A situation analysis of opportunities and constraints for Orange-fleshed sweetpotato promotion and investment in Mozambique

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REACHING AGENTS OF CHANGE PROJECT (RAC)

RAC

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Contents

ACRONIYMS

AGRA	Alliance for Green Revolution in Africa
ESANII	National Food Security and Nutrition Strategy II
BOM	Opportunity Bank of Mozambique
CIDA	Canadian International Development Agency
CIP	International Potato Center
CEPAGRI	Agricultural Promotion Ceneter
CLUSA	Cooperative League of the USA
FAO	United Nations Fund for Agriculture
GoM	Government of the Republic of Mozambique
GIZ	German Technical Cooperation
HKI	Helen Keller International
IFC	International Finance Corporation
IIAM	National Agronomic Research Institute
IKURU	Northern Farmers Owned Cooperative
IPEME	Promotion Institute of Small and Medium Enterprises
IFPRI	International Food Policy Research Institute
MIC	Ministry of Industry and Commerce
MINAG	Ministry of Agriculture
MoH	Ministry of Health
MOU	Memorandum of Understanding
OFSP	Orange-Fleshed Sweet Potato
PAMRDC	Multi-sectoral Plan to Reduce Chronic Undernutrition
PARPAII	Five Years Plan for Poverty Reduction II
PEDSA	Strategic Plan for Development of Agricultural Sector
SADC	Southern Africa Development Commission
SARNNET	Southern Africa Root Crop Research Network
UEM	Eduardo Mondlane University
UNAC	National Farmer Union
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
UNFPA	United Nations Fund for Population Activities
VITAA	Vitamin A for Africa
WFSP	White-Fleshed Sweet Potato
CAADP	Comprehensive African Agricultural Development Plan
ROSA	Nation Network Organizations of for Food Sovereignty
ANSA	National Association for Food Security and Nutrition

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II. EXECUTIVE SUMMARY

The Reaching Agents of Change (RAC) is a regional project covering Mozambique, Tanzania, Nigeria, Ghana and Burkina Fasso. The project is designed to generate new investments by governments, donors and NGOs to scale up the adoption of Orange Fleshed Sweet Potato (OFSP) in the target countries and to build the capacity of implementing agencies to design and implement technically strong and cost-effective interventions that drive uptake of OFSP to reduce Vitamin A deficiency (VAD).

This report was prepared by HKI and CIP members of the RAC team as part of the preparatory assessment for the design of a National Advocacy Strategy on OFSP. The exercise aims at reviewing the agricultural and health policy landscapes, institutional set up, existing gaps and constraints and funding opportunities in order to create a path for an effective advocacy strategy to mobilize resources for new investments on OFSP.

Micronutrient malnutrition is widely recognized as a global public health problem, particularly in sub-Saharan Africa. In Mozambique, Vitamin A Deficiency rate is estimated at 66% in pre-school children and accounts for 163.000 deaths in children under five (ESANII). The VAD is associated with increased morbidity and mortality, ocular disorder such as night blindness, xerophthalmia and blindness affecting infants, children and women during pregnancy and lactation.

Given this, the Ministry of Health developed a strategy to fight micronutrients deficiency, which encompasses three different approaches, namely supplementation of certain micronutrients such as Vitamin A and Iron, for the more vulnerable groups, the promotion of food production and diversified diet and the fortification of the more commonly consumed food items, with specific micronutrients.

Biofortification is a new intervention that can help fight micronutrient malnutrition by improving the micronutrient content of staple foods that poor people already eat. It provides, a comparatively inexpensive, cost effective, sustainable, long term means of delivering more micronutrients to the poor (Bouis et al. 2010). Interventions using the biofortification strategy through OFSP to reduce the high rates on the VAD were firstly introduced in 2000 when the southern region of Mozambique was severally affected by floods.

Most recently, results from a study on Reaching End Users (REU) Project impact in Zambezia province, indicated that OFSP intake, total Vitamin A intake, and serum retinol concentrations were

significantly increased among children less than five years of age in the intervention communities compared to controls (Low et al. 207). The proceeding information provides great confidence that attaining reasonable levels of provitamin A caretenoids in OFSP will indeed result in a measurable impact on vitamin A status among vulnerable population (REU 2010). Additionally, Seventy percent of REU project households adopted the OFSP (compared to 9 percent of in the control group) and the share of sweet potato cultivated area devoted to OFSP increased from 9 percent to 56 percent in the project targeted area.

As part of the strategy to ensure household food security, women grow mostly the white-fleshed sweet potato varieties (WFSVs), primary for households' consumption but also to generate cash income. Recognizing the potential to reduce the VAD, the Ministry of Agriculture and Rural Development (MADER) launched a program in 2000 to multiply and distribute planting material of Orange Fleshed Sweet Vines OFSVs to smallholders throughout the country. It is anticipated that widespread adoption by farmers of these improved varieties will have a major impact on reducing VAD.

Breeding and agronomic research on OFSP culminated with the release in 2011 of new OFSP varieties which are currently being produced in Mozambique. The new varieties are Virus resistant, drought tolerant and have a higher yielding compared to the old varieties that were produced**.**

This report assesses the policy and legal framework and identifies key actors in agriculture and nutrition whose work has impacted the last two decades of nutrition agenda setting and policy formulation in country. Through further actions, these actors will be engaged to help deliver the national advocacy strategy and assist Government and other partners to adopt OFSP as an entry point in the fulfillment of the national agenda to reduce chronic malnutrition, and especially VAD.

Currently, there is recognizable Government interest in integrating nutritional concerns into the agricultural research and extension services, as shown in the current policy framework. The National Food Security and Nutrition strategy (ESAN II), the Multi-sectoral Action plan to Reduce Chronic Undernutrition (PAMRDC) and the Comprehensive African Agricultural Development Plan (CAADP) represent the Government's willingness to address malnutrition using a food-based approach. The integration of nutrition into health and agricultural policies has resulted from long term advocacy involving development partners and civil society organizations.

Although there is political commitment to address food insecurity and nutrition, much of the advocacy effort on OFSP has been concentrated on the agronomic aspects (i.e. vine multiplication and dissemination) and less on the utilization and (nutrition behavior change). This is often cited by the

Government officers and implementing agencies as undermining the long term sustainability of vine conservation by households in the rural areas due to in part the low prestige accorded to sweet potato and ignorance of its potential contribution to the health.

Given the notable political engagement in integrating nutritional concerns into agriculture using OFSP, the main advocacy challenge remains to attain the Government and partners' commitment to allocate financial resources to scale up current investments in breeding and demand creation (marketing and processing). These efforts should be reinforced through a strong nutrition behavior change component using social communication (TV, radio, theatre, print materials, etc.) and training.

Under the public private partnerships (PPPs), the Mozambican Government is in the process of formulating a policy for the enforcement of Corporate Social Responsibility (CSR) for mining and gas companies operating in the country. This emerges as important funding opportunity to promote the dissemination of OFSP as a means to address VAD in areas where these companies operate. Additionally, there is a growing private sector with emerging small and medium enterprises, especially in food processing. They will be targeted and assisted to integrate OFSP in the national emerging markets such as supermarket chains and the food industry.

The Advocacy effort under the RAC project will be integrated into the national public agenda on agriculture and nutrition through the Multi-sectoral Action Plan to Reduce Chronic Undernutrition (PAMRDC) and the National Food Security and Nutrition Strategy (ESANII). Regionally, this integration will happen through the Comprehensive African Agricultural Development Plan (CAADP), Pillar number III, and internationally, through the MDGs 1, 4 and 5.

OFSP promotion initiatives to date show us that it is time to engage and influence key decision-makers to achieve better value for nutrition spending by building on solid evidence of what works and OFSP fully meets this criterion.

III. SITUATION ANALYSIS

1. Background Information

Mozambique, a coastal nation in southern Africa, is one of the world's poorest countries in the world, ranked 172nd out of 182 countries in the 2008/2009 UN Human Development Index. The country spans 748,089 Sq km and extends for 2,500 km along the east coast of Africa. Mozambique shares borders with South Africa, Swaziland, Malawi, Zimbabwe, Zambia and Tanzania. With a climate ranging from tropical to subtropical, Mozambique's terrain largely consists of coastal lowlands with uplands in the central region, high plateaus in the northwest and mountains in the west (CIA – World Fact book,).

The country's eleven provinces are divided into three regions: north, south and central. The capital city, Maputo, is far south with over 1.5 million inhabitants. Mozambique is prone to a wide range of natural hazards such as floods and recurrent drought, and is among those countries most affected by climate change.

Consecutive disasters have affected the country over the past five years increasing the vulnerability of the population living in disaster-prone areas. In addition, many of these areas affected by natural disasters are also where HIV and AIDS are having a major impact on the vulnerability of much of the population (WFP 2001).

Flooding is a regular seasonal phenomenon along the seven major rivers that cross Mozambique, affecting specially the Zambezi River in the central regional of the country. The water management infrastructures for these rivers are limited to four major dams. Probability of floods is at its highest throughout the rainy season (from September to March).

Drought is the most frequent natural disaster and occurs every three to four years. Drought conditions are recurrent in the southern and central regions, and account for a large part of the vulnerability in the country due to its impact on food security and livelihoods.

Almost the entire coastal area of Mozambique is highly vulnerable to **cyclones**. Eleven cyclones reached the coast of Mozambique in the last 10 years. The cyclone season runs from November to April, along with the rainy season and coinciding with the main agriculture season. Most households affected by cyclones lost houses, food reserves, crops and fruit trees, and faced acute food shortages, resulting in increased vulnerability.

According to INE 2011 statistics Mozambique's population is estimated at 23.9 million and is expected to exceed 50% by 2025 (WFP 2010). Currently approximately 3.3% of the population is over 65 years of age, increasing from to 3.1 % in 2003. There are 96 males for every 100 females in the country compared to 93/100 in 2003.

According to UNFPA (2011), Mozambique age structure is established as following: 0-14 years: 45.9%; 15-64 years: 51.1%; 65 years and over: 3% and the Median age**:** total: 16.8 years Male**:** 16.1 years Female**:** 17.4 years. Based on data collected by Trabalho de Inquerito Agricola (TIA) 2002, 2005 and 2008, male headed household are estimated at 74.61% and Female Headed Households at 10.63%[1].

Based on National Statistics data of 2010, around 70% of population are below the poverty line and the Gine co-efficient is 0.41. The unemployment rate is 18.7 (14.7% in male and 21.7% in female).

In the rural areas the main livelihood strategies are basically dominated by livestock as well as crop production for both consumption-in-kind and cash income. The cash earnings component includes items like crop or livestock sales and wages. The in-kind component of income refers to consumption of own farm produce, payments in kind (for example, in food), and exchanges of consumption items that occur between households in rural communities from output sold. (Saith, 1992)

Off-farm employment includes labour payments in kind, such as the harvest share systems and other non-wage labour contracts that remain prevalent in the most of cases.[2]

The education system in Mozambique has been rebuilt after the civil war, and the number of primary schools has expanded considerably. The Primary school net enrolment during 2000-2009 was around 80 percent compared to 82 percent in 2011(UNFPA 2010)

The enrolment rate for secondary education is estimated at 17 percent for males and 15 percent for females. The completion rate, in Mozambique remains low – nearly half of primary school aged children leave school before completing grade five

[1] Gender and Poverty in Mozambique, CMI Brief, October 2010, Volume 9 No 6
http://www.cmi.no/publications/file/3812-gender-and-poverty-in-mozambique.pdf

[2] **Household strategies and rural livelihood diversification**
Frank Ellis, a School of Development Studies, University of East Anglia, Norwich, NR4 7TJ, UK
http://www.tandfonline.com/doi/pdf/10.1080/00220389808422553

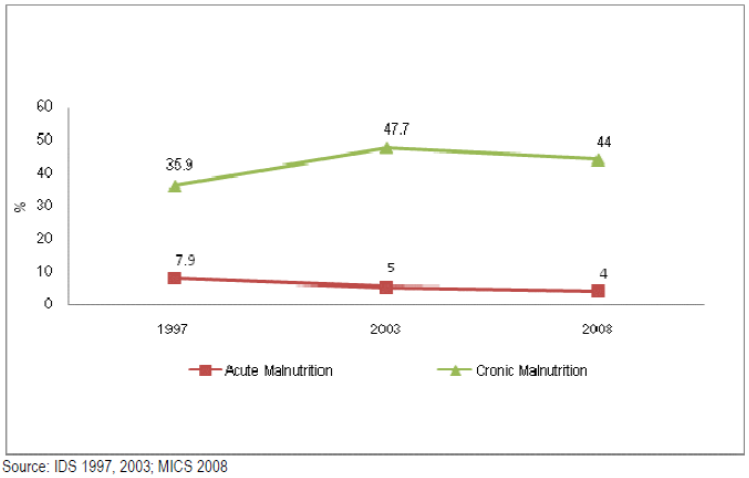
The illiteracy rate decreased between 2005 and 2008, from 51,9% to 48,1%. For women, the rate decreased in the same period from 66,7% to 64,2% . The urban illiteracy rate was in 2008 26,3% and in rural areas of 65,5%.[3]. There has also been progress in reducing gender disparity in primary education, reaching a level of almost parity between boys and girls in most provinces. The reduction of disparity was even greate in secondary education of first level (grades 8 to 10), where the percentage of girls increased from 41% 2004 to 47% in 2011[4] Currently the government is engaged in promoting the expansion of education at all levels with a view to achieve the Millenium Development Goals. Although Primary Education is compulsory for seven years, , most students do not complete the full compulsory period due to still limited access, economic reasons as well as social and cultural reasons.

