NUTRITION COUNTRY PROFILE
REPUBLIC OF MOZAMBIQUE
2011

Source: UN, Cartographic Section.

Acknowledgments

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Summary

Mozambique was devastated by a post independence civil from 1977 to 1992 which destroyed infrastructures, ruined livelihoods and severely hampered agricultural production and economic development. Nevertheless Mozambique is a successful example of post-conflict economic recovery, even if it still lags behind in terms of human development and poverty. The country is severely affected by the HIV/AIDS pandemic, which compromises the social and economic progress the country is striving to attain.

Mozambique is a country with high agricultural potential that is still underutilized. The major part of agricultural production takes place in the northern and central provinces, where the climate is more favourable. Agricultural production has shown great improvement since the end of the war thanks to pro-active policies, the return of migrants and large aid inflows. Consequently, food aid shipments, previously very high, have decreased; currently, a third of the cereal supply still depends on imports.

In rural areas, where the majority of the population lives, the main constraint to food security is physical access to food: the country's infrastructures, both markets and roads, were destroyed during civil war. In urban areas, economic access to food is a major issue, especially in times of soaring food prices. Natural shocks such as floods (in the Zambezi valley in particular) and drought (in south and central provinces) regularly affect agricultural production.

The Mozambican diet is mainly composed of cassava - a staple with a low protein content - in the northern part of the country, and maize in the centre and southern part. Urban households consume mostly maize and imported wheat. With the exception of green leafy vegetables which often accompany the staples, the supply of micronutrient-rich foods (other vegetables, fruit, and foods of animal origin) is dramatically low. In urban areas, where street foods, snacks and sugar-rich foods are becoming more common, the nutrition transition is currently underway. Cereals and starchy roots provide almost 80% of the dietary energy supply; this very poor level of dietary diversification has not improved for the last 40 years and is currently the lowest in the region. Besides being poorly diversified and thus extremely poor in protein and micronutrients, the diet does not supply enough energy to meet population energy requirements; the prevalence of undernourishment reached 38% in 2005-2007.

While the prevalence of wasting (i.e. acute malnutrition) is low, that of stunting (i.e. chronic malnutrition) is declining but remains at a very high level (44% of children under five in 2008). Chronic malnutrition is more widespread in the northern provinces, where chronic food insecurity is common, and access to health services, water and sanitation and education is more limited than in the south. The prevalence of stunting, already high in infants under 6 months, increases sharply during the first two years of life, mainly because of inadequate feeding practices, especially regarding exclusive breastfeeding. Generally, complementary feeding is given in a timely manner but lacks diversity and is particularly poor in foods of animal origin. Among mothers, the prevalence of chronic energy deficiency decreased between 1997 and 2003 while the prevalence of overweight and obesity increased. In 2003, the prevalence of overweight and obesity was three times higher in urban than in rural areas, a sign of the nutrition transition currently underway in cities.

Iodine deficiency was still a mild public health problem in 2004, especially in the northern parts of the country which correspond to the zones where cassava (a goitrogenic food) is the main staple. Universal salt iodization was decided in 2000 but implementation needs to be reinforced strongly: only a fourth of households consumed adequately iodized salt in 2008, with important regional disparities. In 2001-2002, vitamin A deficiency was a severe public health problem among children; in response, vitamin A supplementation coverage was increased between 2003 and 2008 to reach 72% of the children. Among women, vitamin A deficiency was a public health issue as well but the coverage of supplementation was very low. Iron deficiency anemia represents a severe public health problem among both children and mothers and coverage of iron supplementation in pregnant women remains insufficient, especially in rural areas.

The importance of micronutrient deficiencies in the population can be directly linked to a diet that is extremely poor in micronutrients. Although short-term interventions such as supplementation still need to be reinforced, investment in sustainable food-based strategies is urgently needed to combat chronic malnutrition and micronutrient deficiencies. Improving the nutritional status of young children also requires greater efforts to promote adequate infant and young child feeding practices.

