: To be confirmed
Thematic area : DRF 2 : Women, especially those living in poverty and vulnerability are economically empowered and enabled to reap the benefits of development
Project Title: Empowering women through a climate-resilient agriculture
Start date: To be determined
Duration: 5 years (2016-2021)
Implementing Partners: Ministry of Women, Family and Childhood, Ministry of Agriculture, FAO, IFAD,WFP, UNCDF, CNRF, CNCR, Local NGOs (PANALE), Mlouma, Fondation Sonatel, Sooretul, ANCAR, CNAAS
Funds
Non-Core Funds (total) $
Sources: Open Society Foundation (OSF); Funds raised by headquarters with donors; financial institutions; Senegalese State Institutions mandated to support the growth of agriculture
Amount (US): 6.615.000 USD

Signatures: UN Women Implementing partners

1. Executive summary

Although women account for 70% of the labor force and are slightly more numerous than men as they make up 50,1% of the total population, a wide range of disparities still linger between men and women when it comes to accessing production resources. These inequalities prevail in the access to markets, capacity building activities (training, technical assistance, etc.), land and other production factors (inputs, extension services, loans).

To mitigate these constraints heightened by climate change in Senegal, the "Women's access to land and production resources for a climate-resilient agriculture" project suggests a holistic support approach to overcome existing obstacles, and spur a genuine empowerment of women farmers. This project contributes to meeting eight of the sustainable development goals: Eradicating poverty, fighting against hunger, gender equality, use of renewable energies, innovation and infrastructure, reducing inequalities, combating climate change, protecting terrestrial flora & fauna, peace, justice, and building partnerships to achieve global objectives.



According to the World Bank, the poverty rate which reached 46,7 % based on the latest estimates still remains high. Senegal's GDP growth rate is way below the level required to substantially alleviate poverty. From 3 million people in 1960, its population increased to approximately 12,5 million inhabitants in 2010. A climate-resilient agriculture will enable the Senegalese society to make its way out of poverty and respond to climatic stresses.

The planned five-year initial phase of the project will be implemented in the regions of Saint Louis, Kolda, Tambacounda, Ziguinchor and the Niayes Area which hold a high potential for agriculture. Through its interventions, the project aims to empower 30.000 Senegalese women farmers, while strengthening their resilience to climate change by 2021. Targeting a limited number of beneficiaries in the first phase shall allow us to draw on strong evidence generated in this period, for a scaling up of the program during its second phase. Project interventions will focus on four main areas:

1. **Supporting reforms for women farmers' greater access to land and securing land allotted to them:** The project will be playing a counseling role with the National Commission for Land Reforms so that governance principles are effectively taken into consideration for an equal and secured access to land resources nationwide. At the rural community level, the project will support the development of local charters on land governance that shall safeguard and protect women's land rights. Additionally, the project will assist in setting up a specific

mechanism that shall control and monitor the local implementation of the newly designed reform. Lastly, the program will engage in strategic partnerships with major development programs to guarantee that at least 40% of farmland is allocated to women.

2. **Support to enhance women farmers' productivity and resilience to climate change:** In this area, the project will be selecting high value sectors where women are generally involved. These mainly include horticulture/market gardening and rice production. Following the identification of these sectors and agro-ecological intervention zones, the project will capitalize on its partnership with research centers (ISRA and attached units) to seek out technology packages (agricultural technical itineraries, climate-resilient seed varieties) adapted to each of the different zone targets. Subsequently, in collaboration with mentoring services (ANCAR), the project will be upholding capacity building activities dedicated to women farmers based on specially designed modules. Likewise, the project will be assisting with the training of cooperatives comprising women producers of improved seeds (climate-resilient seed varieties will be selected). UN Women has developed a mobile platform called "BuyfromWomen" that allows to link farmers to information, markets and finance by providing a 360 view of their business. The platform will be deployed as a One Stop Shop for farmers.

3. **Implementing appropriate funding mechanisms to support promising avenues with strong growth potential:** In collaboration with financing institutions of the agricultural sector, the project will facilitate the instigation of credit lines dedicated to funding the activities of potentially profitable value chains in the priority intervention zones. These credit lines shall come with a partial guarantee fund covering 50% of the credit risk, in partnership with the guarantee fund for priority investments (FONGIP). In addition to these financing arrangements, dissemination of agricultural insurance, educational activities, literacy programs and capacity building in management will be provided to women farmers.

4. **Supporting cooperatives to increase women's access to high value niches holding extensive sales potential:** The project will facilitate the building of contractual relationships between women farmers and large buyers including the private sector – manufacturers and exporters. It shall equally provide training and capacity development on marketing, packaging, labeling, and identifying new market opportunities.

   Through innovative funding mechanisms, the project will be in a good posture to equip cooperatives with processing facilities, mainly mini rice mills (units for rice milling and by-products processing), storage facilities, solar driers for market gardening crops, etc.

The total cost for the implementation of these interventions is estimated at $ 6.615.000 USD. The project will be funded based on resources mobilized with technical and financial partners.

2. Constraints

Achieving gender equality and equity in Senegal may seem daunting in a complex socio-cultural environment marked by a strong preponderance of traditional values. However, despite women's lower social status compared to men, joint efforts paved the way for significant progress that led to a greater recognition of women's place and contribution to socio-economic growth. Notwithstanding these developments, a number of constraints that are yet to be overcome include:

- Access to land and land tenure security;
- Access to financing mechanisms;
- Access to factors of production and extension services;
- Effects of climate change;
- Access to markets.

In rural areas, the distribution of employment in different economic sectors reveals women's involvement in agriculture, livestock farming and the environment where they represent 70% of the workforce[1].

Women living in rural areas are highly active in the processing and marketing of agricultural, livestock and fishery products. Nonetheless, they are confronted with several hurdles of various nature, including:

1. ***Constraints related to access to land and land tenure security:*** Despite a non-discriminatory legislative framework including the Constitution which guarantees equal rights regarding access to land and rural land management, Senegal is characterized by traditional governance where inheritance, legacy, donations and lending remain the main ways of accessing land, as these still maintain their social legitimacy, in spite of the new form of management (allocation) introduced by the National Domain Act. Due to this current type of governance, disparities between men and women's access to land continue to prevail. A small minority of women

[1] Contribution of the Directorate for Agricultural Analysis, Forecast and Statistics (DAPSA) to the annual report of the National Observatory for Parity (Observatoire Nationale de la Parité), January 2015.

(10%) hold property title deeds, and most women resort to renting, which maintains their production system in poverty and hampers productive investment.

2. ***Constraints related to accessing funding mechanisms:*** Women's access to financial resources such as loans, is made difficult by preconditions and rules laid out by both society and banking institutions. From a social stance, the structure of farm management that put on the front line heads of households (so men), limits women farmers' access to credit. Even when they manage their own farms, poor access to extension services and limited access to markets for their products, remain bottlenecks in accessing funding for their activities. A study conducted by AIUM (African Institute for Urban Management) in the Niayes Area shows that men received 98% of loan volumes against 2% for women. The limited amount of funding available is thus monopolized by men. Financial aspects also hinder women's secured access to land. Lack of financial resources equally remains a barrier to an effective development and access to land.
3. ***Constraints related to factors of production and access to extension services:*** The family structure of production management with man being the head of the household limits women's access to extension services and factors of production such as inputs. Indeed, with support initiatives targeting exclusively heads of farms (de facto men, given that on average, only 15% of families are female-headed households), women do not have direct access to inputs and coaching/mentoring services. As a result, women stand for 15 to 20% of participants in extension activities in Burkina Faso, Mali and Senegal, compared to 60 and 70% of participants in the Gambia. In addition to that, with limited financial resources, women can hardly access other factors of production (inputs, equipment, etc.)
4. ***Constraints triggered by climate change:*** Because the Senegalese agriculture is mainly rain-fed, its performance is subject to wide variations due to erratic rainfall. According to the National Directorate of Meteorology, the average annual rainfall in Senegal is 687 mm, with the longest rainy season lasting from June to October. Inter-annual variations are strong in terms volume, as they also bring about different start and end dates of the rainy season from one climate zone to another. There are four climate zones: (i) the North with a Sahelian climate (300 mm/year of rainfall spread over less than three months/year and harmattan taking the lead for nine months); (ii) the Northwest coast with a dry sub-Canarian climate along with maritime trade winds lowering temperatures as well as the amount of rainfall and their duration); (iii) Casamance with a sub-Guinean climate (1300 to 1800 mm rainfall/year and high temperatures); (iv) the center with a Sudanese climate (rainfall increasing from west to east, from 700 to 1300 mm/year over a six to seven-month period). Unevenly distributed and below average rainfall have triggered significant losses in yields of cereals and cash crops. The fact that

agricultural produce remains heavily red-fed dependent makes production vulnerable to the adverse effects induced by climate change.

5. ***Constraints regarding access to markets:*** Market access is also a worth mentioning constraint for women farmers. From a geographical standpoint, remoteness from markets - and the lack of roads (all-weather roads) epitomize a major issue for isolated rural communities, especially women who have limited mobility due to their social burdens and duties. This barrier limits their capacities and opportunities for marketing their products and crops, as it generates high transportation and transaction costs for both buyers and farmers. Besides expensive transportation, storage is another concern mainly for women who are quite active selling vegetables and other perishable goods in local markets. Market access constraints limit women farmers' resource generating opportunities, thus maintaining them in subsistence agriculture and thwarting their economic empowerment. Additional constraints faced by women while selling their products are related to their low capacity in marketing, packaging, and awareness of high value-added niche markets (labeled products, organic certification, etc.). These constraints prevent them from being competitive on high-potential markets requiring products which ought to meet high quality and traceability requirements.