2. Health and Nutrition

In Mozambique, life overall expectancy at birth is 51.8 years, a significant increase from previous estimate of 41.37 in 2010, being 51.0 years for men and 52.6[5] years for women. The largest single cause of death is malaria. It accounted for 28.8 per cent of deaths - but the HIV/AIDS pandemic is not far behind. HIV infection was blamed for 26.9 per cent of deaths. (INE 2008)

According to the national survey on demographics and health (IDS 2011), the mortality rate in under five is 97 deaths per 1,000 births.

Table 01: Rate of prevalence of acute and chronic malnutrition in underfive in Mozambique 1997-2008



Source: IDS 1997, 2003; MICS 2008

[3] Ministry of Education

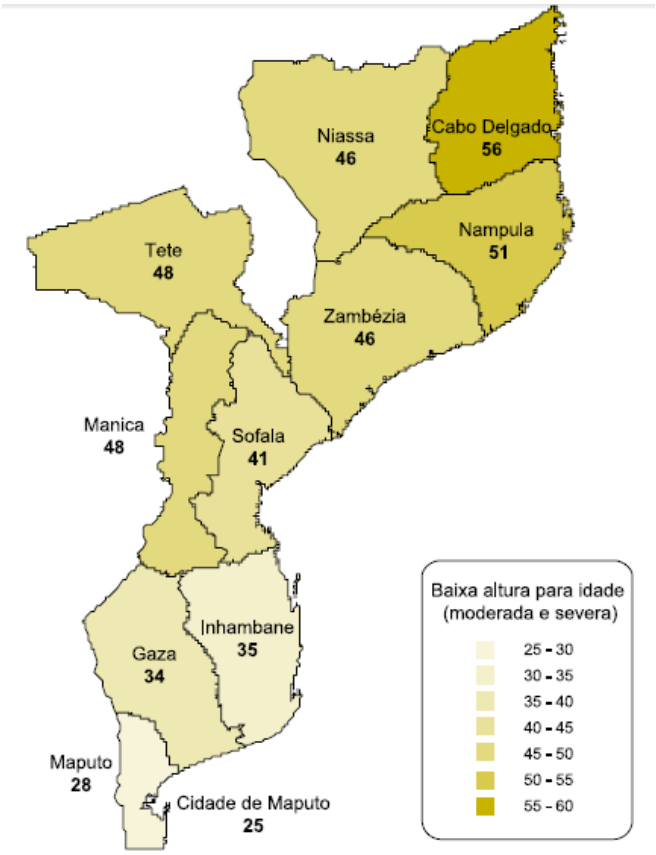
[4] Ministry of Education

[5] www. http://en.worldstat.info/Africa/Mozambique

Chronic malnutrition defines a situation of persistent deprivation of food and is caused by chronic or repeated infection or by inadequate nutritional consumption (SETSAN 2008). A good nutritional status has a positive influence on the children's health status, immunological status and the motor and cognitive development.

Figure No 01: The prevalence of low height for age, 2008/09

(IDS 2008)



In line with the Multiple Indicator Survey (MICS 2008) carried out by National Statistics, there is some improvement in the nutritional status of children under –five years in Mozambique. However, according to the classification given by World Health Organization (WHO) the level of child malnutrition, specially chronic malnutrition (low height-for-age) continue very high, estimated at 44 % in 2008.The breastfeeding rate of children (2005-2009) who are (20-23 months) is at 54 % (UNICEF 2011)[6]. The mean age at weaning is 2 years and weaning foods typically consist of porridge made from maize or millet combined with other local and processed food such as sugar, salt etc.

Inadequate intake of nutrients is a serious problem in Mozambique. A survey conducted in 2002 on malaria, vitamin A deficiency (VAD) and iron deficiency anaemia found that 69% of children under-five suffered from vitamin A deficiency (VAD), 75% were anaemic and 36% had iron deficiency. Prevalence of anemia and vitamin A deficiency among women of reproductive age was reported at 48% and 11%, respectively. It is estimated that 54% of households in Mozambique consume iodized salt (MICS 2008), however, only 25% of households use salt that contains the minimum amount of iodine.

[6] http://www.unicef.org/infobycountry/mozambique_statistics.html

Maternal mortality is estimated at 500.1 deaths per 100.000 live births and from 1992 to 2008, 63 % of women had access to antenatal clinical care. The contraceptive rate is estimated at 16% of women who have access to the health system (MICS 2008)

Table No 02. Malnutrition related courses of death per year

Cause	# of death
Anemy	8.500 women
Vitamin A Deficiency	163.000 Children
Protein-energy malnutrition	208.000 Children

Source: MISAU – Nutrition Department, 2004.

According to Ministry of Health data (MISAU 2011), Mozambique has an HIV infection rate of 11.5% for people aged 15 to 49, an increase from 16.2% in 2005. Unfortunately, these statistics greatly affect children and adolescents as the number of HIV/AIDS orphans continues to increase and children are forced to drop out of school and take care of younger siblings.

Additionally, new data from national aids council (CNCS 2009) reveals that in the southern region of the country, which comprises Maputo, Gaza and Inhambane provinces the rate of infections is higher than the national rate and tendencies show that in short term the figures will rise up to 35 % and 34% in Gaza and Maputo, respectively. This makes children and youth even more vulnerable. The children's educational opportunities will also suffer as a result of this disease as the estimates for 2012 reveal that 17% of school teachers will die from HIV/AIDS.

There are about 700 medical doctors (MDs) in Mozambique, with a ratio of one physician for 30,000 people. The country had between 1994 to 2009 a network of health facilities, comprising 52 Hospitals, 1018 Health Centres and 254 Health Units/Post [7](also known as Postos de Saúde) INE 2009.

[7] Source: Ministry of Health, National Directorate of Planning and Cooperation, http://www.ine.gov.mz/sectorias_dir/saude_dir/IUSSNS04_08/view?searchterm=hospitais

The most problematic drug in the country is alcohol. The number of people treated for alcoholism rose from 896 in 2008 to around 1,100 in 2009. Such figures vastly underestimate the problem, since the majority of alcoholics do not seek medical care. (MISAU 2010[8]).

Table 03 Average percentage on consumption patterns

	Rural				Urban				Mozambique			
Food Category	Indigent	Poor	Non Poor	All	Indigent	Poor	Non poor	All	Indigent	Poor	Non Poor	All
Rice	3.7	3.5	3.6	3.6	4.8	4.7	3.4	4.1	4.1	3.9	3.5	3.8
Maize grain	2.2	2.7	1.6	2.1	0.7	0.6	0.6	0.6	1.8	2.1	1.3	1.6
Other grains	0.7	0.6	0.4	0.5	0.3	0.2	0.1	0.2	0.6	0.5	0.3	0.4
Maize flour	11.0	19.2	24.7	19.6	6.6	11.4	6.6	7.9	9.6	16.9	18.5	15.8
Tuber flour	5.7	8.8	6.1	6.8	1.8	1.7	1.4	1.6	4.5	6.7	4.5	5.1
Bread	0.4	0.5	0.6	0.5	2.9	3.4	2.9	3.1	1.2	1.4	1.4	1.3
Meat	1.0	1.5	2.1	1.6	0.7	1.2	2.2	1.5	0.9	1.4	2.1	1.6
Seafood	3.9	4.8	4.4	4.4	4.7	4.8	4.5	4.7	4.1	4.8	4.4	4.5
Milk and eggs	0.3	0.2	0.3	0.2	0.1	0.2	0.4	0.3	0.2	0.2	0.3	0.3
Oil and fat	0.3	0.5	0.8	0.6	1.5	1.9	1.6	1.7	0.7	09	1.1	0.9
Fruits	7.2	5.0	3.9	5.1	4.8	3.5	2.2	3.2	6.5	4.6	3.3	4.5
Fresh Horticulture +SP	10.5	6.6	4.5	6.6	7.3	5.5	3.4	4.9	9.5	6.3	4.1	6.1
Beans	4.8	4.5	4.1	4.4	2.6	2.5	1.6	2.1	4.1	3.9	3.3	3.6
Tubers	5.7	4.3	2.6	3.9	5.2	3.5	2.7	3.5	5.6	4.1	2.7	3.8
Sugar	0.6	0.6	0.7	0.6	1.4	1.8	1.5	1.6	0.9	1.0	1.0	0.9
Salt	0.4	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.4	0.3	0.2	0.3
Soft drink	0.1	0.0	0.2	0.1	0.2	0.3	0.7	0.5	0.1	0.1	0.3	0.2
Alcoholic drink	0.8	1.0	1.4	1.1	0.4	0.8	1.3	1.0	07	0.9	1.4	1.1
Others	4.5	3.8	4.7	4.4	5.4	4.5	4.3	4.6	4.8	4.0	4.6	4.5
Total Food	**63.9**	**686**	**68.8**	**66.6**	**51.8**	**52.9**	**41**	**47.1**	**60.0**	**63.9**	**58.3**	**60.4**

Source: Households Inquires 2002-03 MINAG

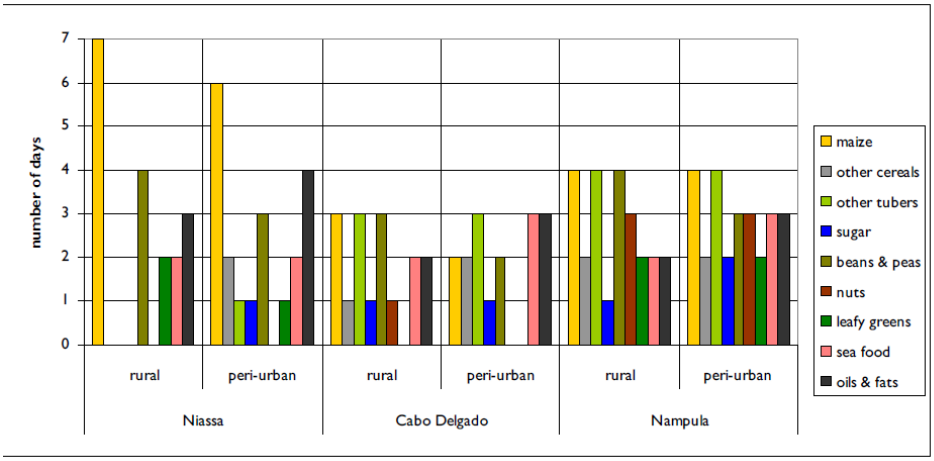
As shown in the table, rural households spend more than 66.6% of their total expenditures on food. Maize flour represents the largest expenditure in terms of consumption, around 19,6%, In terms of horticulture (including sweet potato), the poor are those who spend more in acquiring this staple, 10 % of the total expenses of the poor, 6.6% for poor and 4,5 % for non poor (CHICONELA 2004).

The major traditional staple foods consumed in Mozambique are leafs, roots, tubers, fruits, seeds and mushrooms and wild foods (Korkalo at all 2011). The Northern Provinces are pointed as poor in terms of food habits.

An analysis of **diet composition** shows that in *Niassa province*, rural households are mainly living on daily consumption of maize plus beans/peas 4 days per week and oil/fats only 3 days. They also consume leafy green vegetables and fish/shell fish about 2 days per week. (FAO 2011)

[8] Ministry of Health

Figure No 02: Number of days foods consumed per week in Northern Provinces (Source: WFP 2010)



3. Food Security and Nutrition (FSN)

According to the Multiple Indicators Cluster Survey (MICS 2008) , more than 44% of Mozambique's population suffers from chronic malnutrition and 34% are "food insecure and face perpetual hunger."[9] These conditions are compounded by the high prevalence of HIV/AIDS at 11.5 % of the country's adult population.