Summary Table

Nutrition indicators				Year
Energy requirements				
Population energy requirements		2128	kcal per capita/day	2004
Food supply				
Dietary Energy Supply (DES)		2085	kcal per capita/day	2005-2007
Prevalence of undernourishment	*MDG1*	38	%	2005-2007
Share of protein in DES		8	%	2005-2007
Share of lipids in DES		14	%	2005-2007
Food diversification index		21	%	2005-2007
Food consumption				
Average energy intake (per capita or per adult)		n.a.		
Percent of energy from protein		n.a.		
Percent of energy from lipids		n.a.		
Infant and young child feeding	Age			
Exclusive breastfeeding rate	<6 months	30	%	2003
Timely complementary feeding rate	6-9 months	80	%	2003
Bottle-feeding rate	0-11 months	9	%	2003
Continued breastfeeding rate at 2 years of age		65	%	2003
Nutritional anthropometry				
Prevalence of stunting in children under 5 years*		44	%	2008
Prevalence of wasting in children under 5 years*		4	%	2008
Prevalence of underweight in children under 5 years*	*MDG1*	18	%	2008
Percentage of women with BMI<18.5 kg/m²		9	%	2003
Micronutrient deficiencies				
Prevalence of goitre in school-age children		15	%	2004
Percentage of households consuming adequately iodized salt		25	%	2008
Prevalence of sub-clinical signs of vitamin A deficiency in preschool children		69	%	2001-2002
Coverage of vitamin A supplementation in children		72	%	2008
Coverage of vitamin A supplementation in mothers		21	%	2003
Prevalence of anemia in women		48	%	2001-2002
Coverage of iron supplementation during pregnancy		58	%	2003

Basic indicators				Year
Population				
Total population		22.4	million	2010
Rural population		62	%	2010
Population under 15 years of age		44	%	2010
Annual population growth rate		2.33	%	2010
Life expectancy at birth		47.8	years	2005-2010
Agriculture				
Agricultural area		62	%	2007
Arable and permanent cropland per agricultural inhabitant		0.31	Ha	2006
Level of development				
Human development and poverty				
Human development index		0.402	[0-1]	2007
Proportion of population living with less than 1$ a day (PPP)	*MDG1*	75	%	2002-2003
Proportion of population living below the national poverty line	*MDG1*	55	%	2008
Education				
Net primary enrolment ratio	*MDG2*	76	%	2006
Youth literacy rate (15-24 years)	*MDG2*	52	%	2006
Ratio of girls to boys in primary education	*MDG3*	0.93	girl per 1 boy	2006
Health				
Infant mortality rate	*MDG4*	93	‰	2004-2008
Under-five mortality rate	*MDG4*	138	‰	2004-2008
Maternal mortality ratio (adjusted)	*MDG5*	520	per 100 000 live births	2005
Percentage of deaths among under-fives caused by malaria		12	%	2010
Proportion of 1-year-old children immunized against measles	*MDG4*	74	%	2008
Environment				
Sustainable access to an improved water source in rural area	*MDG7*	26	% of population	2006

MDG: Millennium Development Goal; n.a.: not available; *based on WHO 2006 growth standards

TABLE OF CONTENTS

Acknowledgments **2**
Summary **3**
Summary Table **4**
List of tables and figures **6**
Acronyms **7**
Part I: Food and nutrition situation **8**
I.1 Qualitative aspects of the diet and food security **8**
Food consumption patterns 8
Food security situation 9
Surveys of dietary diversity 10
I.2 National food supply data **10**
Supply of major food groups 10
Dietary energy supply, distribution by macronutrient and diversity of the food supply 12
Vegetable/animal origin of macronutrients 13
Dietary energy supply by food group 13
Food imports and exports 14
Food aid 14
I.3 Food consumption **15**
I.4 Infant and young child feeding practices **15**
I.5 Nutritional anthropometry **18**
Low birth weight 18
Anthropometry of preschool children 18
Anthropometry of school-age children 22
Anthropometry of adolescents 22
Anthropometry of adult women 22
I.6 Micronutrient deficiencies **24**
Iodine deficiency disorders (IDD) 24
Prevalence of goitre and urinary iodine level 24
Iodization of salt at household level 25
Vitamin A deficiency (VAD) 26
Prevalence of sub-clinical and clinical vitamin A deficiency 26
Vitamin A supplementation 28
Iron deficiency anemia (IDA) 30
Prevalence of IDA 30
Interventions to combat IDA 31
Other micronutrient deficiencies 32
I.7 Policies and programmes aiming to improve nutrition and food security **32**
Part II: Overview and basic indicators **34**
II.1 Population **34**
Population indicators 34
Population pyramid (2007) 35
II.2 Physical background and agriculture **35**
Land use and irrigation statistics 36
Main crops, agricultural calendar, seasonal food shortage 37
Livestock production and fishery 37
II.3 Economy **37**
II.4 Social indicators **38**
Health indicators 38
Water and sanitation 40
Access to health services 41
Education 41
Level of development, poverty 42
Other social indicators 42
Appendixes **44**
List of references **44**