3. Project Rationale

3.1. Agriculture : A Strategic Pillar of Senegal's Socio-Economic Development

The macroeconomic balance of Senegal is strongly linked to agriculture, which is also the main source of employment. The Senegalese agricultural sector provides livelihood for about 755,532 farm households. Labor operating in agriculture represents 53% of the labor force and generates on average 16% of the GDP[2].

Horticulture is now identified as a priority in Senegal's growth strategy. As a matter of fact, the Government aims through the Plan Senegal Emergent to position Senegal as a major exporter of high value added fruits and vegetables. The regions of Senegal are almost all favorable to horticulture due to suitable climatic conditions. Senegal has a hot and dry climate needed for cultivating quality horticultural products which require much smaller managed areas.

According to data from the Horticulture Department, the sector has significant potential in terms of:

[2] Agency of National Statistics and Demography (ANSD).

- Profitability: main horticultural products generate average yields of 25 tons per hectare (can possibly reach 60 tons/ha for some) against an average of 6 tons/ha for cereals.

- Productivity: most horticultural products can now be cultivated for most of the year (e.g. okra, watermelon, sweet potato and some onion varieties).

Due to its geographic location, Senegal remains a destination close to Europe. Exporters have several transportation options: air transportation (2 days), shipping (7 days), and road transportation (5 days). According to data from ASEPEX, horticulture export is mainly based on key sectors such as tomatoes (12 251 t in 2013), melons (14,278 t), mangoes (11 515 t), watermelons (11 106 t), sweet corn (10 180 t) and green beans (9200 t), along with new additional crops added to the mix each year, namely (green onion, squash, hot pepper, asparagus, aromatic herbs, sweet potatoes, papayas, bananas, etc.) depending on the market demand. The European market remains the main export destination for Senegal's horticultural products (Netherlands, France, etc.).

Rice is a highly strategic commodity for Senegal. Each year, the country consumes 1.2 million tons of rice and imports 75% of it. Rice imports contributed 16% to the trade balance deficit in 2014, despite the potential for local production. In fact, Senegal has two rice production areas with high potential that are:

- The Northern area called the Valley and Delta of the Senegal River, where irrigated rice is cultivated since the construction of large dams known as Diama (Senegal) and Manantali (Mali);

- Rain-fed area (South, South East and Centre of the country) is a traditional rice-growing region, focusing on subsistence agriculture and growing irrigated rice in tidal flats and plateaus;

- The Niayes Area which harbors the benefits of its climate and rich soil is a geographical area located in the northwestern part of Senegal, consisting of dunes and hollows suitable for rice cultivation.

With more than 90 kg per year, Senegal has one of the highest rice consumption ratios per capita in Africa. Strong national demand for locally produced rice combined to an active political engagement and support to the market for rice self-sufficiency in Senegal by 2017, transformed this particular cereal into a strategic sector that can effectively contribute to women's empowerment.

3.2. Adverse effects of climate change on agriculture call for immediate interventions in the sector

Although agriculture is of a strategic importance for Senegal, it remains highly vulnerable to the effects of climate change. Recent climate change in Senegal has led to:

- Around a 30% reduction of rainfall. Precipitations went from 176 billion m^3 in the years preceding 1970 to 132 billion m^3 in the years following it, representing a loss of ¼ in annual rain received[3]. This has resulted in a drastic reduction of surface water runoffs, including declining flows of major rivers[4]. Regarding soil resources, nearly half of the land (47%) is either poor or unsuitable for agriculture, and 36% is poor in resources and confronted to limiting factors that only allow for low yields[5]
- A temperature increase of 0.9°C;
- The northern part of the country becoming increasingly arid;
- A strong aridity trend prevailing in the central regions;
- Southern regions becoming highly semi-arid.[6]

Regarding forecasts on the evolution of rainfall, recent studies[7] predict that the south will dry up more than the northern part of the country, regardless of sensitivity. By 2050, we could expect a decline in rainfall of about - 6.0% in Saint Louis, - 7.0% in Matam - 10.0% in Dakar - 24.0% in Ziguinchor and - 23.0% in Kedougou. Successively, a number of consequences will rise from this climate insecurity including: (i) inappropriate production systems resulting in lower yields due to the shortening of the rainy season, (ii) a decline in freshwater resources, and (iv) reduction of land and cultivated areas.[8]

Thus, by 2021, grain production could fall by 30% subsequent to the reduction of agricultural land[9], which would further entrench extreme poverty and malnutrition in rural areas.

3.3. Need to support women farmers' resilience in order to meet the challenges they face and ensure their empowerment

Despite women's contribution to agricultural production and their demographic weight, many disparities persist between men and women with regards to their access to

[3] Ndiaye G. 2009. Impacts of climate change on water resources. Second communication to the UNFCCC p. 48.
[4] Diagne, 1999 ; National Adaptation Program for Action (PANA) 2006, Gaye et al. 2008 ; Ndiaye, 2009.
[5] http:/www.un.org./esa.earthsummit/senegal/-cp.htm
[6] Directorate of the Environment and Classified Institutions, Ministry of the Environment and Sustainable Development, Senegal, 2010.
[7] Gaye et al. 2008. Climate scenarios in Senegal, LPAO-SF/ESP/UCAD.
[8] CSE. 2010. Report on the State of the Environment in Senegal.
[9] Funk et al. 2012. A Climate Trend Analysis of Senegal, US Geological Survey Fact Sheet 2012 - 3123, 4 p.

production factors. These inequalities as highlighted above, have to do with their access to land and other factors of production (inputs, extension services, loans), as well as their access to markets and capacity building interventions (training, technical assistance, etc.).

Based on these constraints exacerbated by climate change in Senegal, this project offers an all-inclusive accompanying approach to removing blockages and enabling women farmers' tangible empowerment.

The "Women's access to land and productive resources for a climate change resilient agriculture" project is part of a set of 12 global flagship programming initiatives, and aligns with Objective 2 of UN Women's Strategic Plan stipulated as follows "Women, especially the poorest and most excluded, are economically empowered and benefit from development."

This project fits into UN Women's overall strategy based on the vision of equality, enshrined in the United Nations Charter. UN Women works for the elimination of discrimination against women and girls; women's empowerment; and the achievement of equality between women and men as partners and beneficiaries of development initiatives.

4. Strategy and Expected Results

The importance of adopting a gender perspective in development issues is now acknowledged. Women tend to initiate or participate in finding and implementing collective solutions to strengthen their position and agency.

This program aims to address obstacles women face to foster a productive and resilient agriculture through four expected outcomes: (1) women's access to land and land tenure security reinforced (2) women farmers' productivity increased through innovation and access to new technologies (3) increased access to financing mechanisms (4) access to value-added activities and markets.

The following sections describe expected outcomes and the theory of change is included in Appendix 1.

Outcome 1- Women’s access to land and land tenure security are increased

Output 1.1 : Institutional framework governing rural land is reformed to ensure full consideration of women farmers' interests regarding access to land

This intervention aims to support the land reform process underway. The project will be suggesting proposals encompassing specific reform measures that can ensure equitable access to rural land.

In this sense, the project will be playing an advisory role with the National Commission of Land Reform, to guarantee that governance principles are effectively taken into account for a fair and secure access to land resources. Along the same lines, the paper titled "Voluntary Guidelines for a Responsible Governance of Land Tenure Applicable to Land, Fisheries and Forests in the Context of National Food Security" is a relevant reference framework that shall guide UN Women's advocacy with the National Commission for Land Reform (CNRF).

Besides the Voluntary Guidelines, the project will be supporting the Commission in implementing the consultation process with grassroots stakeholders, including women, to ensure that their voice is heard within the CNRF.

Moreover, in partnership with research centers, project interventions will include specific thematic studies that shall inform the work of the Commission. Indeed, in the reform process of land governance, important questions may arise, such as whether or not registration helps to secure land. Consequently, thematic magazines formulating appropriate recommendations adapted to the Senegalese context and allowing to capitalize on experiences from other countries could be of interest to the CNRF.

Output 1.2 : Local land governance charters guaranteeing and protecting women's rights to land are in place

Locally, these charters will be the embodiment of the new governance framework on rural land. They will be implemented through awareness activities and support provided to local communes in a development process that shall fully involve women in local committees responsible for land management.

By the same token, the project will facilitate the establishment of a surveillance and monitoring mechanism for the implementation of the new reform at the local level. This mechanism will be providing information on the status of implementation and shed light on the challenges related to land tenure security women tend to face. It shall also intervene in mediation processes for dispute settlements. Regarding the settlement of potential litigation - linked to land management - UN Women, in conjunction with grassroots stakeholders, will strive to consolidate locally-based dispute settlement mechanisms/committees, and ensure women's full participation within these committees.