The indicator of poverty based on consumption has stagnated at 54 percent since 2003. Some 25 percent of the population suffers from acute food insecurity at some point during the year, with the most food-insecure households being located in the arid and flood-prone areas of the south and centre. A reduction in remittances due to a contraction in the regional economy has compounded the problem.

Chronic malnutrition in children under five remains alarmingly high. The underlying causes are inadequate nutritional intake due to poor diet diversity, low meal frequencies, low exclusive breastfeeding rates, high levels of disease infection and teenage pregnancy. Vitamin A and iron deficiencies in children under five are high, at 69 and 74 percent respectively. (WFP 2008)

A comprehensive understanding on the food security and nutrition in country requires an analysis of each of the FSN pillars:

Food Production and physical availability: According to MIC annual data, there is a deficit estimated at 432,000 tons of grain production and availability of which 286 000 of rice and 279 000 tons of wheat and a modest surplus on maize. After the imports, especially for the central and southern regions of the country, the total availability of food was estimated at 3.135 million tons for a

[9] *World Food Program, Mozambique country overview,* available at: http://www.wfp.org/countries/mozambique.

population of 20,530,714. In comparison to the southern and central regions, the northern region is considered to be food secure, and exports 130,000 tons of maize with a positive balance estimated at 242,000 tons.

Food Access (growing food and/or buying food): Access to food is analyzed taking into account the following indicators: changes in prices, the existence of food stocks at household level, the wholesale and retail level, the means of physical access and transport costs. The main sources of income for the household included in the SETSAN 2011 assessment are: crop selling 35.9%, selling of manufactured products 16.8%, seasonal employment 14.8%, selling of cash crops 11.9%, selling of traditional beverage 10.8% and other source of income, such as begging 3%.

In the northern region, the selling of staple food and the cash crop is very important, which confirm the high yielding per ha of this area and the income from crop marketing is a determinant for the household economy and livelihood strategy.

The major limitation to producing food in Mozambique is related to the extreme dependence on the natural factors, lack of technology and poor supply of agricultural inputs such as quality seed, agro chemistry and others. To face this situation, the Government of Mozambique, with local partners, implements a range of activities to ensure the provision of agricultural basic supplies, such as provision of improved seeds and technical assistance though extension workers.

Use, Utilization and adaptation There is inadequate food utilization, poor hygiene and inadequate care. Local food habits, poor diet variation, gender factors in food distribution in households and weak institutional capacity on nutritional education, are among the major underlying causes for malnutrition

Stability using a linear and standardized comparison, the food reserve from local production in Mozambique lasts on average 5 months. In a large proportion of households in the South, this reserve lasts less than one month in normal years and 4-6 months in abnormal year, where rainfall exceeded the normal condition.

The stability of supply is variable depending on the region of the country (north more stable than the center and the south) and highly dependent on the effects of natural conditions such as floods and droughts. The early warning system, the information system of agricultural markets, regular food security and nutrition monitoring and nutritional surveillance at the local level has allowed the implementation of security measures and a humanitarian assistance.

4. Existing interventions to address VAD and improve nutrition

The interventions targeting VAD that are now in place are:

- Supplementation with Vitamin A for children under five and the food based approach through the promotion and dissemination of the Orange Fleshed Sweet Potato (OFSP) since 2000.

- Nutritional Education for pregnant and lactating women, including on exclusive breastfeeding, complementary feeding, balanced diet, iron folate supplementation and family planning.
- Food and Nutritional Supplementation using the Plumpy Nuts and CSB as Food Supplements, through Nutritional Rehabilitation Program (PRN in Portuguese) of MOH
- National supplementation of vitamin A and deworming for children under five through the twice yearly National Health Weeks, integrated in other initiatives such as School Feeding Program and School Gardening in coordination between the Ministry of Health and the Ministry of Education. The major partners of this intervention include Joint Aid Management (JAM), World Food Program (WFP), World Vision International (WVI), ADRA, Food for the Hungry, and SANA.
- From the agricultural side the effort to address VAD is done through programs to promote the production of agricultural crop with high nutrition value such as OFSP and Moringa.
- From the Industry and Commerce perspective, the Government with technical support from HKI, has launched a food fortification program which will fortify wheat flour and edible oils with micro and macro nutrients.

Mozambique, like many other African countries, has a high prevalence of vitamin A deficiency (VAD), which can erode the immune system and cause blindness. Interventions on OFSP as a food based approach to reduce the high rates on the Vitamin A Deficiency were introduced in 2000 when the southern region of the country was severally affected by floods.

As a way to recover from the natural disaster, the Government, in partnership with NGOs, used the OFSP varieties to respond to the high vulnerability of the population to food insecurity and malnutrition. In the subsequent years, the OFSP was largely disseminated in the central and northern regions of the country through development organization aiming to promote food security and nutrition among the vulnerable communities.

In 2002, Zambezia Province piloted the Towards Sustained Nutrition project to explore whether an integrated agriculture and nutrition intervention could result in improved vitamin A intake among

children under five living in drought-prone areas (Law at all 2007). This project was jointly implemented by Michigan State University (MSU), the National Institute for Agronomic Research (IIAM), and the Southern African Roots Crops Research Network (SARRNET) in partnership the Ministry of Health, Helen Keller International (HKI) and World Vision International (WVI).

From 2006-2009 Harvest Plus-funded a project was implemented in a partnership by World Vision (WVI), Helen Keller International (HKI) and International Center of Potato (CIP) in Zambezia. In two years, this project reached about 14000 households; this was the first time that OFSP had been deployed in such a large scale.

Two reasons were identified for the project success in Zambezia (Harvest Plus): First; OFSP is an excellent candidate for bio-fortification (why) and women traditionally cultivate the WFSP (white fleshed sweet potato). It is affordable and widely consumed in areas of Mozambique where Vitamin A intake is poor. Although the orange-fleshed variety was not traditionally consumed, with successful outreach it is now recognized as a variety with important nutritional advantages.

Table No 05: Key Stakeholders of Orange Fleshed-Sweet Potatoes in Mozambique

Stakeholder	Activities	Presence in Mozambique	Geographic coverage
CIP	Research	Since 2000	Maputo, Gaza, Inhambane, Sofala Manica, Tete and Zambézia
HKI	Nutrition, Behavior Change and Policy	Since 1997	Maputo, Zambézia, Manica, Nampula, Niassa
World Vision	Nutrition Education	Since 1992	Nampula, Zambezia, Inhambane, Gaza and Tete
AFRICARE	Agriculture, Food security, Health and HIV and AIDS, water and sanitation	Since 1984,	Nampula, Zambézia, Sofala and Manica
FH	Aagriculture, marketing, savings groups, community capacity building, nutrition.	since 1987	Cabo Delgado, Niassa and Zambézia
CARE	Emergency, disasters assistance, food distribution and sanitation, food security and nutrition and health and HIV and AIDS prevention	Since 1986	Nampula, Inhambane, Cabo Delgado, and Maputo
UNAC	Farmer social mobilization for development	Since 1987	All country
MSU[10]			
MINAG/IIAM	Research and technology Transference	Since 1975	All country

[10] Michigan State University is running a programmatic and technical support to the Minister of Agriculture and is considered as strong policy advisor on agriculture, trade and rural development in Mozambique

5. Food Security and Agricultural Projects that could be potentially linked to OFSP

The growth of the Mozambican agricultural and nutritional policy environment lays the foundation for different projects and initiatives to establish synergies. Currently the formulation of the CAADP Investment Plan is in process, after the signature of its compact[11] which, through PEDSA, binds the Mozambican government with NEPAD and African Union (AU) in the effort to improve the performance of the African agricultural sector.

In this context, there is a wide range of activities and projects to which OFSP could be added to generate a multiplier effect and address the ultimate goal of contributing to the reduction of child malnutrition and its associated health problems in Mozambique. Some of these initiatives are :

Table No 06 Existing projects on food security/agriculture

Name of project	Focus	Location	Time frame	Implementing institution	Donor
School Feeding Program	Children	Country wide	On going	Ministry of Education	FAO
School Gardening/PEDSA	Children and communities	Country	On going	Ministry of Education	FAO
School Farm Program	Smallholder farmers	Manica Nampula and Maputo	Ongoing	MINAG and NGOs	MINAG
Home Gardening Program (Horticulture)	House holds	Maputo	2009-2013	MINAG/IIAM	FAO
Feed the Future Projects (MYAPS)	Smallholder farmers	Zambézia Nampula and Cabo Delgado	2010-2015	ADRA and World Vision (Zambezia), Food for the Hungry in Cabo Delgado	USAID
PRODEZA II	Smallholder farmers	Zambezia-Mocuba	2010-2015	Austral Cowi	
Rural Development Program (PADR)	Smallholder farmers	Manica and Sofala	2011-2015	Provincial Government	Italian Cooperation
OFDA	Smallholder farmers	Manica Sofala, Inhambane, Gaza and Maputo	2011-2014	CIP	USAID

[11] Important step for the Government investment commitment with the CAADP and NEPAD in agricultural development strategy

AGRIFUTURO	Small and Comercial farmers	Central and Northern provinces	2009-2014	ABT Associates	USAID
Beira Corridor Initiative	Comercial Farmers	Beirra Corridor (Manica Sofala and Tete)	2011-2015	BAGC	Catalitic Fund UK
SANA	Smallholder farmers	Nampula Province	2010-2014	Save the Children, Clusa and Africare (SANA)Nampula	USAID
Cozinha Moçambique	Households	Country wide	Ongoing	MIC and STV	MIC and partners
Escolinha do TICO	Children and Communities	Boane /Maputo	ongoing	TICO Foundation	Real Madrid Foundation

6. Agriculture

Mozambique possesses a total of arable land for agricultural activities estimated at 36 millions of ha, of which only 5 million ha are being utilized for that purpose. From a total of 3.3 million ha of irrigable land only fifty thousand ha are used. The main crops are: maize, rice, beans, ground nuts, sugar, tea, tobacco, cassava, sweet potato, cotton, cashew, millet, citrus and coco nuts.

Although an abundance of land is available for agriculture, crop production is highly dependent on precipitation which is both spatially and temporally variable. Much of Mozambique can be classified as semi-arid, especially extensive areas to the west and south.

Much of the potential for agricultural development in Mozambique lies with its groundwater resources, and over 100 rivers (several of which originate in neighbouring countries). Mozambique also contains many lakes, including a few which are dammed. Part of Lake Malawi, one of the Great Rift Valley lakes of Equatorial Africa, is contained within Mozambique. Since most soils are of limited fertility, especially in the south, alluvial soils derived from riverine floodplains are potentially important for agricultural development, but are also ecologically sensitive.

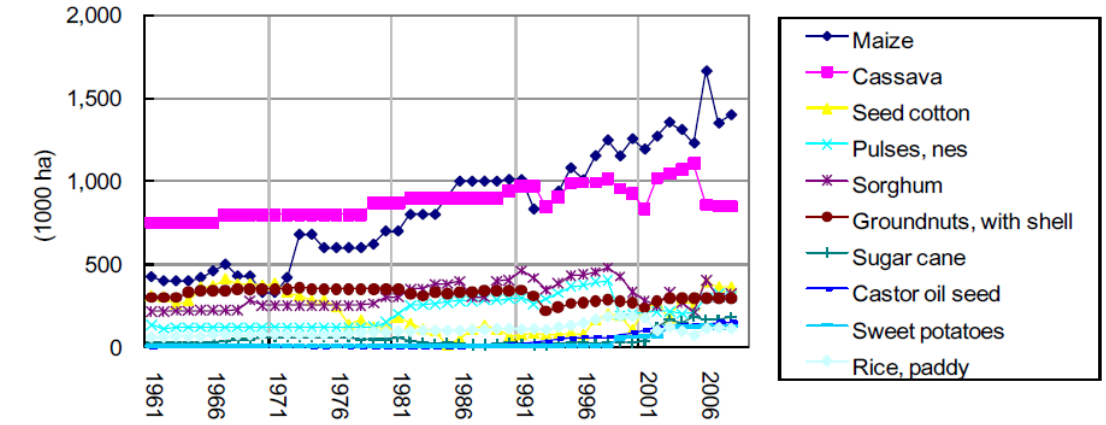
Crop yield is generally low. Except for products from the potato family, all other crops yield less than 1m/t per ha. Potato yields are 10 times higher than grains. The top grain crops in 2008 were: maize 0.64, rice 0.32 and sorghum 0.48. In contrast, the yields for potato products were: cassava 6.09 and sweet potato 12.58. Although the calorie density of potato product is low, the calories it provides to the population per land unit are higher than grains. (PROMAR 2011)

Table No 07 Main Crops and Yields per Ha (2002 and 2008)

	Area Planted (000/ha)		Mean yield (mt/ha)		Production Volume	
Crop	2002	2008	2002	2008	2002	2008
Maize	1,459	1,963	0.76	0.64	1.114.772	1.284.930
Rice	389	311	0.44	0.48	..	..
Millet	50	59	0.24	0.32	..	..
Sorghum	317	384	0.24	0.41	..	..
Cassava	718	954	4.95	6.09	5.924.551	5.038.623
Sweet Potato	97	64	4.72	12.58	455.950	89.436
Peanuts	333	458	0.30	0.21	101.074	94.454
Butter Beans	63	106	0.57	0.43	..	..
Cowpea	227	352	0.24	0.17	..	..
Bambara Groundnuts	88	268	0.25	..	..	..
Boer Beans	64	268	0.50	..	..	..