List of tables and figures

List of tables

Table 1: Trends in per capita supply of major food groups (in g/day) 10
Table 2: Share of the main food groups in the Dietary Energy Supply (DES), trends 14
Table 3: Initiation and duration of breastfeeding 16
Table 4: Type of infant and young child feeding 17
Table 5: Consumption of complementary foods, and meal frequency by breastfeeding status and age 17
Table 6: Anthropometry of preschool children 21
Table 7: Anthropometry of adult women 23
Table 8: Prevalence of goitre and level of urinary iodine in school-age children 25
Table 9: Iodization of salt at household level 25
Table 10: Prevalence of sub-clinical and clinical signs of vitamin A deficiency in children 6-59 months 26
Table 11: Prevalence of clinical and subclinical signs of vitamin A deficiency in mothers during their last pregnancy and in breastfeeding mothers 27
Table 11: Prevalence of clinical and subclinical signs of vitamin A deficiency in mothers (cont'd) 27
Table 12: Vitamin A supplementation of children 29
Table 12: Vitamin A supplementation of children and mothers (cont'd) 29
Table 13: Prevalence of anemia in preschool children 30
Table 14: Prevalence of anemia in women of childbearing age 31
Table 15: Iron supplementation: percentage of mothers who took iron tablets/syrups during pregnancy 32
Table 16: Population indicators 34
Table 17: Land use and irrigation 36
Table 18: Livestock and fishery statistics 37
Table 19: Basic economic indicators 38
Table 20: Health indicators 40
Table 21: Access to safe water and sanitation 41
Table 22: Access to health services 41
Table 23: Education 42
Table 24: Human development and poverty 42
Table 25: Other social indicators 43

List of figures

- Figure 1: Dietary energy supply (DES), trends and distribution by macronutrient 12
- Figure 2: Vegetable/animal origin of energy, protein and lipid supplies 13
- Figure 3: Dietary energy supply by food group 13
- Figure 4: Trends in prevalence of stunting among children under five years of age 19
- Figure 5: Import and production of maize (1961-2007) 36
- Figure 6: Trends in infant and under-fives mortality rates 39

Appendixes

Table A.1.: Anthropometry of preschool children 44
Table A.1.: Anthropometry of preschool children (cont'd) 45
Table A.2.: Anthropometry of adult women 46