Output 1.3 : Increased land allocation to women through strategic partnerships with existing programs

The program will be building strategic partnerships with major development programs to ensure that women reap all the benefits that may come out of this initiative (equality in access to land development, and other accompanying measures). Partnership agreements may be established with major projects listed as follows:

Recovery and Accelerated Growth Program for Agriculture: The Recovery and Accelerated Growth Program for Agriculture: Five structuring flagship projects are suggested in axis 1 "Structural Transformation of the Economy and Growth" of the PSE, including (i) implementation of 100-150 targeted aggregation projects on high added value sectors and livestock (ii) development of three grain corridors (iii) implementation of 150-200 projects supporting family agriculture (iv) creation of three integrated agri-food technopoles, to stimulate national and foreign private investment, diversify drivers of growth and strengthen the resilience of the economy. With PRACAS, UN Women seeks to undertake joint actions with the various project managers (within the Ministry of Agriculture) in charge of steering the five flagship projects. This implies assisting each project in gender mainstreaming to secure an equitable access to the benefits brought about by planned interventions (land development, various types of support).

Project for an Inclusive and Sustainable Development of the Agribusiness Sector in Senegal (PDIDAS): The project will enable a sustainable and inclusive development and use of 10,000 ha of irrigated land in the Ngalam Valley and around Lac de Guiers. In total, nine communes covering forty villages in the departments of St. Louis, Dagana and Louga will be impacted by the project, while the management of ten thousand hectares will directly benefit 10,000 people along with the creation of 9,500 direct jobs. Collaboration with PDIDAS can be operated through the project management unit with the aim to improve women's access to developed lands and other related services/support.

Program for Community Agricultural Areas (PRODAC): This is a project aiming to build facilities that shall allow for the development of large areas ranging from 1 000 to 5 000 ha. Areas targeted for this program are: Sédhiou, Sefa, Kédougou, Keur Momar Sarr, Keur Samba Kane, Medina Yoro Foula and throughout Senegal. In collaboration with PRODAC, the project can help extend the number of targeted girls/women beneficiaries of these major facilities to be built in each Community Agricultural Area.

Anida's Land Improvement Programs (National Agency for Integration and Agricultural Development): Anida is primarily involved in the development of "NAATANGUE family farm", which is a farm of 1 to 2 ha with water management systems and integrated market gardening, arboriculture, poultry, fish farming, etc. Collaboration with Anida is considered for an extension in the number of targeted women beneficiaries of managed farms (replicable model for the project - unit cost of the farm is about 12 million CFA francs). The project will also work with Anida to increase developed areas allotted to women.

SODAGRI's Facilities Construction Programs: With the revision of its statutes, SODAGRI will boost development of rain fed and irrigated rice in the eastern part of Senegal (Tambacounda regions except for the department of Bakel and Kedougou) and natural Casamance (Kolda, Sédhiou and Ziguinchor regions). The project will be in partnership with SODAGRI in the target zones that are Saint Louis, Kolda, Tambacounda, Ziguinchor and the Niayes Area.

Outcome 2 – Women farmers have increased productivity through innovation and access to new technologies.

Output 2.1: Deployment of digital platform to strengthen relationships between stakeholders in the value chains

The impact of Information and Communication Technologies (ICT) in improving the competitiveness of the agriculture value chains is very promising. Notably, growth and penetration of mobile ICT in rural areas (especially mobile phones) offer new opportunities to enable farmers to join the formal market and thus increase household incomes in vulnerable communities.

UN Women has developed a mobile platform called "BuyfromWomen" which allows to link farmers to information, markets, and finance, by providing a 360 view of their business. The platform will also be able to provide a forecast of marketable surplus expected based on the size of the land and information provided by women farmers. BuyfromWomen also has the potential to be linked to blockchain technology and investment platforms for social impact to increase funding opportunities.

The preferred implementation route is to select farmers organized into cooperatives. This allows buyers to reduce their transaction costs as they negotiate future delivery contracts with organized groups and not individual farmers and allows women farmers to strengthen their collective bargaining power.

With the futures delivery contracts, major buyers would specify minimum floor prices, deadlines and quality specifications, so that farmers can plan beyond the farm gate. These contracts have a catalytic effect on the value chain for women farmers' access to extension services, quality inputs, finance and post-harvest handling services.

Information recorded through the platform also enable farmers to establish economic identity and access to financing to diversify their activities in the future.

Output 2.2 Innovative agricultural technologies are disseminated

The growth and penetration of mobile ICT in rural areas (especially mobile phones), and innovations in the electronic media to support education and training (e-learning), also represent new opportunities to increase development of human and social capital. Interventions will promote the "culture" of the use of ICT through the "e-learning" as well as skills development. Capacity building will target three levels: institutional, local and individual.

At the institutional level, the focus will be on how partners use ICT to improve the production and the collective sharing of content, such as social media training opportunities. Locally, our goal is to empower communities through applications demand-driven, user-friendly and integrated. At the individual level, the project will strengthen the capacity of farmers to adopt and use these applications to agriculture.

Meteorological data adapted to climate change will be disseminated and popularized through computer systems involved in supporting the agricultural sector.

Output 2.3 Access to locally-adapted seeds and production equipment

Interventions to enhance women's capacity in a context of climate change will be part of a consolidation process aiming to strengthen women entrepreneurship by setting up/strengthening active women cooperatives in target areas. In this respect, training modules will be developed and technical coaching provided to these cooperatives through NGOs/qualified local associations. Strong cooperatives will serve as channels for engaging and coaching women farmers.

In addition to technical training, the project will establish seed production cooperatives responsible for the production and dissemination of seed varieties resilient to climate change.

In order to strengthen women farmers' resilience while reducing their workloads and promoting/disseminating relevant seed varieties, the project will facilitate access to irrigation technologies with solar pumping systems. Selected cooperatives will be provided with solar pumping platforms connected to a micro irrigation system. Each platform allows irrigation of about 1 ha out of which 4.000 m^2 will benefit from gardening drip, and the rest will rely on traditional watering with water points, so as to have 5-month long agricultural seasons.

Finally, in order to secure sound management of women farmers' post production activities and enable them to better protect their harvests and reduce losses, the project will be funding the construction of five warehouses (one warehouse in each target region).

Outcome 3 – Women Farmers' increased access to financing mechanisms

Project interventions within this component will be conducted to consolidate the supply of funding available to women farmers and strengthen their management capacity, basic education and financial literacy. They will focus on the following outputs:

Output 3.1 : A credit line is set up to provide funding to women farmers living in the project intervention areas

In partnership with financial institutions operating in the agricultural sector, the project will establish credit lines dedicated to financing activities within high potential sectors in priority intervention areas. Cooperatives will be the main channel through which women farmers will have access to financing facilities. Thus, the project will be counting on cooperatives that will benefit from capacity building initiatives on organization and financial management, so they are able to negotiate, use and effectively manage funding agreements sealed with financial institutions.

Financing facilities will take the form of revolving credit lines with access conditions (interest rate, repayment period) tailored and accessible to women. These credit lines will come along with a partial guarantee fund that will cover 50% of the credit risk.

Likewise, the project will strive to reinforce financing facilities with the assistance of the Government and additional contributions obtained from development partners such as the African Development Bank (through its Feed Africa program).

In addition to funding in partnership with financial institutions, the project will also be involved in supporting Village Loans and Savings Associations. The project will first identify village associations existing within intervention areas, and then build their capacities as needed. Village associations and cooperatives will be appropriate channels that shall be used to promote and popularize mobile money for savings and secure transactions.

Output 3.2 : Women's basic education and financial literacy skills are strengthened

The project will be backing up financing mechanisms with educational activities and capacity building in management for women farmers.

Capacity building in financial literacy will draw on recent initiatives such as the National Financial Education Program completed in 2015. These initiatives have implemented training modules and an integrated approach to raise awareness and interest for this project. Training modules on various themes (financial education, land, technological packages, women entrepreneurship, etc.) developed under the project will be posted online to allow wider access.

Besides, the project will create synergies with UNCDF specialized on issues pertaining to financial inclusion, which also aspires to execute a new five-year project (still to be funded) in Senegal, centered on financial education and the development of mobile financial services. Through this collaboration, UNCDF will support financial education activities dedicated to women and carried out in selected areas. Furthermore, by leveraging on its institutional partnership with the Central Bank of West African States (BCEAO), UNCDF could be an effective back up and source of information regarding regulatory issues and reforms needed to promote innovative financial products.

Output 3.3 : Agricultural insurance products tailored to women farmers are developed and promoted

Agricultural insurance as an agricultural financing risk facility is an additional mechanism that may reduce farmers' vulnerability to hazards and increase their income stabilization and growth. This service was introduced in Senegal by the National Agricultural Insurance Company (CNAAS) in 2010. CNAAS is currently providing several agricultural insurance products, which include:

- Crop insurance – encompasses several sub-products:
    - All-risk crop insurance: Covers crop losses based on expected yields
    - Multi-risk crop insurance: Covers farms against various risks they face
    - Index-based crop insurance: Covers crop losses based on a rainfall index or yields
    - Specific crop insurance: Ensures an indemnity to the insured if his crop yield losses are due to specific risks such as fire, excessive rainfall, flooding, damage caused by wild animals and/or any other specific risks mutually agreed
- Index insurance: Covers drought risks (calculated on the basis of rainfall data provided by the National Service in charge of Meteorology)
- Rainfall deficit insurance: Ensures an indemnity to the insured for the loss of production resulting from rainfall deficits during the rainy season. This insurance covers millet, sorghum, groundnuts, cotton, rice and corn.

In collaboration with CNAAS, the project will work to expand access to insurance products for women farmers living in the priority intervention areas. The role of the project will be to raise awareness among women about risk hedging possibilities and modalities of access to these services.