Less than 6% of the total commercial credits in 2010 were dedicated to agriculture, down from around 10.5% in 2004 (AgCLIR 2010). A limited group of crops (tea, sugar, cashew, sisal, tobacco, coconut and cotton) are the predominant recipients of agricultural credit (67.7%). Since 2004, only sugar and cashew have shown consistent growth in financing. In contrast, credits for tea, coconut, sisal, and, most recently, cotton has decreased.

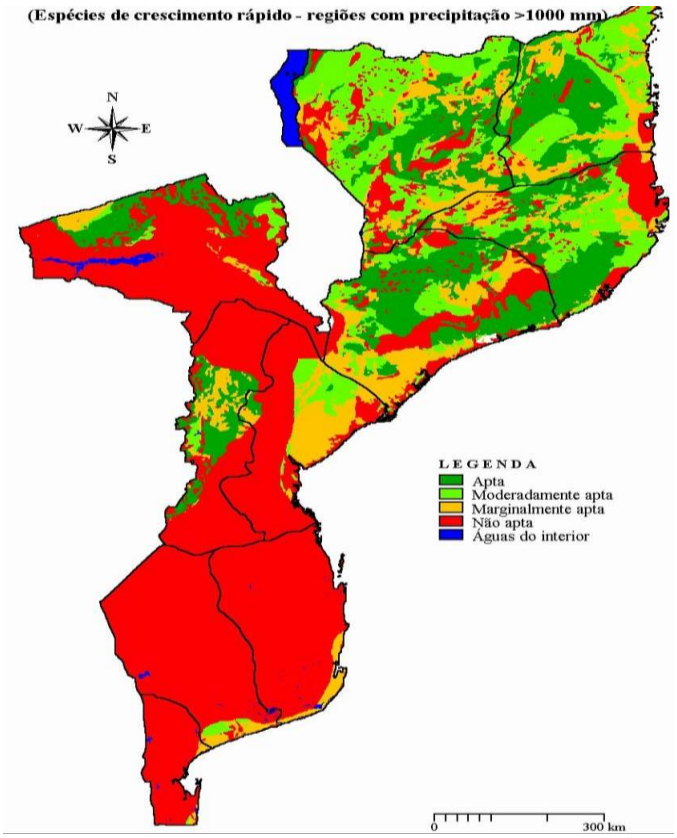
Figure No 03: Trends in land area for main crops (1961-2008)



Source : FAOSTAT

According to 2008 TIA data, sweet potato represents the fourth most important crop in terms of production volumes, which is estimated at 890 000 tons, and ranks as the sixth most important crop in terms of value, which is estimated at USD 89.436 000, mostly in the domestic markets, since there export records are not available.

Fig. No 04: Agro-ecological Zones Map



7. Extension Service

According to the Agricultural Policy (PEDSA) , the extension services can deliver high productivity through the introduction and adoption of new technologies. It also considers that the extension service should be performed by Government, NGOs, community-based organizations, and specialized service providers.

Among many implementation strategies, the policy advocates for maximization of the dissemination of techniques and production technologies by assessing the impact and ensuring the strengthening of the collaboration between the extension services and the research institutions.

To ensure the implementation of the Agricultural Policy, the Ministry of Agriculture drafted the Extension Service Master Plan with an aim to reach the final goal of the Ministry which is to contribute to the improvement of food security and nutrition for the overall economic growth and for poverty reduction. [12](CEMO, 2010)

The Master Plan for Extension Services points as one of the constraints undermining the good performance of the agricultural sector as being the lack of human resources for the extension services. According to the INE[13] 2010 statistics, there are only 701 extension workers in the public system, while the country's actual need is estimated at 1152 (MINAG 2010).

Table No 08: Numerical Development of the Rural Public Extension Network

No	Province	Ideal Number (8+1)				Existing Number		
		N of Districts	Workers	Supervisors	Total	2007	2008	2009
01	Niassa	15	120	15	135	27	32	71
02	C.Delgado	16	128	16	144	70	81	83
03	Nampula	18	144	18	162	96	108	107
04	Zambezia	16	128	16	144	52	55	81
05	Tete	12	96	12	108	37	345	55
06	Manica	9	72	9	81	46	59	63
07	Sofala	12	96	12	108	68	68	65
08	Inhambane	12	96	12	108	42	47	50
09	Gaza	11	88	11	99	38	49	48
10	Maputo P	7	56	7	63	28	33	57
11	Maputo C	------	------	------	-----	21	----	21
	Pais	**128**	**1024**	**128**	**1152**	**504**	**590**	**701**

Source: Finance Inspection Report. 2010

The public extension service does not cover all of the country's needs, and to that extent, NGOs and private service providers play a complementary role. Intervention from these started in 1992 and was recognized in 1998 through the Extension Service Master Plan. An improvement in agricultural performance was expected due to this new scope, but was not fulfilled as the agricultural extension service was not integrated in district level development plans (PDD/PES).

Apart from the poor public extension services and planning, low productivity is endemic because, among other reasons, high-yielding government-certified seed are rarely used; purchase and

[12] *Agricultural Extension Master Plan (2007-2016) is one of the eight components of the National Agricultural Program (PROAGRI) ???*

[13] *National Institute of Statistics*

application of fertilizer is beyond the means of most farmers; the use of energy is unusually inefficient; rainfall is unpredictable and irrigation underused.[14] Additionally the almost inexistent rural infrastructure and the poor market system undermine the efforts at all levels.

8. Gender in Food Production

Mozambique's Constitution defines agriculture as a basis for development. It employs around 90% of the female labor force and 70% of the male labor force in rural areas. Mozambican women often face obstacles when they seek non-traditional employment. Women have historically been responsible for all domestic tasks. In the towns and cities, they are generally confined to the home, whereas in rural areas, they play an important role in the agricultural labor force. [15] (CMI Brief 2010)

The National Gender Policy advocates greater gender equality and gender equity in development interventions and promotes the elevation of the status of women in governing bodies and the level of public administration. Thus, the Government and society in general have performed actions to gradually overcome the imbalances at these levels.

The National Strategic Plan for Gender Equality is an instrument of social inclusion, through which the Government recognizes as the following conditions as essential to stimulate economic development and social development, the recognition of fundamental human rights:

- Equal rights between men and women, promoting equal participation in all spheres of socio-economic development;
- Increased levels of education and training;
- Promoting the right to health, and
- Increased access to basic services (including water and housing).

[14] *Doulas Gollin, "Removing Technology Constraints for Agricultural Development in Mozambique" (presentation at World Bank Seminar on Growth,* supra *note 1, at Section 1) (February 9-11, 2011).*

[15] Read more: Culture of Mozambique - history, people, clothing, traditions, women, beliefs, food, customs, family http://www.everyculture.com/Ma-Ni/Mozambique.html#ixzz1oRMHqNCr

Table 09. Key Gender Development Indicators, Mozambique 2002 and 2007

Indicator	2002		2007	
	Male	Female	Male	Female
Life expectancy at birth (years)	38.4	40.2	42.0	43.6
Adult literacy rate (per cent)	60.1	28.7	54.8	25.0
Combined gross enrolment rate (per cent)	26	19	58.0	48.0
Estimated earned income (USD, PPP)	1,007	705	1.378	1.115
Human Development Index	0.322		0.458	
Human Development Position (of 177)	170		172	
Gender Development Index	0.307		0.373	
Gender Development Position (of 157)	144		150	

Source: UNDP (2002, 2008).

Gender equity is fundamental to the implementation of agricultural and nutrition initiatives. In line with the national food security and nutrition strategy (ESAN II 2007), there is a need to actively involve women in all spheres such as marketing of production, income generation, maintenance of social networks and decision-making. A woman's active intervention can increase both the effectiveness and efficiency and social justice issues in development programs or interventions in food security and nutrition.

As per TIA 2008,[16] there are around 3,4 millions of small and medium agricultural plots of an average of 1.1 ha each per smallholder. From this numbers, 24.1 percent are owned by female headed households. These plots are responsible for 95 % of the total rural production in country and only 5% is covered by commercial farming.

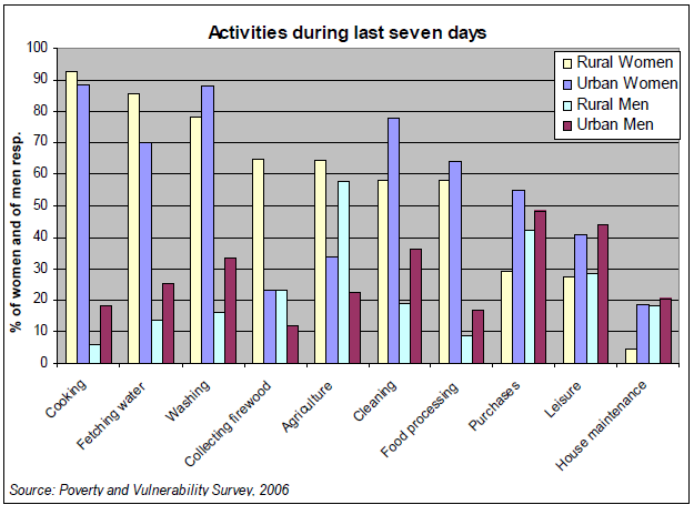
9. Gender Division of Labour for Main Crops

As in most African countries, women in Mozambique play a critical role in agriculture. Several factors unique to Mozambique have influenced the role women play in agriculture namely state sponsored forced male labor during the colonial period to provide labor for large-scale export oriented plantations (sugar, cotton, tea, tobacco, copra) and high male migration to the mining industry in South Africa. Additionally, high mobility of men from agriculture to the wage sector from 1997 onward has resulted in a relatively high number of female headed households (World Bank, 2008).

According to a WFP survey 21% of rural household are women, who play predominant role in agriculture (WFP 2010). This data vary and are strongly influenced by regional cultural and religious factors.

[16] TIA is the Technical Unit specialized group in agricultural inquires, seating at the Ministry of Agriculture

Figure 05: Gender Division of Labour for Main Crops



Source: World Bank (2007).

In the rural areas women are active in the production of staple foods or crops for household consumption, such as maize, millet, sweet potatoes, cassava and vegetables, while men tend to be oriented to cash crops, such as tobacco, sesame seed, and cotton and, more recently, soya beans. Male activities include planting, weeding, harvesting and marketing, (World Bank, 2008). Men make most decisions about production and use of income and are thought to spend around 60 percent of the time on marketing agricultural produce (WALSH 1998).

Table 10 Participation in the Occupied Labor Force by Sector and Gender

Indicator	By Sector		By Gender	
	Men	Women	Men	Women
Agriculture	37.9	62.1	67.5	89.3
Mining	83.7	16.3	0.7	0.1
Manufacturing	90.3	9.7	1.6	0.1
Construction	96.9	3.1	4.7	0.1
Transportation	96.0	4.0	2.3	0.1
Commerce	59.3	40.7	10.0	5.5
Services	65.1	34.9	7.6	3.3
Government	75.3	24.7	5.5	1.5
Rate of participation *	44.6	55.4	78.8	82.0

Source: RoM 2005 * Proportion of employed men and women of total Population of Active Age (PIA) between 15 and 60 years of age

Compared to other countries, women in Mozambique are more likely to have access to land for agricultural production, since all land is owned by the state although traditions still dictate access to some extent (Gawaya, 2008). In addition to constraints such as limited access to technologies and credit, the high incidence of HIV/AIDS in Mozambique limits women's labor input in agriculture and productivity as they bear the responsibility for caring for sick household members.