Acronyms	
ADF	African Development Fund
AfDB	African Development Bank
BMI	Body Mass Index
CED	Chronic energy deficiency
DES	Dietary energy supply
DPT3	Diphtheria, Pertussis (whooping cough) and Tetanus vaccine – three doses
FAIS	Food Aid Information System
FAO	Food and Agriculture Organization of the United Nations
FAOSTAT	FAO Statistical Databases
FCS	Food Consumption Score
FEWS NET	Famine Early Warning Systems Network
FIGIS	Fisheries Global Information System
FIVIMS	Food Insecurity and Vulnerability Information and Mapping Systems
GDP	Gross domestic product
GIEWS	Global Information and Early Warning System on food and agriculture
GNP	Gross national product
GoM	Government of Mozambique
ICCIDD	International Council for the Control of Iodine Deficiency Disorders
IDA	Iron deficiency anemia
IDD	Iodine deficiency disorders
IDS	Inquérito Demografico e de Saude [Mozambique Demographic and Health Survey]
IFAD	International Fund for Agricultural Development
IIASA	International Institute for Applied Systems Analysis
ILO	International Labour Office
INE	Instituto Nacional de Estatistica [NSI, National Statistics Institute]
IOM	International Organization for Migration
IRIN	Integrated Regional Information Networks
ITU	International Telecommunication Union
MdS	Ministério de Saude [MoH, Ministry of Health]
MIC	Ministry of Industry and Commerce
MICS	Multiple Indicator Cluster Survey
MoARD	Ministry of Agriculture and Rural Development
MoH	Ministry of Health
MPD/NDSPA	Ministry of Planning and Development / National Directorate of Studies and Policy Analysis
MPF	Ministry of Planning and Finance
NCHW	National Child Health Weeks
NSI	National Statistics Institute
ODI	Overseas Development Institute
OECD	Organisation for Economic Co-operation and Development
PARPA	Plan for the Reduction of Absolute Poverty
PMTCT	Prevention of Mother-to-Child Transmission
PPP	Purchase Power Parity
RAI	Relatório de Avaliação do Impacto (PARPA II 2006-2009) [Impact assessment report]
RoM	Republic of Mozambique
SETSAN	Secretario Técnico de Segurança Alimentar e Nutricional [Technical Secretariat for Food Security and Nutrition]
SETSAN/GAV	Grupo de Análise de Vulnerabilidade [Vulnerability Assessment Group] (SETSAN)
STDF	Standards and Trade Development Facility
UN	United Nations
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UNPD	United Nations Population Division
UNSTAT	United Nations Statistics Division
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
WB	World Bank
WFP	World Food Programme
WHO	World Health Organization

I.1 Qualitative aspects of the diet and food security

Food consumption patterns

The main staple foods in Mozambique are cassava, maize, millet, sorghum and rice. In northern provinces, cassava is the main staple (Nampula, Cabo Delgado, Niassa and the northern part of Zambezia province) but sorghum and millet are also consumed. In central and southern provinces, maize is the main staple, while in the cities the main staples are maize and rice.

Maize, cassava, sorghum and millet are prepared as a porridge locally known as *xima* – the main traditional food –, and normally eaten with different stews made of green leafy vegetables, enriched with groundnut and/or coconut milk, beans, fish (fresh and dry, from sea or river) or other seafood when available; meat (chicken and bush meat) is rarely eaten, only on festive occasions. The stews are prepared with oil, onion and tomato or boiled with water.

Matapa, bean stew, coconut milk or peanut milk stew, and *mucapata* are among the traditional dishes in Mozambique. *Matapa* originates from the southern provinces and is prepared using green leafy vegetables (ground cassava, pumpkin, bean, or sweet potato leaves) mixed with coconut milk and groundnut flour, and flavoured with fresh or dried shrimp, crab or small fish. This dish is served with rice or *xima*. Bean stew is eaten all over the country, and is prepared with oil, onion and tomato and some meat if available. The stew is eaten with rice or *xima*. Coconut or peanut milk stew is made with coconut or peanut milk, onion and tomato; some meat or seafood can be added. *Mucapata* is eaten in Zambezia province and is made with rice, mung beans and coconut milk and is eaten as a staple. *Xima* made from cassava flour accompanied with dried grilled fish is eaten in the northern provinces of the country.

Consumption of milk and milk products is very low, especially in rural areas. In urban areas, people consume fresh milk, yogurt, butter and cheese.

With the exception of green leafy vegetables, onion and tomatoes, consumption of other vegetables and fruit (banana, mango, orange, paw-paw, pineapple, and other wild fruit) is low except when in season.

According to the Food security and Nutrition Monitoring situation report (August 2010), the majority of households have on average two meals a day (both adults and children) (SETSAN, 2010). In urban areas, households may have three meals a day: breakfast, made of tea and bread, lunch based on a staple food eaten with green leafy vegetables, beans or fish, and dinner which is similar to lunch. In rural areas, households normally have only two main meals (lunch and dinner), which are similar to those consumed in urban areas.