Along with interventions aimed at increasing the number of women who benefit from existing insurance services, the project will also examine together with CNAAS the feasibility of using telephone platforms as a means to deliver and manage insurance services. Experiences from other countries will inspire the design of these mechanisms in Senegal.

Outcome 4 - Access to markets and value-added activities

Output 4.1 : Sales contracts are promoted to secure more opportunities for women

The project will facilitate the forming of contractual relations between farmers and large buyers, including (the private sector - manufacturers, exporters; institutional actors such as the World Food Program).

The approach of the intervention will be to identify companies (export firms, manufacturers) via a call for applications, and also explore opportunities with international corporations operating in the markets of high value added niches (selling labeled and bio products, fair trade, etc.). The profile of these large companies evolving in the rice and horticulture industry is enclosed as an appendix.

The project will also capitalize on IFAD's experience to facilitate the drafting of contractual agreements (case of millet in Senegal between Nestlé and small-scale producers).

High value added sectors (arboriculture - organic bananas for export), as well as vegetable crops will be the main targets of the project, given the strong local and international demand for these products. Meeting this request would facilitate the signing of sales agreement contracts which would guarantee security of supply for buyers/exporters, while offering them a slight advantage in terms of social responsibility.

The "Buy From Women" platform will play a key role in the establishment of contractual relations.

Output 4.2 : Women's capacities in selling - branding, certification, marketing and packaging are reinforced

Women have limited capacities in commerce and trading related matters (marketing, packaging, identification of market opportunities). Their knowledge on labeling, certification for niche markets is also limited.

Based on this assessment, the project will work to close this gap through capacity building activities around marketing, packaging, labeling and seeking out new outlets.

Thematic training sessions for women, in partnership with ITA (modules), ENDA (organic label) and private service providers will allow women to produce in compliance with international standards.

The project will assist women farmers on the following activities:

- Identify needs in terms of equipment to improve the quality of packaging, and facilitate access to financing in order to purchase necessary equipment
- Strengthen women's negotiation aptitudes
- Increase the visibility of their products through:
  - o Mobile Selling Platforms (MLouma, Sooretul)
  - o Shops suggesting local products such as those of the cooperative PANALE
- Support groups and associations so they can participate in national and international fairs to promote their products.

Results and Resources Framework (log frame matrix)

Strategic Statements	Indicators	Baseline	Target	Means of verification
Program objective: Empower 30.000 Senegalese women farmers and reinforce their resilience to climate change by 2021.	• **# women farmers with access to resilient agricultural techniques** • **% women farmers with access to land** • **% women farmers with access to financing mechanisms**			**Project evaluation report**
IMPLEMENTATION				
Outcome 1 : Women's access to land and land tenure security are reinforced	Existence of a legal framework which includes special measures protecting women's equal rights to own and control land	0	1	Evaluation report (mid-term and final evaluation of the project)
	# women in intervention areas holding land allocation certificates/titles by	0	15,000	

	the end of the program			
Output 1.1: Reforming the institutional framework of the rural land governance to safeguard women farmers interests' in accessing land	# gender sensitive land reform documents # gender sensitive policies	0 0	1 1	Existence of a gender sensitive paper Existence of a gender sensitive policy on agriculture
Output 1.2: Local authorities guarantee women's land rights	# local authorities that adhere to the charter on land management	0	30	Technical Report, mission reports, reports of the meetings
Output 1.3. Increased land allocations to women through strategic partnerships with existing programs	% developed areas allotted to women	10%	40%	Technical Report, mission reports, reports of the meetings
Output 2: Increase in women farmers' productivity through innovation and access to new technologies	Increased yields for women farmers by 2021	23%	50%	Evaluation report (mid-term and final evaluation of the project)
Output 2.1: Deployment of digital platform to strengthen relationships between stakeholders in the value chains	% of women farmers on the plateform Buyfromwomen #platform deployed # contractual buying relationships signed	0 0 0	50% 1 10	Evaluation report (mid-term and final evaluation of the project)
Output 2.2: Innovative agricultural technologies are disseminated	# women farmers in intervention areas having access to information through mobile platforms	0	30,000	Evaluation report (mid-term and final evaluation of the project)
Output 2.3: Access to adapted and resilient seeds	# active women farmers living in intervention areas have access to	0	30,000	Evaluation report (mid-term and final evaluation of the project)

	seeds adapted to climate stress % developed areas allotted to women that are equipped with irrigation systems and provided with equipment for production and storage facilities # women farmers with access to inputs subsidized by the Government	0 0	50% 30,000	
Outcome 3: Increasing women farmers' access to financing mechanisms	# women farmers in the intervention areas who had access to funding for the crop season	0	15,000	Evaluation report (mid-term and final evaluation of the project)
Output 3.1: Setting up a line of credit to finance women farmers in the project intervention areas	Implementation of a credit line amounting at least $ 1,500,000 dollars USD # women who benefited from this credit line	0 0	1 15,000	Annual reviews of partnering financial institutions
Output 3.2: Building women's capacity in basic financial literacy	# women farmers trained in basic financial education	0	30,000	
Output 3.3: Promoting agricultural insurance products adapted to women farmers	% women beneficiaries of the support program in target areas who buy crop insurance	0	60%	Evaluation report (mid-term and final evaluation of the project)
Output 4: Access to markets and value-added activities	% women who are members of cooperatives in the project intervention areas % women farmers with access to selling platforms through their cooperatives	0 0	100% 100%	

Output 4.1: Promoting mechanisms for sales agreement contracts to secure more opportunities for women	% of production sold on contract and stemming from the yields produced by women farmers mentored by the program # seed cooperatives created	0 0	50% 50	Evaluation report (mid-term and final evaluation of the project) Partners' semi-annual report on procurement contracts Evaluation report (mid-term and final evaluation of the project)
Output 4.2: Building women's capacity in commercialization techniques, labeling, certification, marketing and packaging	% active women farmers living in the project intervention areas who benefit from training in marketing, packaging and labeling # active women farmers living in intervention areas with access to information through mobile platforms as a selling tool	0 0	100% 30,000	Evaluation report (mid-term and final evaluation of the project) Semi-annual report produced by selling platforms

5. Partnerships and Management Arrangements

Through strategic frameworks which highlight the areas of complementarity, comparative advantage and sharing of the workload and knowledge, UN Women will be strengthening its relations with the Government of Senegal and the technical and financial development partners. Partnerships reflect how the work is divided based on comparative advantages. The table below enlists potential partners at every stage of our interventions.

Stages in the value chain	Key interventions of the program	Partners
Inputs (land, seeds, etc.)	• Supporting land reform for greater access and security of land allocated to women farmers	• **CNRF :** Key partner with which the project will be drafting recommendations on land reform and instigate relevant consultations to ensure that these recommendations are duly taken into account • **Research Centers**: Will be mobilized by the project to perform thematic studies • **FAO :** Technical partner in identifying reform options and initiating advocacy with CNRF • **National Council for Rural Dialogue and Cooperation (CNCR):** Umbrella organization able to effectively contribute to the mobilization of the target (grassroots associations) • **Locally-Elected Officials :** In charge of the local land governance • **Local NGOs and associations:** Advocacy, information and capacity building activities for women on newly introduced rural land management measures and mechanisms
	• Selection and dissemination of seed varieties (rice, market garden crops) resilient to	• **Women Cooperatives:** For the production and dissemination of selected seeds • **ISRA:** Main state research entity, with its different specialized centers, will work with the project in identifying and selecting varieties adapted to target agro-ecological zones.

Stages in the value chain	Key interventions of the program	Partners
	climate change • Irrigation kits with solar pumping systems are provided to selected cooperatives	• **ANACIM :** Partner for the production and dissemination of weather forecast related information • **Fondation Sonatel :** For disseminating information (weather forecasts, market information, technical itineraries) via its mobile platform • **Community radios:** To be used as additional channels for the dissemination of information pertaining to agriculture • **Banks, Decentralized Financial Systems :** For the management of crop input loans granted to women
Production	• Mentoring women and building their capacities on good agricultural practices that are resilient to climate change • Providing loans and production equipment tailored to women's needs, including tillers for rice growing and market garden crops	• **ANCAR :** Body responsible for coaching producers, will be involved in extension activities and training on technical itineraries • **Digital Green :** International NGO, to assist the project with introducing the Digital Green approach as a tool for coaching farmers • **Banks, Decentralized Financial Systems:** For the management of equipment loans

Stages in the value chain	Key interventions of the program	Partners
	• Promoting agricultural insurance with farmers	• **CNAAS** : To Develop insurance policies tailored to farmers • **Fondation Sonatel, Wari** : For setting up a mobile platform to allow the purchasing of agricultural insurance • **ANACIM** : For the provision of weather forecast • **Community radios**: For promotion and raising-awareness activities
Post-Harvest, storage and processing (funding provided through loans)	• Building five warehouses for selected cooperatives (one warehouse per intervention area) • Providing cooperatives with equipment loans, namely post-harvest equipment (harvesters, rice hullers) • Providing selected cooperatives with equipment loans 1) mini mills (rice processing	• **Banks, Decentralized Financial Systems:** For the management of processing equipment loans • **Ministry of Woman, Family and Childhood:** To support capacity building interventions for women on basic education and make available to them National Centers for Assisting and Training Women • **NGOs/Service providers :** Capacity building activities for cooperatives and Village Loans and Savings Associations in intervention areas • **Private service providers:** To be hired through competitive bidding for the procurement and execution of construction work