10. Gender and Sweet Potato (SP)

In most parts of the country, women are the principal SP farmers and are responsible for the main tasks including land preparation, planting, weeding, harvesting, transportation, storage and marketing (CIP). There is little detailed information on gender roles in SP production particularly as concerns knowledge about SP cultivation, vine production and sourcing and control over income from SP sales, although it is assumed that women are more knowledgeable about the crop while men control the income. Little is known about the impact of SP commercialization on gender roles and responsibilities, and a more detailed study is needed to research these issues.

IV. SWEET-POTATO FOR LIVELIHOODS AND FOOD SECURITY

According to TIA data from 2008, the total land area planted in SP and OFSP is estimated at 16.230 ha and with a total production of 102.000 tons. This represents 7% of the total area devoted to roots and tubers crops which is equivalent to approximately 1% (48,000 hectares) of the country's total area cultivated. (MAZUZE 2004)

Table No. 11. Sweet potato annual production (000 tones/year) 2002-2008

	2002	2003	2005	2006	2007	2008
National	**456**	**877**	**699**	**1125**	**860**	**899**
Niassa	35	94	54	57	20	21
Cabo Delgado	12	8	13	9	8	10
Nampula	22	18	29	14	9	13
Zambezia	127	125	162	435	205	211
Tete	136	259	146	309	288	295
Manica	49	101	84	97	178	185
Sofala	23	174	45	120	74	78
Inhambane	6	10	12	4	7	8
Gaza	24	72	112	48	56	59
Maputo	22	16	42	32	15	19

Key

	Estimates by TIA
	Estimates made by TIA 2005 and mean yields of 10t/ha
	Estimates made based in the data from TIA and FAOSTAT 2010

Average annual production of sweet potato for Mozambique for 2002 -2008 is 620 metric tons/yr. The average SP production per capita in Mozambique for the period 2002-2008 is 45.4kg/ person. Table 12 below shows the production per capita for the years 2002 to 2008

Table No 12: Sweet Potato Annual Production per capita 2002-2008

Year	2002	2003	2005	2006	2007	2008
Production(per capita)	36.8	48	36.4	49.4	61.4	40.5

Fonte: TIA e MPD/DNEAP

11. Annual Per Capita Consumption of SP

Since very little of the sweet potato crop of Mozambique is either exported or imported -- most is consumed very close to its site of production -- consumption rates can theoretically be well estimated by production data.

FAO production estimates for 2003 and 2004, of 66,000 tons, would amount to an average per capita consumption rate for 18,863,000 people of approximately 3.5 kilograms, well below the average for humid areas of central and southern Africa. (Estimated average annual per capita sweet potato consumption in Uganda is approximately 100 kilograms.) Nationally, 23% of the population eats sweet potato roots or leaves at least once a week. The table below shows the % of households consuming SP per region in 1997.

Tabele No 13. Percent of Households Consuming Sweet Potato per region in 1997

Potato Roots or Leaves	Province	Rural	Urban
North:	Niassa	18	18
	Cabo Delgado	3	0
	Nampula	7	5
Centre	Zambézia	41	16
	Tete	27	19
	Manica	35	48
	Sofala	47	44
South	Inhambane	3	7
	Gaza	20	45
	Maputo	39	10
	Maputo city	na	12

Source: CIP Report 2008

12. Exported (metric tonnes)

Mozambique neither imports nor export sweet potato. However there are reports of very little informal exports to neighbouring countries by people leaving along the borders with no official figures of exports.

V. SWEET-POTATO FOR FOOD SECURITY

13. Description of production at household level (intercropping, cropping calendar)

Sweet potato is grown in the dry season in areas with a high water table, or as an irrigated crop. It is also grown in the rainy season and at times suffers from short-term droughts that usually occur. At household level the areas planted are usually less than or equal to about 0.1 ha since most is produced for household consumption. The crop is normally grown by women with very limited commitment by men. Thus women can only be engaged in sweet potato production on a part time basis.

14. SP varieties grown, yield, preferred characteristics

In 2011, CIP released new OFSP varieties which are currently being produced in Mozambique. The varieties are resistant to drought and higher yielding compared to the old varieties that were produced in Mozambique**.**

Table No 14: OFSP released varieties

Variety	Status (released/in pipeline) (indicate date of release	Yield	Maturity period	Dry matter content	B-carotene content
Amelia	released	17.1t/ha	5 months	26.75	5mg/100g
Melinda	released	27.09t/ha	5 months	23.56%	5.71mg/100g
Irene	released	19.63t/ha	5 months	28.78%	6.06mg/100g
Bela	released	22.49t/ha	5 months	27.5%	8.39mg/100g
Namanga	released	25.94t/ha	5 months	27%	8.39mg/100g
Gloria	released	14.9t/ha	5 months	33.52%	5.38mg/100g
Tio Joe	released	20.22t/ha	5 months	26.69%	10.32mg/100g
Lourdes	released	18.32t/ha	5 months	25.75%	9.94mg/100g
Ininda	released	22.16t7ha	5 months	29.32%	5.31mg/100g
Cecilia	released	18.83t/ha	5 months	26.75%	6.01mg7100g

Erica	released	19.55t7ha	5 months	25.63%	10.16mg/100g
Delvia	released	23.38t/ha	5 months	32.84%	5.54mg/100g
Sumaia	released	21.58t/ha	5 months	25.25%	7.07 mg7100g
Esther	released	18.6t/ha	5 months	29.61%	4.72mg7100g
Jane	released	17.53t/ha	5 months	29.22%	5.59 mg/100g
Rsisto	released	15.8t/ha	4 months	24%	24900 µg/100g fwb
Lo-323	released	13.6t/ha	5 months	21%	5490 µg/100g fwb
Caromex	released	15.3t/ha	4 months	22.7%	11030 µg/100g fwb
CN1448-49	released	15.7t/ha	5 months	22.7%	4470-4920 µg/100g fwb
Gaba gaba	released	6.5t/ha	5 months	23.9%	11030 µg/100g fwb
Kandee	released	14.5t/ha	5months	25.3%	10030 µg/100g fwb
Japones Tresmesino	released	14.5t/ha	5 months	21.6%	3760-7230 µg/100g fwb
Persistente	released	5t/ha	5 months	37%	11030 µg/100g fwb
Cordner	released	14.9t/ha	5 months	25%	3760-7230 µg/100g fwb
199062.1	released	25t/ha	4 months	24%	3760-7230 µg/100g fwb
Jewel	Released	21.0t/ha	4 months	28%	11030 µg/100g fwb
CN-1424-9	Released	20t/ha	4 months	27%	11030 µg/100g fwb
Tainung	Released	15.0t/ha	4 months	23.0%	3760-7230 µg/100g fwb

15. How SP is consumed/utilized

In general there is very little processing of sweet potato for home consumption, storage, or marketing. It is utilized fresh, boiled, or grilled, and sometimes in the form of sweet potato meal. The extent of

marketing is uncertain. 83% of the producers of SP consume the roots and 97% of the producers consume the leaves.

Sweet potato consumption tends to decline as incomes rise, a change often linked with urbanization, partly because it is perceived as a “poor man’s food” but mostly because of the change in relative prices of root crops compared to grains in urban areas due to transport cost differentials.

Table No 15. Percentage of households producing SP and OFSP in Mozambique 2002-2008

Year	2005	2006	2008
WFSP	15.5	18.1	11.5
OFSP	2.4	4.4	3.4

Source: TIA

16. Gender division of labour, decision making, control of income (SP specific)

In Mozambique, sweet potato has traditionally been a "women's crop". It is a resource over which women have some control.Women control the production and sale of sweet potato and in some areas it serves as a source of timely income which is used to pay for salt, sugar, medicines, and other basic household needs.

17. Major production constraints

Pests and diseases are major constraints for sweet potato production. There are reports of weevil infestation, the most common species being *Cylas formicarius* (Fabricius) and *Cylas puncticollis* Boheman (Apionidae). *Alcidodes dentipes* (Olivier) (Curculionidae) is also reported to affect stems (Barreiros, *et. al*. 1992).

Viral diseases are widespread, affecting mostly local germplasm and at least one variety introduced by the International Institute of Tropical Agriculture (IITA) (Jimenex 1988).

18. Sweet Potato Marketing and Processing

Marketing of SP

SP commercialization significantly increases where access to markets is greater. In the case of OFSP, there is little assured market in most areas. OFSP is rarely seen in the markets, except mixed in with white-fleshed sweet potato (WFSP) heaps.

The ability to produce a surplus which can be commercialized is difficult in drought-prone environments. Areas with high agro-ecological potential and/or areas within 10 km of a major road are more likely to produce SP for sale. Women who live near main roads obviously have better opportunities to sell their produce by the roadside than those who are far from the main roads. Apart from cash marketing, sweet potato plays a large role in less formal food exchanges among households (SARRNET 1997)

Size of the market (estimated – rural/urban)

There is no evidence of international market for SP in Mozambique. The sale of SP is mainly informal markets through cash sales in urban areas.

Painted market stalls, signs on buildings, decorated cloth for women, radio programs, Community Theater, and training traders to market OFSP are among the strategies employed to create awareness of OFSP's nutritional qualities and build demand for purchase. Consumer taste tests in a market has shown a strong preference for golden bread made with boiled and mashed sweet potato (38% of weight of wheat flour) over conventional white bread because of heavier texture, superior taste and attractive golden color. A 110g bun would provide 45% of the Vitamin A requirement for a three year old child. Profits with baking golden bread increased by 54 to 92% because sweet potato has a much lower cost than expensive imported flour (Jane at all 2000).

Major markets and trade routes

Major markets are supermarkets and road sides. The crop is also sold in informal markets throughout the country and formal supermarkets to a very limited extent especially in provinces of Zambézia, Gaza and Maputo where a lot of awareness has been promoted. Some hotels have started offering sweet potato dishes. Very recently, following advocacy by CIP and partners, supermarket chains such as Pick and Pay and Shoprite in Maputo started selling OFSP supplied by local commercial producers.

Processing of SP (types of products)

At a very small scale the crop is processed into bread, juices, jam and chips. There are still lots of gaps in the processing of SP. CIP is providing some training in agro processing of SP to some organizations but this is still on a small scale. Sensitisation of agro processing of SP is also done during special events. OFSP has also been used for making niche products including juice and sweet

potato crisps. OFSP juice requires the addition of citric acid, and is readily accepted by consumers and a snack shop sells it on a commercial basis.

Opportunities for increased utilization of SP

There are many opportunities that exist in the utilisation of SP. It can be processed into chips jam, bread and buns at a larger scale to ensure increased vitamin A intake among the children of 0-5 years. There is also an opportunity for commercial production for both the domestic and international markets.

19. Sweet Potato Agronomy and Breeding

The research on sweet potato in Mozambique is being conducted by the International Centre for Potato (CIP) under the auspices of the National Agronomic Research Institute/ Ministry of Agriculture. The main diseases reported by IIAM and CIP on the OFSP cultivar are:

Viral diseases;

- Sweet potato feathery mottle virus,
- Sweet potato chronic stunt viruses
- Sweet potato mild mottle virus.

Bacterial diseases

- Bacterial soft rot caused *by Erwinia Chrysanthem*
- Altenaria

Fungal disease

Soft root caused by *Rhyzopus stolonifer* fungus**.** This normally attacks sweet potatoes after harvest during storage. It occurs when the roots are stored under humid conditions and produces a strong alcohol type of odor.

Sweet Potato Pests

The weevils attack the crop especially during the dry season. Both the larval and the adult stages are the most destructive in the life cycle of the pest. The pest mainly affects the roots and the vines to a lesser extent.

The most important nematode species attacking sweet potatoes in Mozambique are the meloidogyne incognita which occur in areas where sweet potato is well adapted to cultivation. Nematodes attack the roots. Aphids are also important sucking pests that can destroy large areas. In addition they transmit sweet potato virus diseases.

20. OFSP multiplication efforts

Multiplication- The level of multiplication of sweet potato vines remains challenging due to limited institutional capacity by government and limited involvement of NGOs in OFSP activities.