Regarding household food distribution, normally all children eat in the common pot; younger children eat with their mother. There are taboos that forbid children, pregnant and breastfeeding women to eat certain foods, such as eggs, wild meat, and certain types of fish.

Nutrition transition can be observed in the urban areas of Mozambique. In Maputo city, fast foods (hamburgers, hot dogs, snacks, etc.) have become more common; in other cities of the country, common street foods are fried cookies, sweets made from peanut/cashew nut or coconut with sugar (like nougat), biscuits and sweets. Increasing availability of fast foods and street foods may contribute to the high prevalence of overweight and obesity among adult women living in urban areas, and more specifically among those living in Maputo City and Maputo province (see Anthropometry of adult women).

In both urban and rural areas, when household incomes increase, meat and fish gain importance in the diet, consumption of green leafy vegetables and beans tends to be reduced while staples remain the same.

Food security situation[1]

Despite progress over the last two decades, Mozambique remains a food-insecure country where considerable improvements are still needed in food availability, access and utilization (USAID, 2007).

The 17-year conflict after independence[2] destroyed the basic infrastructure and institutions that were constructed during the colonial period, roads in particular; an estimated 1.5 million people left Mozambique, while some 4 million moved internally (WB, 2006). Post-war agricultural policy has food security as its central objective with emphasis on improving food production and on the role of the small farm sector (ODI, 2003).

Agricultural production has increased significantly since the end of the war in 1992 but there are still considerable structural constraints in the availability of inputs and the commercialization of production. Mozambique is vulnerable to natural disasters. The 2010 rice and maize harvest was low in the South because to a mid-season drought (FAO/GIEWS, 2010).

The south is structurally deficient in cereals while the centre and north have surpluses of most of the basic food commodities. However, surpluses from the north are not transported to the south due to lack of adequate infrastructures and to the high transport costs. As a result, food deficits in the south are met through imports from South Africa predominantly (and also from the central production zones), whereas the northern zones export food surpluses to Malawi or Zambia (WB, 2006; ODI, 2003). Recently, two bridges were constructed, one over the Zambezi and one over the Rovuma River (FAO/GIEWS, 2010).

The larger towns all have markets and there are periodic rural markets in some provinces, but poor infrastructure and markets are major constraints in rural areas (MoARD, 2003; WB, 2006). Few rural trading markets have developed, where producers and traders might congregate to buy and sell. During the war, the urban areas of Mozambique were highly dependant on food aid (supplied through market support mechanisms) but since the return to peace urban markets have developed (ODI, 2003).

Limited purchasing power is a major determinant of food insecurity among households. Poverty still affects more than half of the population, in urban as well as in rural areas (MPF et al., 2004). The major food security issue in urban areas is access to food and not food availability (ODI, 2003), since people living in urban areas purchase 80% of their food compared to 30% in rural areas (ODI, 2004).

A large differential in maize prices between north and south remains, reflecting the regional differences in production, high transport costs – despite recent improvements in infrastructure – and the burgeoning demand from the poultry industry. In Maputo markets, maize prices were nearly double that of Nampula in August 2010 (FAO/GIEWS, 2010). The depreciation of the Metical against both the US dollar and South African Rand and the recent increases in global wheat prices led the Government to raise the price of bread by 30% at the beginning of September 2010. After serious civil disturbances, the measure was revoked, and the Government decided to maintain the price of bread through introducing a subsidy (FAO/GIEWS, 2010).

More than a third of households (35%) were considered highly vulnerable to food insecurity in 2006[3]. Vulnerability to chronic food insecurity was more prominent in the northern parts of the country (particularly in Niassa, Cabo Delgado, Nampula, Zambezia, and Tete provinces). Transitory food insecurity was frequent in the southern areas which are regularly affected by natural disasters (drought in particular). Coping strategies include dietary changes, asset disbursement, buying on credit, migration, *ganho ganho* (occasional work for cash or food) and eating wild foods such as roots, tubers and fruit (De Matteis et al., 2006; USAID, 2007; SETSAN, 2010). An assessment conducted in 2009 confirms that the northern provinces (Tete, Zambezia, Niassa) show the highest percentage of chronically food insecure households and that transitory food insecurity is frequent in the South[4] (WFP, SETSAN/GAV, 2010).