Stages in the value chain	Key interventions of the program	Partners
	unit into end products) for quality rice production, 2) solar dryers for garden produce and other necessary processing tools	
Commercialization	• Training/building women's capacities in marketing, labeling, identification of market opportunities • Registration of cooperatives on mobile selling platforms • Linking and sealing sales contracts with major buyers/exporters	• **Private companies/Exporters/manufacturers :** Business trading partners to buy produce • **Procurement Regulation Agency (Agence de Régulation des Marchés) :** For the provision of information on market prices and technical support in formulating contractual clauses. ARM can also facilitate women's access to sales and storage facilities. • **IFAD :** For a sharing of experience and technical assistance on contracting mechanisms • **MLouma :** Platform to disseminate market information (supply and demand) and make it available to women farmers • **Food Technology Institute:** Provide technical support to women in mastering hygiene and quality standards • **Cooperative PANALE and private service providers :** For the training of cooperatives on

Stages in the value chain	Key interventions of the program	Partners
		marketing, packaging, labeling (organic products, fair trade) and marketing channels • **Banks, Decentralized Financial Systems:** For the management of commercialization loans • **Ministry of Woman, Family and Childhood:** To support women's capacity building, their basic education and ensure availability of National Centers of Assistance and Training for Women

Project will be managed by a Management Unit headed by a Coordinator. The Project Coordinator will be supported by a team including:

- An expert on land related issues
- An agronomist specialized on climate change related issues
- A monitoring and evaluation officer
- A program assistant
- A financial assistant

A detailed implementation plan will be developed to guide daily management of project activities.

A steering committee of the project will be set up. This Committee will be drawing the broad guidelines of the project and will comprise implementing partners' representatives. Key members of the steering committee will include the following entities:

- OSIWA
- Ministry of Agriculture and its attached subdivisions (ISRA, ANCAR, SODAGRI)
- Ministry of Woman, Family and Childhood
- Ministry of Local Governance
- Development partners involved in the program (WB; ADB ; FAO ; IFAD)
- Fondation Sonatel
- Local NGOs implementing partners
- National Council for Rural Dialogue and Cooperation (CNCR)

- National Commission for Land Reform (CNRF)
- The Private Sector

6. Budget

Detailed budget of the project based on outcomes. It amounts to $6,615,000 USD.

7. Annexes

Annex 1: Theory of Change

Annex 2: List of large buyers/manufacturers with which contractual sales agreements can be negotiated

Companies in the rice sector

Large buyers/manufacturers	Profile	Contact Details
Coumba Nor Thiam	Coumba Nor Thiam Suarl is a company in the agricultural sector involved in rice farming and market gardening. The business exploits 7.000 hectares per year of which 6.400 hectares are allocated to producers in the Senegal Valley.	CNT SUARL Thiagar, à côté de Rosso Senegal Tél : +221 77 159 16 01 contact@cntsuarl.sn www.cntsuarl.sn
Compagnie Agricole de Saint-Louis du Sénégal	Mainly involved in large scale rice production. It operates along the entire value chain, from land development to processing and marketing under its own brand. CASL also participates in the development of family farming, through cultivation contracts and public irrigation	Compagnie Agricole de Saint-Louis du Sénégal SA BP 902 - Pointe Nord de l'Ile - Saint Louis, Senegal Tél. : +221 33 961 09 61

Large buyers/manufacturers	Profile	Contact Details
	schemes, in partnership with rural authorities.	
Vital	Major industrial rice processing unit set up in the Valley in 2009	Lot B1, Route De Ngor, Almadies, Dakar - 38440, Senegal 33 820 10 70 33 820 71 00 33 859 69 99

Companies in the horticulture sector/market garden crops

Large buyers/exporters	Profile	Contact Details
Société d'Exportation des Produits Agricoles et Maraichers	Major exporter of fruit and vegetables in Senegal. SEPAM exports over 3300 tons of cherry tomatoes and green beans per year to Europe.	Awad Gaffari, General Manager Avenue Ousmane Soce Diop Rufisque – Sénégal Téléphone: +221 33 836 0760
Coopérative Panale	Made up of 30 groups from Dakar and its suburbs. Main activities of its members: Processing of grain products, processed fruit and vegetables, etc. With currently over 100,000 members spread across Senegal (in the regions of Saint Louis, Casamance, Tambacounda and Mbour), the cooperative is committed to building the capacities of its members through a network of women trainers who are equally members.	Centre de Tri, Poste Ouakam, Dakar Tél : 33 865 35 09 cooperativepanale@gmail.com www.boutiquepanale.com

Large buyers/exporters	**Profile**	**Contact Details**
Société des Cultures Légumières (SCL) – Saint Louis	Involved in the production and export of fruits and vegetables: sweet corn, squash, sweet potato, green beans, hot pepper and zucchini. SCL contracts with local smallholder farmers to produce sweet potatoes.	Km 2 Route de Diama 33 961 98 59 scl@orange.sn
West Africa Farms	Production and export of vegetables: lettuce, onions, radish	Yamane Nguith, Saint Louis Tél : 77 332 22 59 w.africafarms@yahoo.com
Fruitales	Fruitales is a Senegalese company specialized in the processing of fruits and vegetables, created in 2005 with the following objectives: • Develop local production of fruits and vegetables. • Provide markets to local farmers for their produce. • Finding markets for natural, healthy and authentic products. • Create jobs, especially for women. • Develop techniques and processes for the preservation of local fruits and vegetables, which often rotten and end up	116, Cité Asecna Ouakam Dakar Sénégal Téléphone : (221) 33 860 42 52 Fax: (221) 33 860 42 52

Large buyers/exporters	Profile	Contact Details
	being thrown out if not consumed immediately.	
Ramafrut	Company specialized in exporting fruits and vegetables	Ramafrut. Sénégal Lieudit Cité Malick Sy, Villa Numéro 101 Thiès Senegal
Minam Export	Created in 1999, Miname Export has become one of the Senegalese companies leaders in the production and export of fruit and vegetables.	Pout, Km 55, route nationale 2 BP :23 772 Dakar Ponty +221 33 953 41 70, +221 33 953 40 15 Contact@minameexport.com
Société Africaine Industrielle et Agricole de Sébikotane	Main exported crops • Tomatoes • Green beans • Mangoes	+221 33 836 08 28 +221 33 836 08 29 safina@sentoo.sn
Soleil Vert	Production and export of mangoes, melons and green beans	Km 18, Route de Sangalkam, Gorom 1 Tél. : (221) 33 836 60 43 / 77 644 68 87 Fax : 33 836 60 43
Grands Domaines du Sénégal	Created in 2003 by the Compagnie Fruitière, the company named Grands Domaines du Senegal (GDS) is today a leading exporter of horticultural produce	Ndiawdoune, Saint - Louis Tél : 33 931 50 00 / Fax : 33 820 11 61 gds@gds.sn www.fruitiere.fr

Annex 3: Profile of rice and horticulture/gardening sectors in Senegal

Rice sector in Senegal

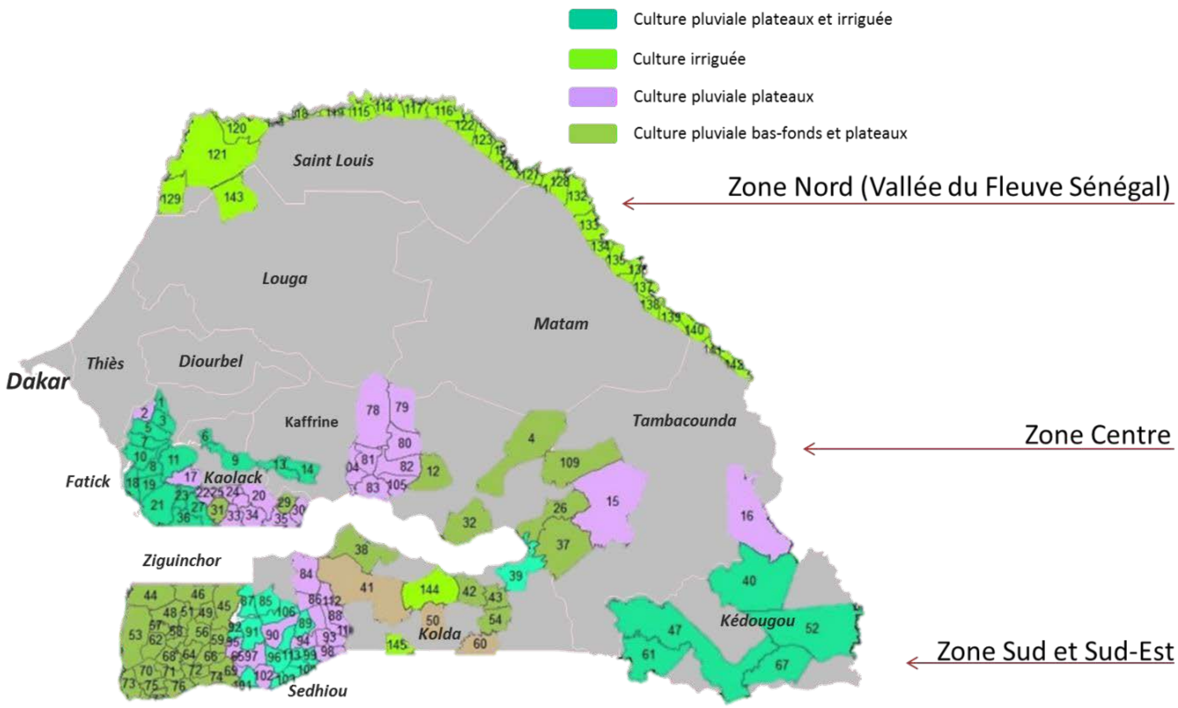
ENVIRONMENT: Excellent natural conditions and numerous production growth opportunities