1. Massive multiplication- in this system CIP uses private or commercial producers and schools. The area planted is more than 1 ha. Conventional multiplication system is used by these producers. Multiplication is also done in partnership with the SDAE (public extension system). SDAE does both conventional and rapid multiplication. In conventional multiplication they produce in an area of at least 0.5ha and in rapid multiplication they produce in an area of 300- 600 square metres.
2. Decentralised Vine Multipliers (DVM) - these produce over an area of up to 2000 square metres. The objective is to benefit at least 100 families surrounding each DVM. The first phase is semi commercial in which beneficiaries use the voucher system to buy the vines from the DVM.

Current multiplication systems are rapid multiplication and conventional multiplication:

Rapid multiplication –the technique for rapid multiplication requires a lot of labor and a lot of material for a relatively small area. This is more difficult in areas with long dry seasons without water sources. However with this technique it's possible to have a lot of material within a short time**.**

Conventional multiplication- this can either be focused for vine multiplication only or for the production of both vines and sweet potato roots.

Throughout the years, CIP in partnership with the National Institute of Agronomic Research has worked on breeding of OFSP material to develop new varieties that are drought and disease resistant as well as have a short growing cycle. This research process led to the release of 15 new OFSP varieties with the characteristics indicated above. Further research is currently being undertaken to improve the seed quality for high yield. Research support to OFSP is done through the following institutions:

1. Umbeluzi research station- Maputo

2. Chokwe research station - Gaza

3. Maniquiniqui research station-Gaza

4. Sussundenga research station - Manica

5. Gurue research station -Zambezia

6. Tinha research station - Angonia- Tete Province

The current OFSP research program coordinated by CIP under the National Institute for Agronomic Research (IIAM1) is financially funded by USAID, Rockefeller Foundation, Harvest Plus and AGRA. Around a 1 million farmers have benefited from OFSP quality material vines since dissemination started in 2000. The dissemination process is primarily done through the public extension system, NGOs and the DVMs.

VI. THE POTENTIAL FOR OFSP

21. Argument for investing in OFSP

The very high OFSP adoption rates and increases in vitamin A intakes among young children and women of reproductive age, combined with the lessons learned about scaling-up cost-effectively means that the time is ripe to invest in massive programs that will truly make the benefits of OFSP available to millions of Africans at risk of vitamin A deficiency (VAD) and hunger.

In Mozambique the adequate intake of OFSP, a rich source of Vitamin A, would help reduce the 163,000 deaths per year among children under five due to VAD. OFSP adoption by rural caregivers empowers them to address one of the major underlying causes of VAD. OFSP also is a good source of energy and many other vitamins and minerals, as well as a potential source of cash income. In summary, OFSP is an excellent complement to the two other major strategies for addressing VAD, supplementation and industrial food fortification.

In the fulfilment of these national strategies, PAMRDC and ESAN II, apart from Vitamin A supplementation for children and food fortification, the promotion of orange-fleshed sweet potato (OFSP) will contribute significantly to the reduction of VAD in a sustainable, cost effective manner.

As a food-based approach, OFSP offers the opportunity to link agriculture and nutrition programs at the community level, as a unique crop in the country being massively disseminated by Government and partners. OFSP promotion efforts have been the largest and most studied in Mozambique, where currently approximately 300,000 households grow OFSP. Several new, more drought tolerant varieties are now available and will enable the sustained adoption of OFSP in drier areas of the country and during recovery efforts following natural disasters such as floods.

22. OFSP Promotion efforts

OFSP promotion activities can be characterized as being occasional, dependent on availability of funds, and not implemented in a systematic and integrated manner. In most cases, promotion campaigns led by implementing NGOs and community-based organizations are not done on a regular basis. A brief field assessment conducted of previous promotion initiatives has observed that results of the promotion are strictly linked to the existence and operations of a project. Once the project is over, the demand and supply linkages start to weaken.

The effort to promote OFSP as an entry point for reducing VAD has received the political attention from government and agencies operating in the country. This has enabled different promotion initiatives to be implemented in different directions. In most cases promotion initiatives are not aligned into a holistic and comprehensive strategy that involves all the stakeholders in order to ensure the sustainability. The challenges which undermined the sustainability of the OFSP promotion activities to date are:

- Within the policy framework, there is no specific policy in the country advocating for a food-based approach that could lead to the integral understanding of the bio-fortification;
- Short-term projects involved in OFSP promotion activities,
- Poor involvement of local leaders in the promotion events to champion the messages regarding OFSP production and utilization
- District Services of Economic Activities (SDAE) are often not involved in the drafting and delivering of key promotion messages;
- There is an excessive dissemination of the agronomic aspects of the OFSP and less on nutritional information (behavior change) which results in lack of ownership and conservation of OFSP material;
- Lack of outsourcing and involvement of private sector (vine multiplier and inputs supplier) in the promotion activities;

- Absence of a comprehensive national advocacy strategy that leads to promotional activities with clear roles for different partners including the Government through the Rural Extension Services.
- Degeneration of the materials as result of poor technical support.

Message dissemination has been done using mass media such as TV and community radio, local newspapers and local drama/theater. According to CIP the most frequently used tools for awareness building to generate demand for OFSP has been:

- Promotion through Theater Groups: In Zambezia Province this communication model was used to disseminate the messages on nutrition and OFSP. These groups are indentified locally and trained on basic nutrition concepts in order to perform using local language to ensure understanding.
- Community Radio for SP promotional spots;
- Rural Kiosks to sell exclusively OFSP. These Kiosks were built fully branded with the orange color reinforced by cartoons and nutrition messages to help create awareness on OFSP. The kiosks normally were built near the main roads in the rural communities to facilitate access to markets.
- Promotion material including T-shirts and orange-colored "capulanas"[17] with informative messages that were distributed among the extension workers, the Decentralized Vine Multipliers, community leaders and other local champions, while performing specific activities in the field.,
- Exhibits on OFSP during special events such as the opening of the agricultural season or the celebration of the World Food Day and the International Trade Fair.

VII. NATIONAL FOOD AND NUTRITION POLICIES LANDSCAPE

In 1995 the Council of Ministers approved the Agricultural Policy through the resolution No 11/95 of October and its respective implementation strategies. This document represents the most important tool to guide the actions to be undertaken in the agricultural sector. From this Policy and its respective implementation strategies a wide range of nominative policies and strategies in the agriculture were drafted and then implemented.

[17] Capulana – cloth commonly used by women, normally around the waist

Mozambique became a signatory of the Rome Declaration on World Food Security held in 1996, where 180 nations met at FAO headquarters for the World Food Summit (WFS)[18] to discuss ways to end hunger. Nations pledged to eradicate hunger and committed themselves to a basic target: reducing the number of undernourished people by half by 2015.

Nations met again in 2002 to check on progress during the World Food Summit: five years later. At that time, FAO published technical background papers setting out the ways in which the WFS target could be translated into feasible programmes and projects.

Throughout the years, in light of the Agricultural Policy, Rome Declaration and lately the World Food Summit Plan of Action and UN's MDG Goals, the Government of Mozambique and partners have been working at the policy level to address food insecurity and malnutrition through different sectoral plans and strategies.

The key sectoral tools on agriculture and health developed during the last two decades which influence the national policy landscape and interventions on food and nutrition are:

1. Agricultural Policy and Implementation Strategy (PAE I)
2. Agricultural Program (PROAGRI)
3. Educational Strategy
4. Health Policy
5. Gender Policy and Implementation Strategy (PGEI)
6. National Nutrition Development Strategy
7. Agricultural Trade Strategy (ECA)
8. Green Revolution Strategy
9. Rural Development Strategy (EDR)
10. Natural Disaster Mitigation Master Plan
11. National Adaptation Program for Action (NAPA)
12. National Plan for Poverty Reduction (PARPA) II and III
13. Land Law
14. Rural Extension Master Plan
15. Comprehensive African Agricultural Development Program (CAADP)
16. Strategic Plan for Agricultural Sector Development (PEDSA)
17. Multi-sectoral Plan to reduce Chronic Undernutrition (PAMRDC)
18. National Food Security and Nutrition Strategy (ESAN II)

[18] World leaders convened at FAO Headquarters for the World Summit on Food Security unanimously adopted a declaration pledging renewed commitment to eradicate hunger from the face of the earth sustainably and at the earliest date, in 1996

19. Social and Economic Plans (PES)
20. The UN Development Assistance Framework (UNDAF)

The Government food security and nutrition policy (ESAN II) is delivered through the implementation of the social and economic development plans (PES), and of the Poverty Reduction Plans which can be grouped into:

23. The Agricultural Policy:

The Government of Mozambique has become aware of the need for holistic interventions in food and the nutrition. This has been expressed in several recent policies and strategies. This and others actions are setting a high level nutrition agenda for the country paving a way for civil society intervention and different public private partnerships for investment in nutrition. The emergence of the massive investment in natural resources and the impact on the rural population may also lead to the reformulation of strategies to ensure the basic nutrition of the population (e g. Human Rights for Adequate Food by SETSAN/FAO).

Apart from this, multinational companies involved in the mining industry are re-orienting strategies in the context of their corporate and social responsibility (CSR), to fund initiatives that support the self reliance of the population and communities living in or near the concession areas.

The main goal of the policy is to ensure the food self-reliance of the population as a key entry point for food security and nutrition. It aims to increase the production and secure the access to food by the population. In the context of the implementation of PAIE was conceived the PROAGRI, which is currently in implementation and gives a particular attention to nutritional aspects. The environmental policies and strategies also encourage the research and dissemination of drought tolerant and disease resistant crops (NAPA 2007)

The Food Security and Nutrition strategy is focused on household focused interventions, according to the vulnerability of their livelihood. It pursues the five major goals of FNS: ***availability***, related to production and imports; ***access*** and ***stability*** over time, linked to markets and income access; use and ***utilization*** and ***adequacy***, related to human development and quality. (CARRILHO: 2010)

The main strategic objectives of the ESAN II are the country's self-sufficiency in food, the improvement of the households' buying power and their capacity to respond to seasonal variations, the improvement of access to health services, water, sanitation and nutritional education, and the enforcement of the right to adequate food for all citizens.

24. Health Policies:

The policies in the health sector are mainly focused on human capital development through the dissemination of the information/education on behaviour change on food habits among the householders. ESAN II, through its multi-sectoral approach, and PAMRDC through its focus on nutrition, are the leading policies on nutrition and health highlighting the need for an accelerated response to chronic malnutrition through micro and macronutrient supplementation, reduction of the anaemia prevalence, capacity building in nutrition research and advocacy on nutrition, enhance the endemic diseases combat programs and improve access to potable water. The PAMRDC through the objectives 2, 4, 5 and 6 emphasises the food base-approaches as mean to reduce chronic malnutrition.

25. The Industry and Trade Policy

The policies and strategies on industry and trade aim to foster adequate trade and industry development, by establishing an enabling legal and administrative environment for industry production and trade. The industry and trade legal framework leads to the settings of the basic infrastructure to the markets; availability of market information system; increased production and promotion of local and global trade.

26. Agenda 2025

This agenda highlights the vision and the strategic options for the country for the future and it was approved by the Parliament in 2003. In the 2025 Agenda, food security and nutrition is taken as a key aspect through the ESANII. It covers a range of activities that include the agronomic production of high nutrition value crop

27. The PARP III

The PARP III (2011-2014) is the planning tool used to implement the five years government plan (PQG) and sees the food security and nutrition as a crosscutting issue to be integrated into sectoral policies and strategies of the Government. These policies are in general complementary and share a common concern to combat absolute poverty and, therefore, malnutrition. The PARPA III contains specific indicators and includes Human Right to Food as indicated in the ESANII.

28. The Government Five-Year Plan (PQG) (2010-2015)

This is a medium-term program plan that guides government actions and defines the general government budget that materializes the action of the Government during the indicated period. It serves as the main performance indicator for the PES implementation.

29. The Strategic Plan to Combat HIV/AIDS - 2010-2014 (PEN III)

This strategic plan aims to establish a multi-sectoral approach of strategic action to tackle the pandemic of HIV/AIDS. The PEN III comprises seven strategic areas, namely: prevention, advocacy, stigma and discrimination, care and treatment, mitigation of consequences, research, and coordination of the response. There is an effort in the PEN III mechanisms to ensure safe food, disease prevention and response. However, the nutritional aspect is only explicitly included in the mitigation and care and treatment.

30. The Gender Policy

The Government policy on gender becomes evident in 1995 after the first multi-party election which promoted women emancipation's with a clear objective of up scaling the women participation in the society. The current policy guidance is provided by the National Policy of 2006 on Gender and National Plan for Women Development (2007-2009)

These sectoral policies are expected to create a conducive environment where different actions can be performed to reduce malnutrition through the food-based approaches. Although these policies and strategies are being coordinated by the Government through appropriate institutions, the level of results achieved remains critical, and often there are no tools to measure the impact of each policy.

Additionally, the decentralization process started early in 2005 is not yet concluded and working properly. The budget allocation process for the implementation of policies is normally heavy and cumbersome which leads to delays in delivery and then weakens the coordination and accountability mechanism.

31. Agriculture and Nutrition Policy Framework Analysis

All these policies and strategies lay the foundation for a long term intervention focused on nutrition. However, PEDSA under the CAADP pillar number three, ESANII through its Action Plan (PASAN) and PAMRDC represent the key current policies that blend the nutrition and agricultural agenda in Mozambique.

The Strategic Plan for Development of the Agricultural Sector (PEDSA) is the value chain oriented strategy that focus on four main objective of increasing competitiveness in agribusiness, develop agribusiness infrastructure and service to create greater access to the markets, raise investments, promote a sustainable utilization of water and forestry resources and strengthen the agricultural institutional capacity to enable social environment for agricultural development. Food security is expressed in the PEDSA though a reference to ESANII and its Action Plan.

As a value chain based approach, PEDSA intervention strategy takes into account technology transfer, farm inputs provision, agro processing, and trade and market development as a means to reach sustainable agricultural development. It doesn't link directly with nutrition in its strict sense; however it refers to ESAN to reach nutrition goals. OFSP interventions could fit into the Strategy through its value chain approach, especially on its objective number one (productivity and competitiveness). This could be possible by assisting in technology transfer by releasing new pest and drought tolerant varieties, processing and trade by integrating agribusiness and food processing private sector, and ensuring OFSP's diversification of use.

ESANII is focused on the four FSN pillars: availability/production access, utilization/use and stability and cross cutting issues such as gender, environment and HIV/AIDS. Along all these FSN components, food production (availability) and correct food utilization become the major factors for success of intervention. Here, OFSP could easily be linked though the decentralized planning process (PES) since it is an easy crop to handle and the drought tolerant material adequate for the districts, especially those with high rates of VAD.

Human Right to Food (DHAA) is Human Right based approach that is emphasised in the National Food Security and Nutrition Strategy (ESANII) and its Action Plan (PASAN) to ensure the economic and physics access to food in a sustainable manner by the population. This is new approach within national legal framework that will enforce the Government to fulfil with its mandates of food availability.

PAMRDC also refers to ESANII, in terms of reducing malnutrition using the food based approach, especially when it mentions the production of crops with high nutritional value (bio fortified crop), including OFSP that could be integrated into different nutrition education programs now in place.

In order to scale up OFSP investment, the agricultural policies and strategies must encourage the promotion and adoption by smallholder farmers of the production of staple foods with high nutritional value instead of promoting primarily cash crops with market or trade focus. This particular trend would lead to a scenario of high productivity and high rates of malnutrition as shown in the recent nutritional status in the Northern Provinces, where most of their staple and cash crops are sold in the markets leaving the household with no surplus for own consumption, and consequently leading food insecurity and malnutrition.

Government and partners should invest in the OFSP value chain development, especially in the production process by adopting policies that facilitate the access to the financing system for small and medium enterprises, especially those acting in processing and trade of agricultural commodities.

VIII. OFSP RESOURCE MOBILIZATION/INVESTMENT STRATEGIES

1. Donor Agencies

The European Commission (EC) is currently elaborating a massive investment program for nutrition under the bilateral agreement with the Mozambican Government. RAC will work closely with advocates to help place OFSP on the EC's agenda and with partners to facilitate policy formulation and fund allocation.

USAID, through OFDA, is currently funding interventions, implemented by CIP, to mitigate disaster effects and fight Vitamin A deficiency with new drought –tolerant, orange fleshed sweet potato.
Irish AID has recently committed resources to the new RAC project site in Tete Province with a focus on nutrition education through the Social Behavior Change (SBC) approach. Irish AID is notable as key donor agency in development of Mozambique, especially in the health and education sectors. As that, it is considered to be a potential donor for future investment in OFSP.

2. Non Governmental Organization

The NGOs listed in the table above are currently involved in the nutrition agricultural programs, and willing partners in OFSP. Among these NGOs, World Vision, ADRA and Food for the Hungry are

already involved in OFSP promotion and dissemination. OFSP is as also an integral part of their nutritional behavior change program.

3. Private Sector

The Mozambican Government is in the process of formulating a policy for the enforcement of Corporate Social Responsibility (CSR), for mining and gas companies operating in the country. RAC will take advantage of this enabling environment to assist the community-based organizations accessing funds from the companies to promote the OFSP. Currently Rio Tinto and Vale are the major coal mine companies with operations in Mozambique, with a number of companies starting operations in natural gas and oil research and exploration.

Table No 16: Potential Donors, partners and strategies for OFSP advocacy intervention

Priority	Opportunity for Advocacy Intervention	Current Situation	Indicator	Responsibility	Potential Partner/Donor
OFSP Production and Availability					
1	In line with ESAN II, advocate for the increased production and promotion of OFSP as a rich source of Vitamins and energy calories	Low productivity and consumption of OFSP. lack of food availability at the HH levels, especially in the semi-arid areas	Increased OFSP consumption and Vitamin A intake among the targeted areas	MINAG; MP	Provincial, Governments MINAG/SETSAN NGOs: TNS, ANSA, SNV, BAGC, European Union and (MAYAPS: ADRA, WVI, Food for Hungry, SANA Project, AFRICARE, SC) Private Sector: CTA, Rio Tinto, Riversdale); Producer Associations (IKURO and UNAC); United Nation Organization (UNICEF and UNDP)
2	Assist SETSAN in advocacy effort for technology transference (improved varieties,)	Weakness of the Public Extension service to effectively use the School Farm program to disseminate new agricultural practices	New varieties are released and adopted by households and help disseminate the School Farm initiative to other Provinces	MINAG (DNEA, IIAM, DNSA)	Provincial, Governments MINAG/SETSAN NGOs: SNV, BAGC, European Union and (MAYAPS: ADRA, WVI, Food for Hungry, SANA Project, AFRICARE, SC)
3	Work with partners to facilitate the financial linkages through the grants for vulnerable groups and micro credit for OFSP production and processing	Weak financial access and lack of grants for food production	Increased financial capacity of associated household to produce OFSP	MPD, MF, MINAG, MMAS	Provincial, Governments, FIL, MINAG/SETSAN NGOs: SNV, BAGC, European Union and (MAYAPS: ADRA, WVI, Food for Hungry, SANA Project, and AFRICARE, SC).

Priority	Opportunity for Advocacy Intervention	Current Situation	Indicator	Responsibility	Potential Partner/Donor
OFSP and Vine Access					
1	Through the provincial extension services (SDAE) advocate for better access to free pest OFSP materials by households	Currently there is a vine dissemination program implemented by the CIP and SDAE. It has not yet been adopted on a large scale,	Larger number of household with access to clean plant materials	MINAG/SDAE	Provincial, Governments MINAG/SADE, NGOs: SNV, BAGC, European Union and (MAYAPS: ADRA, WVI, Food for Hungry, SANA Project, AFRICARE, SC) and PRODEZAII
OFSP Use and Utilization					
1	Advocate for increased use of micronutrients (eg supplementation of foods rich in zinc, iron and Vitamin A)	already in Government priority and still to be expanded and consolidated	Increased the number of beneficiaries	MISAU, DPA, SDAE	Provincial, Governments: MISAU MINAG/SADE, NGOs: SNV, BAGC, European Union and (MAYAPS: ADRA, WVI, Food for Hungry, SANA Project, AFRICARE, SC) and PRODEZAII
2	Support awareness raising public initiative to households	Isolated initiatives ran by some NGOs in limited areas	Improved the Diet Quality reduce the levels of malnutrition	MISAU, SETSAN	Provincial, Governments: MEC, MISAU MINAG/SADE, NGOs: SNV, BAGC, European Union and (MAYAPS: ADRA, WVI, Food for Hungry, SANA Project, AFRICARE, SC) and PRODEZAII

Priority	Opportunity for Advocacy Intervention	Current Situation	Indicator	Responsibility	Potential Partner/Donor
OFSP and Food Adequation					
1	Support MINAG and MISAU in the efforts to raise awareness in food diversification (fruits, meats, vegetables etc)	Food consumption is often affected by the local tradition of prioritizing men instead of children and women in food distribution within HHs	Acceptable level of food diversification in targeted areas	MISAU, MEC, SDAE, SDEJT	Provincial, Governments MINAG/SETSAN NGOs: SNV, BAGC, European Union and (MAYAPS: ADRA, WVI, Food for Hungry, SANA Project, AFRICARE, SC)
2	Advocate for the Ratification of the Human Right to Food's law and regulation (DHAA) by the Mozambican Government	DHAA in the final stage of elaboration	The DHAA' law and regulation is submitted for final approval by the Government and ratified by the Parliament	SETSAN Min. Justice	MINAG, ROSA, Consumers Associations, FAO, and Implementing agencies.
3	Advocate for inclusion of OFSP in FSN strategies, policies, in DHAA's Action Plan and primary education curriculum	Efforts are put in place but still needed	OFSP and DHAA included in Primary Education Curriculum	SETSAN, MEC	FAO, UNICEF, European Union, DANIDA, Irish AID, CIDA and USAID
OFSP and Food Stability (Storage and Processing)					
1	Support MINAG in its effort to ensure the food stability among HHs through adoption of technology for OFSP processing and storage, especially for the HHs with low income.	High variation on food stability depending on areas	OFSP and Food availability any time of the year	MPD, MINAG, MIC: Cozinha Moçambique SDAE	Provincial, Governments MINAG/SETSAN NGOs: SNV, BAGC, European Union and (MAYAPS: ADRA, WVI, Food for Hungry, SANA Project, AFRICARE, SC)

Priority	Opportunity for Advocacy Intervention	Current Situation	Indicator	Responsibility	Potential Partner/Donor
Institutional Capacity Building					
1	Assist Government in the training and advocacy initiative to reinforce the institutional capacity in the Nutrition and agricultural aspects of OFSP.	MINAG SETSAN is represented in all the provinces.	SETSAN legal Framework capable to deal with nutrition and agriculture at all levels of its intervention	Government	FAO, UNICEF, European Union, DANIDA, Irish AID, CIDA and USAID
Monitoring and Evaluation					
2	Strengthen the coordination mechanism with SETSAN for food security assessment to track the OFSP consumption and Vit A intake in the targeted areas.	Currently SETSAN conducts baseline studies to assess the nutritional status of HHs.	Baseline survey uses OFSP and one of indicator to assess the Vit A intake in HHs	SETSAN	FAO, WFP, and UNICEF
Gender					
1	Ensure and expand the access by women of OFSP inputs and commercialization for income generation	The OFSP vine and other agricultural inputs remain very low in country, especially in the farm owned by women.	Increased access of vines and others agricultural inputs by women	MINAG, MIC, MMAS	Provincial, Governments MINAG/SETSAN NGOs: SNV, BAGC, European Union and (MAYAPS: ADRA, WVI, Food for Hungry, SANA Project, AFRICARE, SC)

Additionally, there is a growing private sector with emerging small and medium enterprises, especially in food production and processing. They will be targeted and assisted to integrate in the national emerging markets such as supermarkets chains and the food industry.

4. CAADP

Currently Mozambique is in the process of revising the Investment Plan for CAADP initiative, to be implemented in Mozambique through PEDSA. The process involves all the relevant stakeholders including civil society and private sector. This is considered to be the most important investment planning process in the agriculture sector in the last two decades with a total investment estimated at $2 billion for the next ten years.

The challenge for RAC advocacy would be to integrate the food based approach into the CAADP Pillar III in the context of the this investment planning and ensure a political and systemic commitment by the Ministry of Agriculture and of Health for subsequent action in combating VAD in Mozambique.

Further to this, an important CAADP stakeholder's meeting, with participation of civil society and private sector, to validate the investment plan will take place in December. This meeting could serve to share RAC's ability to mainstream agriculture and nutrition policies to strengthen the impact on nutrition through CAADP Pillar III and the PAMRDC objective # 4 and 6.

Under the advocacy effort, RAC is attentive to innovative and dynamic approaches of mobilizing resources in the context of competing agendas. In this preference will be given to public private partnerships (PPPs), by facilitating the linkages between actors to raise impact on nutrition through the promotion and dissimination of OFSP.