Rice is a highly strategic commodity for Senegal: exceedingly consumed but also massively imported despite potential for local production. Nevertheless, several opportunities do exist. Senegal has two rice-growing areas with high potential, both in terms of availability of water and arable land

- The Northern area called the Valley and Delta of the Senegal River, where irrigated rice is cultivated since the construction of large dams known as Diama (Senegal) and Manantali (Mali);

- Rain-fed area (South, South East and Centre of the country) is a traditional rice-growing region, focusing on subsistence agriculture and growing irrigated rice in tidal flats and plateaus;

Graph: Administrative regions and rice production areas



(swatch)	Upland, rain-fed and irrigated crops
(swatch)	Irrigated crops
(swatch)	Rain-fed crops grown in the plateaus
(swatch)	Rain fed crops cultivated in low-lying areas and plateaus

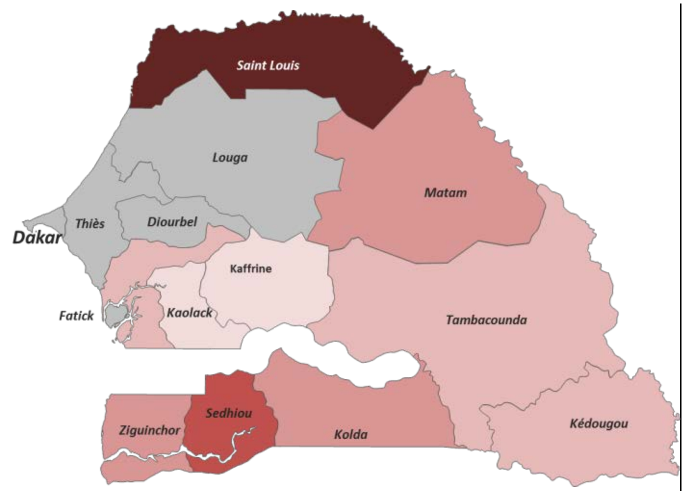
Source : MDG Center WCA 2013

Yields and production are most prominent in the Northern part of the country, supported by the region of Saint-Louis which capitalizes over 50% of arable land (Table 6). Areas producing rain-fed crops are more scattered and offer lower yields, however they represent an important source of supply for food self-sufficiency in these areas (possibility to double yields with the introduction of the NERICA rice variety).

Table: Size of the Areas, Yields, and Production (2014/2015 crop year)

Regions	Size of the Areas (Ha)	Yields (Kg/Ha)	Production (T)	*Production by region*
Dakar	-	-	-	
Diourbel	-	-	-	
Fatick	2 643	2 068	5 467	
Kaolack	950	735	698	
Kolda	9 990	2 021	20 191	

Louga	-	-	-
Saint-Louis	**54 708**	**6 944**	**379 894**
Tamba.	2 128	2 670	5 683
Thies	-	-	-
Ziguinchor	17 800	1 478	26 310
Matam	5 526	**6 500**	35 920
Kaffrine	260	542	141
Kedougou	6 260	2 076	12 995
Sedhiou	**34 710**	2 037	70 721
Total	**100 265**	**4 134**	**558 020**



Source : MA/DAPS (National Agency of Statistics and Demography – May Newsletter 2015)

DEMAND: a high local and sub-regional consumption despite the Senegalese tendency to turn to imported products

With more than 90 kg per year, Senegal has one of the highest rice consumption ratios per capita in Africa. Supported by a strong population growth (2.34% per year), consumption is expected to increase even more than 5% annually in 2016 and 2017, according to the U.S. Department of Agriculture (USDA).

This significant demand prevails throughout the entire sub-region, without any West African country being able to increase its production to the point of generating surpluses for export. West African countries usually import from Asia and Latin America, where, despite lower production costs, transportation charges, customs or storage fees compensate for Asian prices competitiveness (table below).

Table – Price Structure of 04 Types of Rice Imported in January 2015 (FCFA/ton)

	Indian	Non-Aromatic Thai	American	Regular Aromatic Thai
Production Cost + Freight	200 000	207 000	220 000	240 000
Insurance	3 000	3 100	3 300	3 600
Customs Fees	28 014	28 993	30 815	33 616

Handling costs and Miscellaneous fees	13 000	13 000	13 000	13 000
Total Import Costs/Price	244 014	252 093	267 115	290 216

Source: Inventory of the impacts of rice imports on the commercialization of locally produced rice-IPAR 2015

Senegal's main rice supplier is India, followed by Thailand and Brazil.

Table: Rice Imports in Senegal, by Country of Origin (in U.S. Dollars)

Country	2013
Thailand	53 162
India	303 397
China	3 200
Indonesia	1 095
Pakistan	28 000
Vietnam	17 500
Brazil	31 700
Argentina	14 100
Cambodia	1 270

Historic Trends

Thailand, which accounted for up to near 80% of rice imports in the mid-2000s, has seen its market share gradually plummet in favor of Vietnam from 2009; This was before India took over and became Senegal's main partner in this arena since 2012.

Source : ITC trademap

Local rice has a great potential which could enable it to compete and beat the price of imported rice. Senegalese production clusters benefitting from significant yields and economies of scale could most likely compete with Asian and South American imports across much of the continent.

However, for the time being, the Senegalese population still consumes imported rice for the large majority. (90% of local purchases). This advantage borne by foreign brands is nevertheless challenged by the success of local initiatives, focusing on upgrading (such as Rixel and CNT), which suggests that a good number of Senegalese valued products would most probably be able to quickly gain market share.

SUPPLY: local production (long grain) is generally competitive in terms of price, however the 100% broken rice still faces fierce competition from imports

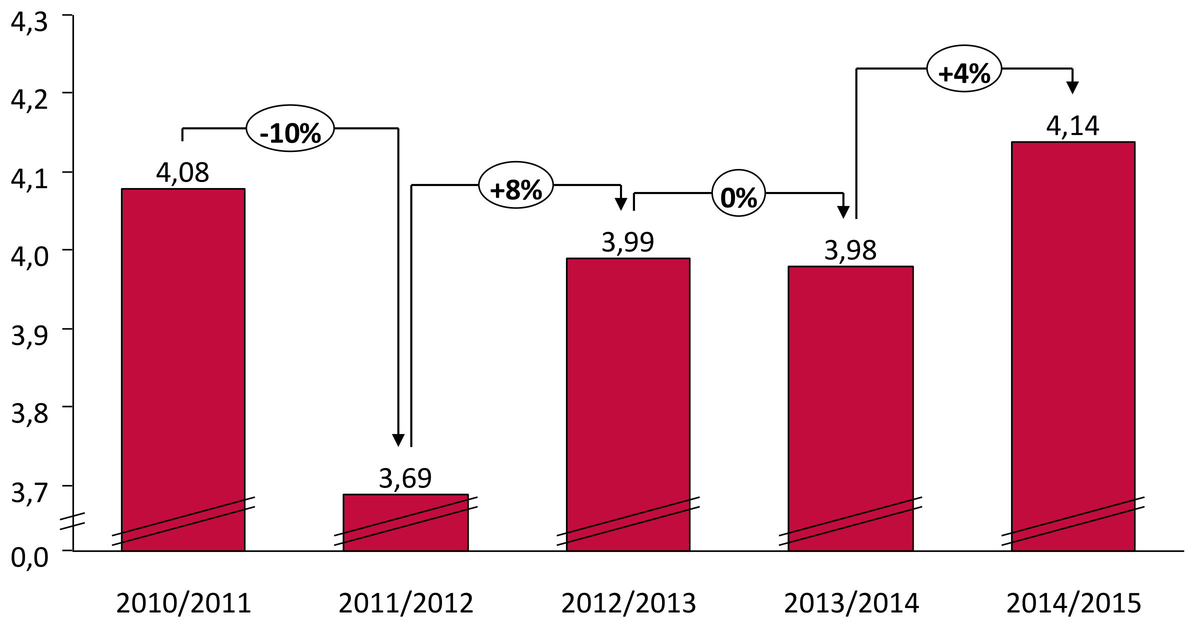
In spite embodying a significant potential market, local production has undergone a rather negligible upswing and is far from meeting the needs of the Senegalese population (table below). Self-sufficiency rate fell sharply to 23% in 2013: Several factors taken as a whole triggered the stagnation of yields since 2010, including: Severe weather, outdated facilities, intrusion of salt water in the lower part of Casamance, increased pre- and post-harvest losses and multiple failures in the value chain. These factors strongly weighed on domestic production, which only increases in a cyclical pattern (graph below). Conversely, imports came to compete with local producers in their very own markets, as they make up for the deficit in local supply.

Table – Value of the Rice Consumed in Senegal, by Origin (in U.S. Dollars)

	2010	2011	2012	2013
Imported	269 000	373 000	461 000	418 000
Local	166 193	110 451	173 102	115 896
Total	435 193	483 451	634 102	533 896
Self-Sufficiency Rate	38%	23%	27%	22%

Source: FAO Statistics and Atlas of Economic Complexity.

Graph 8 : Production of Senegalese Rice Yields



Source : USDA

Even so, the price difference between the two types of products (Table 10) was minimal in 2015, 258 FCFA/Kg for the local paddy rice against 276 FCFA/Kg for the broken and regular imported rice (prices recorded over the first 5 months of 2015). This difference reached 155 FCFA for the broken and aromatic imported rice (Table 10-408 CFA francs per kilo). If competitiveness in terms of selling price somewhat leans in favor of local production in the segment of slightly processed rice, during some years, the balance of power is reversed, as in 2014, when the Indian regular rice was sold at 240 FCFA/Kilo, bringing about significant quantities of unsold rice up in the Senegal River Valley.

However, the large price difference on aromatic rice suggests that an upgrading and improvement of local rice would allow it to become most probably competitive with imports in this segment.

Therefore, improving the quality of the value chain (upgrade and extension of transformation processes) and increasing yields (to maintain or decrease the paddy price per kilo) will allow the local production to gain greater market share, as long as quantities keep increasing significantly.

Table: Average monthly Price (FCFA/Kg) for the local and imported rice by region

Regions	Local paddy rice		Broken aromatic imported rice		Broken regular imported rice	
	Average 2014*	Average 2015*	Average 2014*	Average 2015*	Average 2014*	Average 2015*
Dakar	313	268	426	401	268	255
Diourbel	246	242	450	340	271	277
Fatick	-	-	-	-	268	267
Kaffrine	-	300	439	440	270	285
Kaolack	243	249	443	437	271	271
Kédougou	-	-	459	448	293	294
Kolda	282	307	450	416	285	274
Louga	237	237	380	366	270	269
Matam	290	208	450	380	275	272
Saint-Louis	249	236	450	395	267	273
Tamba.	-	-	451	451	275	275
Thiès	263	268	350	326	263	303
Ziguinchor	-	265	450	500	290	281
Average	**265**	**258 (-2,7%)**	**433**	**408 (-6%)**	**274**	**276 (+0,7%)**

Source: Commission for food safety/National Agency of Statistics and Demography 2015 (ANSD).

* *Average for the first 5 months of the year*

The sector of horticulture/market gardening in Senegal

Irrigated horticulture which is mainly practiced in the dry season, holds an important place in the agriculture and national economy. The horticultural industry has positively evolved in recent years, thanks to the strengthening of productive poles, rising demand and national policies to support the sector.

Senegal has the proper soil and climate conditions favorable to horticulture in several areas of the country; however, horticultural production is primarily concentrated in the coastal Niayes and in the Senegal River Valley.[10]

The supply of horticultural products is highly diverse and there are two main groups classified according to their origin and eco-climatic requirements: vegetables from temperate areas, including cabbage, lettuce, tomatoes, eggplants, beans, melons, carrots, turnip, potatoes, onions, and local vegetables or those from warm/hot areas: local spinach (Ceylon spinach), hot chili, okra, pumpkin, Guinea sorrel (hibiscus), bitter eggplants (jaxatou), sweet potatoes, cassava, etc.

Map: Main Horticulture Production Areas

[10] Support Program to the National Senegalese Investment Program in Agriculture (PAPSEN) – Status of Horticulture in Senegal.

❖ Main Town

Eco-geographical areas

	Southern Forest Area
	Eastern Part of Senegal
	Groundnut Basin
	Niayes Area
	Ferlo Agri-Sylvi-Pastoral Area
	Senegal River Valley

The Niayes Zone extends from Dakar to Saint Louis as it crosses the regions of Thies and Louga. Covering an area of 180 km long with a width varying between 5 to 30 km, the Niayes Area enjoys a microclimate which is the result of favorable factors such as mild temperatures, an accessible groundwater table, high humidity due its proximity to the sea and a steady, fresh and moist wind. These special characteristics render possible the practice of vegetable gardening all throughout the year. Moreover, the area is very close to Dakar, thus readily accessible to major markets.

Nearly 85% [11] of temperate horticultural crops come from the Niayes.

The Senegal River Valley is located in the far northern and eastern parts of Senegal; it lies along the left bank of the Senegal River from St.Louis to Bakel, covering an area of about 44,127 km^2. Upland and floodplain characterize the Valley which can be divided into 3 main areas:

• The Walo: marked by heavy soil and remains the low pressure area of the valley;

• The Delta: has a certain degree of salinity and is characterized by a maritime climate and marine transgressions;

• The Diéri: is traditionally a farming region, hence with limited agricultural practice.

Main Crops
Flagship products are essentially onions (70% of horticultural production), tomatoes and cabbage. However, it must be underlined that productions in this sector are mostly irregular. Indeed, there is no specialization nor planning involved in the production. Farmers/producers select crops based on the success or failure of previous campaigns. High cost of seeds and expected behavior of the markets also represent factors that come into play while determining which crop to grow.

Besides, the lack of consultation among producers regarding crop choices and production quantities equally contributes to the high variability noted from one year to the other. The example of the watermelon which strongly fluctuates is a perfect illustration of the consequences triggered by the absence of a consultative framework for dialogue. Production data are summarized in the table below.

Table: Horticultural Production (2013)

	Production (Kg)	Yields - Kg/Hectare	Harvested Area (Hectare)
Bananas	33.444	23.097	1.448
Cabbage and other brassicaceae	57.510	16.875	3.408

[11] Interview with Sidy Gueye, Administrator of the Federation of the Niayes Vegetable Producers (FPMN).

Pumpkins and squash	28.000	28.000	1.000
Okra	23.711	24.699	960
Dry onions	224.570	28.445	7.895
Watermelons	246.598	23.282	10.592
Sweet potatoes	37.000	24.667	1.500
Sweet and spicy chili	4.402	5.862	751
Potatoes	20.000	20.000	1.000
Fresh tomatoes	189.639	27.064	7.007

Source : FAOSTAT

The production schedule denotes a concentration of horticultural products in the first half of the year (Map 22).

Table: Summary of Horticultural Production Cycles

Fruits/Vegetables	Main Areas	Production	J	F	M	A	M	J	J	A	S	O	N	D
Cherry tomatoes	VFS (Saint-Louis, Lac de Guiers)	***												
Fruits/Vegetables	**Main Areas**	**Production**	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**
	Niayes (Dakar)	**												
Green Beans	VFS (Saint-Louis, Lac de Guiers)	**												
	Niayes (Dakar)	***												
Onions	VFS(Podor)	***												
	Northern part of the Niayes (Potou, Rao, Gandiol)	**												
	Central and Southern parts of the Niayes (Thiès, Dakar)	**												
	Other Regions (Kaolack, Tambacounda, Kolda)	*												

Tomatoes	VFS (Saint-Louis, Podor)	***
	Niayes (Dakar, Thiès)	**
	Groundnut Basin, Casamance (Ziguinchor)	*
Mangoes	Southern part of the Niayes (Dakar)	***
	Southern part of the Niayes (Thiès)	**
	Groundnut Basin (Fatick)	*
	Casamance (Ziguinchor)	**
Melon	DFV (Saint-Louis)	*
	Southern part of the Niayes (Dakar, Pout)	***
	Southern part of the Niayes (Thiès, Mbour)	***
Watermelon	DFV (Saint-Louis)	**
	Groundnut Basin (Fatick, Kaolack, etc.)	***

* Low production area ** High production area *** Main production area

Period of high availability

Period with average availability

Period of limited availability

Source : Fondation Origine Sénégal

Main Actors in the Sector

Farmer Organizations: Farmers/producers are increasingly endeavoring to modernize their industry. Indeed, stakeholders organize themselves into associations, federations, unions, etc. Two major associations in the Niayes region can be mentioned as examples: the Association of Unions of Niayes Market Garden Producers (Association des Unions Maraîchères Niayes - AUMN) - and the Federation of the Niayes Area Market Garden Producers (Fédération des Producteurs Maraîchers de la zone des Niayes - FPMN).

The Association of Unions of Niayes Market Garden Producers (L'Association des Unions Maraîchères des Niayes): This association has 17,000 members, and comprises 17 horticultural and forestry unions, as well as 368 aggregations of grassroots groups. AUMN is a general framework for consultation, cooperation and negotiation between professionals operating in horticulture and agroforestry. The association defends the moral and material interests of its members. Beyond its mission of being a union, a unifying and lobbying structure, AUMN also strives to be a farmer organization. In this regard, it works to improve profitability and efficiency of the horticulture and agro-forestry sectors by supporting farmer entrepreneurship.

The Federation of the Niayes Area Market Garden Producers (La Fédération des Producteurs Maraîchers des Niayes): The federation was created in 1994 with the impetus of horticulture professionals. FPMN includes 2000 producers spread in 49 villages. Each village is represented on the Management Board. The main objectives of the FPMN are to: a) make accessible and available all factors of production to professionals and farm operators; b) transform family and sustainable farming into a reality through the extension and perpetuation of Integrated Production and Pest Management (IPPM) in vegetable crops and other programs; c) establish an efficient commercialization system of quality products; d) promote good governance at all levels of the structure and in its relations with the rest of the world.

State Actors

The Horticulture Department (La Direction de l'Horticulture-DH): The Horticulture Department is the body responsible for the implementation of the National Policy for the Development of Horticultural Products: fruits, vegetables, flowers and decorative plants. In coordination with various similar entities in the horticultural sector, it is involved in the evaluation and monitoring of programs, projects and interventions aimed at boosting the development of crops and promoting the sector. The Horticulture Department is split into several divisions.