IX. PRELIMINARY LIST OF STAKEHOLDERS

Table No 16: Key stakeholders contacted by RAC from November 2011 to March 2012 and their contact personnel

INSTITUTION	CONTACT PERSON	ADDRESS	TEL/FAX	E-MAIL	AREA OF INTEREST
Donor Agency/ Investors					
USAID	Timothy Born	JAT COMPLEX, Rua 1231, Nº41, CP 783	Cell: Phone:21352052 Fax: 21352085	tborn@usaid.gov	Agriculture, Trade and Business Office Director
DANISHEMBASSY	Paulino D'uamba	Av. Julius Nyerere, Nº1162, CP, 4588, Maputo-Moçambique	Cell: Phone: 21 480000 Fax: 21 480010	paudua@um.dk www.ambmaputo.um.dk	Agricultural Financing
NORWEGIANEMBASSY (NORAD)	Carlos Rafa Mate	Av. Julius Nyerere 1162, Maputo-Moçambique	Cell: 824443940 Phone: 21 480126 Fax: 21 480101	crm@mfa.no www.norway.org.mz	Development, Agriculture and infrastructure
FAO	José da Graça	Rua de mukumburra, 285, Maputo-Moçambique	Cell: 82 3010493 Phone: 21 491136 Fax: 21 498533	Jose.dagraca@fao.org	Food Security and Nutrition Policies
Banco Terra	Jose Jaime Jeje	Av. Samora Machel, 323. Caixa Postal 69 Maputo-Mocambique	Cell: 824849920 Phone: 21359900 Fax:21316130	jjeje@bancoterra.co.mz www.bancoterra.co.mz	Agribusiness
STANDARD BANK	Celestino Machado Sheila Come	Rua Consiglieri Pedroso, nº350, 1ºandar CP2086/1119, Maputo-Moçambique	Cell: 82 3068410 Phone: 21 351300 Fax: 21 351318	Celestino.machado@standardbank.co.mz sheila.come@standardbank.co.mz	Financial Support
IFC – World Bank Group	Chabir Hassam	Av. Kenneth Kaunda, nº1222, Maputo-Moçambique	Cell: 823256430 Phone: 21 482365 Fax: 21 496247	chassam@ifc.org	Financial and technical Support
Beira Agricultural Growth Corridor	Chris Isaac	One Alfred Place, London WC1E 7EB	Phone: +44 (0) 20 72690216 Cell: +44 (0) 7957732110	cisaac@infracoholdings.com	Financial and technical Support
Government Agencies					
Ministry of Agriculture (MINAG)	Salimo Vala	Rua da Resistencia nº1746 5ºandar, Maputo Mozambique	Cell: Phone: 21418552		Agriculture
IPEX	Cecilia Candrinho	Av. 25 de Setembro, 1008-2ºandar CP 4487, Maputo-Moçambique	Cell:823084860 Phone: 21 307257/8 Fax: 210307256	jjossias@ipex.gov.mz www.ipex.gov.mz ccandrinho@ipex.gov.mz	Export

MINAG-CEPAGRI	Roberto Mito Albino	Rua da Gávea, nº33 1ºandar, Maputo-Moçambique	Cell: 823082560 Phone: 21 326550 Fax: 21 427436 Cell: 827271234	Roberto.albino@cepagri.gov.mz Anna.jamisse@cepagri.gov.mz	Pubic Agricultural Credit Programme
MINAG-SETSAN	Marcela Libombo	Av. Da FPLM No 2698- Maputo Mozambique	Phone: 21461874 Fax: 21480588	mlibombo@setsan.org.mz	
MINISTRY OF HEALTH	Edna Possolo	Av. Eduardo Mondlane Maputo Mozambique	Phone: Fax:		Head of Nutrition Department
Research institutions and research networks					
IIAM	Advisor	Av. Da FPLM No 2698- Maputo Mozambique	Cell: Phone:21 462241 Fax: 21 461581	calisto.bias@gmail.com	Agricultural Research
MSU	Rafael Uaeine	Av. Das FPLM nº2698, CP 1906	Cell: 823045286 Phone:21 482222 Fax:21 482222	r.uaeine@gmail.com	
ICRISAT	Celso Ruface	Av. Das FPLM nº2698, CP 1906	Cell: 823181830 Phone: 21461657	celso@intra.co.mz	
IITA	Steve K Boahen, Phd	Av. Eduardo Mondlane nº 326 Nampula	Cell: 823045286 Phone: 26 216381	s.boahen@cgiar.org	Agricultural Research and Nutrition
UEM	Luis Nhaca Américo Muchanga	Av. Julius Nyerere, Campus Universitário, CP 257, edificio 12, Maputo-Moçambique	Cell: 823272430 Phone: 21 494754 Fax: 21 487484 Cell: 82 3018130	nhacaluis@yahoo.com.br	Research and training
Private sector					
CTA	Nelson Jeque	Rua do Castanheda, 120, Bairro da Sommerchield	Cell: 82/843844660 Phone: 21 491914 Fax: 21 493094	njeque@cta.org.mz www.cta.org.mz	Business Chambre
RIO TINTO MOÇAMBIQUE	Pedro Muendane	Vila Carbomoc, Casa nº20, Moatize, Tete-Moçambique	Cell: 823013866 Phone: 25242276 Fax: 25242277	Pedro.muendade@cvrd.co.mz	Mininng
Community based Organizations					
UNAC	Augusto Mafigo	Rua Valentim Siti 39 Maputo Mozambique	Tel: 21306737 Cell:823001875 Fax:21306738	unacadc@gmail.com	Agriculture
PRODESA	Rosario Mucavele	Av Josina Machel, Mocuba, Mozambique	Cell:821839838 Tel: 24810732	aldo@naredevelopment.se	Agriculture and Development

			Fax: 24810732		
Media Corporations					
TVM	Armindo Chavana	Av.25 de Setembro 154, Maputo Mozambique	Tell: 21496686; Fax: 21 49177221	chavana@tvcabo.co.mz	Generic Media
STV	Francisco Mandlate	Rua Timor Leste, 108, Maputo Mozambique	Tell: 21 315117/8 Fax: 21 315279	F.mandlate@soico.co.mz	Generic Media
TV Miramar	Jose Guerra	Av. Julius Nyerere	Tell: 21496686; Fax: 21 49177221	Jose.guerra@tvcabo.co.mz	Generic Media
Jornal Noticias	Rogerio Sitoe	Rua Joaquim Lapa, 55 - 2o A	Fax: 21-320575 Tel.: 21320575	Jnoticias@hotmail.com	Generic Media
Jornal O Pais	Jermias Langa	Rua Timor Leste, 108, Maputo Mozambique	Tell: 21315117/8 Fax: 21301865	O.pais@teledata.mz	Generic Media
Radio Moçambique	Germano	Rua da Rádio Moçambique, 2	Tell: 21429 908 Fax: 21429 826	informacao@teledata.mz	Generic Media
International Non Governmental Organizations					
SNV	Martinus A.J. (Tiny) Ruijten	Av.Julius Nyerere, 1339, CP4468, Maputo-Moçambique	Cell: 825368005 Phone: 1486790/1 Fax: 21 486792	lvanoeijen@snvworld.org www.snvworld.org	Agricultura, Nutrition and Health
TECHNOSERVE	Jake K. Walter 823121950	Av. Zedequias Manganhela nº267, 5ºandar Flat 6. Prédio Jat, Maputo-Moçambique	Phone: 21 326171/3 Fax: 21326166	jakewalter@tdm.co.mz	Rural Development
CLUSA	Thod Thompson 823031745	Av.Eduardo Mondlane, Prédio Girassol, escritório nº313, Nampula- Moçambique	Cell: 825278017 Phone: 26215825 Fax: 26215826	toddsthompst@aol.com	Agribusiness and value Chain
NEPAD BUSINESS FOUNDATION	Lynette Chen	Nº3 Gwen Lane 1st Floor, Sandton South Africa,	Phone : +27 824919016 Tel : +27 11 884 1888 Fax : +27 11 8840061	Lynette.chene@thenbf.co.mz www.nepadbusinessfoundation.org	Policy
ADRA	Lynn Boyd	Av. Eduardo Mondlane No 2091	Phone : 823102590 Tel : 21304433 Fax21320487	lboyed@adramozambique.org	Agriculture and Nutrition and Education
Plan International	William Acquah	Rua Justino Chemane No271 Sommerschield II, Maputo Mozambique	Tel:21 485602/3/6 Fax: 21 485609	William.Acquah@plan-international.org	Child Protection

X. NEEDS ASSESSMENT

Sweet potato is frequently overlooked mostly because its cultivation decentralized, usually grown in small householder's plots, typically on an area of about 150 - 200 square meters (SARRNET 1997). Average yields were reported at four tons per hectare in 1988 and 1992, during and at the conclusion of the civil war (Jimenez *et al*., 1988; Barreiros *et. al*. 1992), though average yields are apparently somewhat higher as of 2004 (FAOSTAT).

Orange-fleshed sweet potato, which is very high in beta-carotene used by the body to produce Vitamin A, have become the focus of a nutritional initiative to overcome Vitamin A deficiency, a severe problem for many people of Mozambique. To address VAD, a multi-sectoral advocacy effort needs to take place in order to promote an an enabling environment for donors agencies and government to adopt policies and invest resources on food based approach to help reduce chronic malnutrition.

Civil Society Organizations, such as ROSA and ANSA, are recognized as active in managing the nutrition agenda. However, there is a need to strengthen these organizations' institutional capacity to assist community based organization and other key community players to deliver the nutrition agenda through food based approach, using sweet potato as an entry point. There is also a need to facilitate the effective linkages between the implementers and donor agencies for financial support and programming.

In general there is very little processing of sweet potato for home consumption, storage, or marketing. It is utilized fresh, boiled, or grilled, and sometimes in the form of sweet potato meal, however it has a potential to generate more than USD 90.000 000 per year for the producers (JICA 2010).

This figure has been attracting the private sector interest to invest, especially with the emerging local supermarkets chain and the food industry. The advocacy should target this group by facilitating the appropriate linkages with financial services, basic rural infrastructure and effective public private partnership. USAID and Feed the Future Program's Global Development Alliances might be involved to technically assist the private sector involved with sweet potato production, processing and possibly trade.

Government's capacity, in term of human resource remains a challenge to effectively address VAD though OFSP dissemination or nutritional education programs. The public extension service counts on over 700 extension worker for the whole country. The ration extension worker/household remains far behind to the real need. In that context, advocacy effort should focus on the strengthening of

government's capacity to train extension workers by providing them basic OFSP knowledge tool kit, through the school curriculum or through focalised training program.

In order to maximize the OFSP production under the normal condition of humidity, advocacy work should align the dissemination effort with the recently approved Government investment plan on irrigation (PROIRRI) managed by the National Service of Agriculture (DNSA) under the Ministry of Agriculture. This Program represents a total investment of USD 70 million and is dedicated to installing new irrigation systems across the country.

In PAMRDC, ESANII, CAADP/PEDSA and PAMRDC, the recent policies in agriculture and nutrition in Mozambique, chronic malnutrition was recently framed as a multi-sectoral problem linked to poverty, food insecurity, and Right to Food. In the context of competing policy priorities, nutrition has gained political visibility. A high level technical secretariat (SETSAN), in place since 1997, has been recently granted a senior position chaired by the Ministry of Agriculture with a role to coordinate the formulation of different food and nutrition policies, although it lacks formal authority over other ministries. SETSAN also has the responsibility of coordinating PAMRDC.

RAC advocacy strategy should thus focus on strengthening the multisectoral nutrition and agricultural agenda where food based approaches such as OFSP can be explored to help address government's master plans. Some of these opportunities are stated in the previous chapter of this report, on the OFSP intervention opportunities.

XI. CONCLUSION

The present report summarises the policy literature review to support the process of formulation of an advocacy strategy to mobilize resources for OFSP. Mozambican policy framework on health and agriculture has been very well developed in the last decade. However, there is a gap between the willingness resulted from the attention that the Government has paid to chronic malnutrition and the systematic approach to deal with nutrition, especially regarding to funds allocation.

It has been shown that there is a substantial interest from the government to respond to the chronic malnutrition through agriculture and food-based approach. The internal coordination, under SETSAN has an ample room for improvement. Therefore, based on the evidence, the momentum has been created to concentrate efforts to promote food based-approach through OFSP, as the motto of an advocacy strategy.

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