It plays a key role in the execution of various infrastructure programs developed for the storage of horticultural products. An implementation of any plan aimed at building storage and warehousing facilities should take into consideration this department.

The Department of Agriculture (DA): The Department of Agriculture is responsible for the implementation of policies and strategies aimed at improving and modernizing the agricultural sector. Among other mandates, the DA is in charge of ensuring diversification of crops, soil improvement, control and supervision (quality of seeds or spot checks). Furthermore, it develops regulations for a successful implementation of policies adopted nationwide. Consequently, it builds and maintains ties with different stakeholders in the agricultural sector as well as national and international organizations.

The Markets' Regulation Agency (L'Agence de Régulation des Marchés - ARM): ARM is the Agricultural Market Police as it represents an actual means of regulating imports, in line with applicable agricultural policies. In addition to being a source of information and data, the agency helps in strategic decision making and in the drafting and evaluation of agricultural and trade policies. Its main tasks are to undertake market monitoring missions, provide support to initiatives seeking to build storage facilities, while also contributing to the improvement of the sector through its workings.

Actors in the Processing and Commercialization Branch

Consultative Committee of the Tomato Processing Sector: This committee was established to manage relationships between manufacturers and tomato growers of the Valley, namely: pricing, conflict resolution and management of programs. It is composed of representatives of producers, manufacturers, SAED and MAH.

Fruit and Vegetable Processors (TRANSFRULEG): Companies and women processors' groups got together to create TRANSFRULEG. TRANSFRULEG, and GIE TCL (economic interest group of local cereal processors) are both members of the PROCELOS Network.

National Organization of Senegalese Exporting Producers (Organisation Nationale des Producteurs Exportateurs du Sénégal - ONAPES) and the Senegalese Entity for Exported Goods and Services (Sénégalaise de Produits d'Exportation et de Services - SEPAS): These two organizations which include exporters of horticultural products in Senegal were created in the 1990s to replace ASEPAS and GEPAS. They bring together all operators intervening in the sector, and work closely with airport technical services, representatives of the Ministries of Air Transportation and Agriculture, as well as Airline Companies. Similarly, these two organizations lead consultations on drafting and organizing schedules, managing quotas and freight costs, besides handling conflicts which may arise between transporters and exporters. They have been actively involved in searching and securing funds for the sector.

DEMAND: Local and international demand provide room for growth in the sector

The production of fruits and vegetables is primarily for selling purposes, and especially geared to supply urban centers whose population growth is the main driver of development of horticulture. Indeed, after putting aside a part of their produce for their own consumption, producers bring their crops for sale in urban and semi-urban areas. Hence, the whole trading system is organized to ensure that a sufficient supply is actually available to a more reliable and financially sound demand: farmers markets to supply urban wholesale markets and all links in the distribution channel, retail markets, self-service stores, neighborhood shops and street stalls. Thus, the urban consumer has an easier access to these products through convenience stores, for which a fragmentation of the supply, product presentation and forms of sale remain undeniable assets.

The Market and Local Consumption

The local market includes several actors, from stall retailers and going way back to the farmer's field. The normal functioning of the market starts with merchant collectors responsible for harvest management who first supply market commission agents, who in turn serve vendors. Occasionally, the producer may be in direct contact with customers and in this case, the usual operation does no longer take place. Merchants are crucial actors for the development of the sector, as they ensure an ongoing activity and guide production, etc. According to the report on supply/demand, diversity/alternative means, payments for sales are either time bound or done in cash. Quite often, sales are motivated by the need for the producer to immediately recover his money in order to meet his daily commitments.

In terms of consumption, previous studies show a fruit and vegetable consumption of 21.58 kg per household, representing in value 18, 20% of food expenditures[12]. For comparison, France has an annual per capita consumption of 172 kg (99 kg of vegetables and 73 kg of fruits), while the world average is about 50 Kg, and a quarter of the world's population consumes more than 100 Kg of fruits and vegetables all combined.

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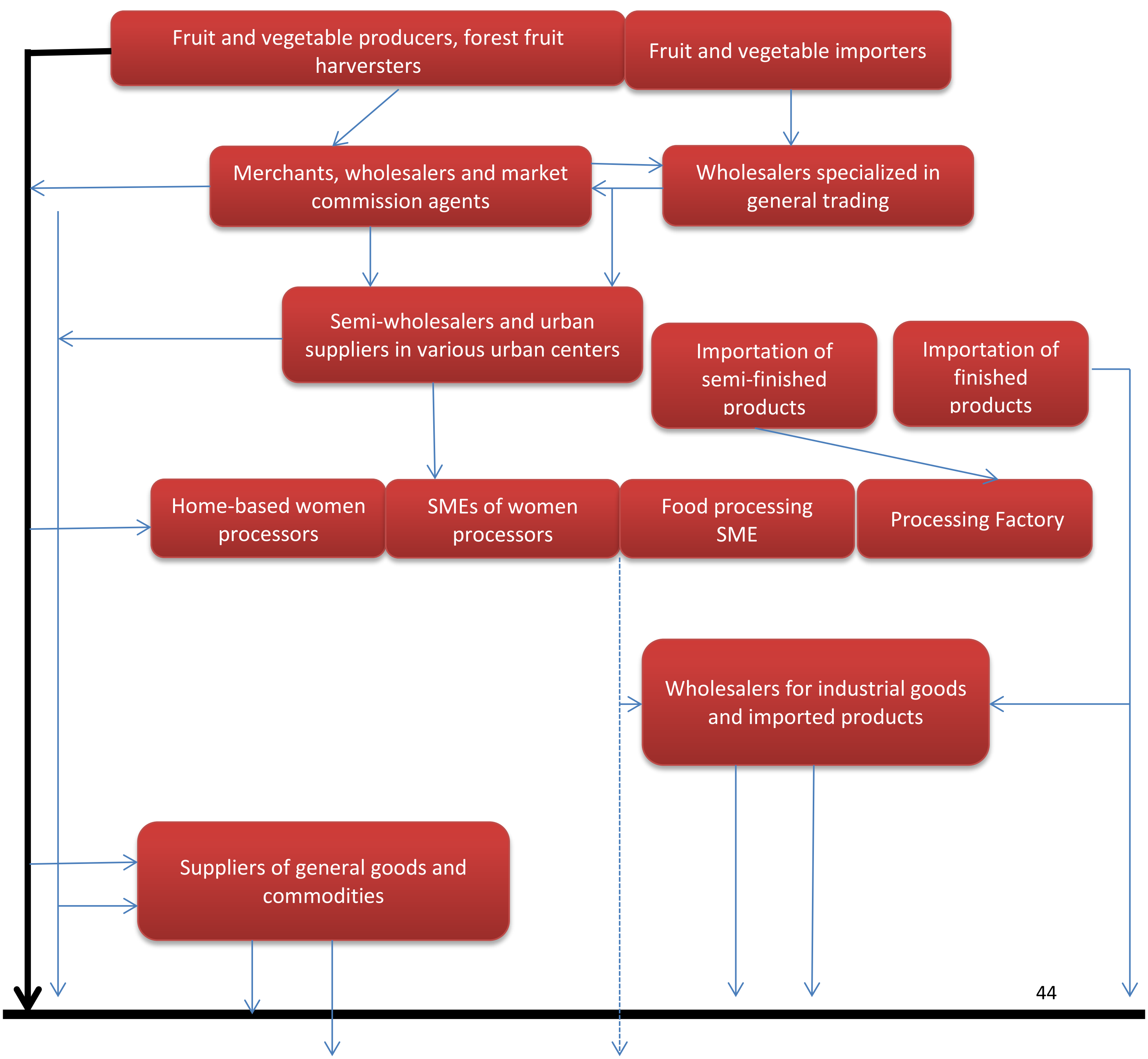
[12] Current state of the fruit and vegetables sector in Senegal - 2006

Graph: Distribution Network in the Local Market



Consumers: Households, hotel and restaurant customers, guests of family and religious ceremonies, company clients and staff…

The Export Market

Despite high potential, opportunities on international markets remain under-utilized. Only 2 to 3 percent of the domestic cherry tomatoes and mangoes were exported to Europe [13] in 2006. However, positive developments have been noted in recent years. Exports of Senegal's horticultural products increased from 9,925 tons in 2000 to over 65,000 tons in 2014, an average annual growth of 17 %[14].

For the vast majority of the production intended for export, exporters sign agreements with producers (tacit contracts). It may also happen that non-exporting producers provide producers with seeds against the promise of delivering the crop. For better organization of operations, area managers are responsible for ensuring the proper conduct of agricultural campaigns on behalf of exporters. After the packaging and wrapping operations, the product is shipped either by air or vessel to the European partner importer who sells it with a sales commission. 19, 274T (including 5,000T of green beans, 5000T of tomatoes and 4900T of mangoes) were exported in 2004 with all destinations considered[15]). Almost 95%[16] of these horticultural products were shipped by sea (ocean freight) with main exports being: green beans, melons, tomatoes and mangoes. There is competition on the European Market with products coming from Mali, Burkina Faso, Kenya, Israel and Egypt. Significant quantities of goods and commodities are traded with the sub region on an informal basis.

[13] FAO.

[14] Forecasts and Statistics Analysis (DAPS).

[15] Forecasts and Statistics Analysis (DAPS).

[16] Interview with Nicolas Venn, General Administrator of Fondation Origine Sénégal. [11] FAOSTAT.