Currently, the national food security situation is satisfactory. However, an estimated 350 000 people in southern and central areas from low-income and resource poor households are in need of food assistance, due to a combination of high food prices and production short-falls experienced in 2010 (FAO/GIEWS, 2011).

[1] Food security is defined as "A situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life" (FIVIMS). Food insecurity may be caused by the unavailability of food, insufficient purchasing power, inappropriate distribution, or inadequate use of food at the household level. Food insecurity may be chronic, seasonal or transitory.

[2] Mozambique attained independence from Portugal in 1975; civil war devastated the country between 1975 and 1992.

[3] Based on shocks, income diversity, livelihood capacity

[4] Based on the Food Consumption Score, number of different types of assets and Coping Strategy Index

Surveys of dietary diversity

The Comprehensive Food Security and Vulnerability Analysis assessment conducted in August-September 2009 provided information on food consumption in peri-urban and rural areas. Overall, on the basis of the Food Consumption Score (WFP/VAM, 2008), 9% of the households had a poor consumption (exclusively based on staples with some contribution of vegetables), 18% had a borderline consumption and 72% had an acceptable consumption[5]. The percentage of households with poor or borderline consumption was higher in rural areas than in peri-urban areas. By province, Gaza had the highest percentage of households with a poor or borderline consumption while Nampula and Maputo were the provinces with the highest percentage of households with an acceptable consumption (WFP, SETSAN/GAV, 2010).

The assessment showed that in most provinces green leafy vegetables were eaten about twice a week, except in Cabo Delgado where this food group was absent from the diet. Consumption of other vegetables as well as fruit was uncommon. In the north and centre coastal provinces, households consumed fish and seafood about twice a week while consumption was rare inland and in the south. Consumption of red meat was virtually inexistent. In the south, consumption of sugar was more frequent. In most provinces, households consumed oils/fats 2 to 4 days per week, except in Gaza where frequency of consumption was extremely low and in Sofala, where this food group was consumed on a daily basis. In general, food consumption in peri-urban areas was more diverse than in rural areas (WFP, SETSAN/GAV, 2010).

Dietary diversity was assessed in central Mozambique at household level[6] in December 2006 (pre-harvest period) and July 2007 (post harvest period) in the districts of Chibabava (province of Sofala) and Gondola (province of Manica). Households ate on average only 4 different food groups in a day. A majority consumed vegetables in both districts at both time periods. Consumption of fruit reflected seasonal availability. Less than 20% of households ate meat. The proportion of households who consumed fish was somewhat higher but remained limited; very few households consumed milk products and eggs. Dietary diversity increased with higher socio-economic status (FAO, 2008).

I.2 National food supply data

Supply of major food groups

Table 1: Trends in per capita supply of major food groups (in g/day)

Major food groups	Supply for human consumption in g/day								
	1965-67	1970-72	1975-77	1980-82	1985-87	1990-92	1995-97	2000-02	2005-07
Starchy roots	762	762	732	708	664	665	629	646	658
Cereals (excl. beer)	219	186	203	195	210	201	252	288	315
Fruit and vegetables	117	126	110	100	98	87	78	59	55
Pulses, nuts, oilcrops	32	43	32	24	28	28	36	37	31
Vegetable oils	9	11	15	20	22	25	20	21	20
Sweeteners	22	30	35	29	9	7	12	15	19
Meat and offals	17	20	17	17	18	18	16	16	17
Milk and milk products	25	27	26	24	31	22	19	14	12
Fish, seafood	12	13	7	10	10	7	4	4	7
Eggs	1	2	1	2	2	2	2	2	1
Animal fats	1	1	1	1	1	1	1	0	0
Other	25	25	17	13	7	12	14	17	18

Source: FAOSTAT

The two major food groups in terms of supply for human consumption are starchy roots and cereals. The supply of the starchy roots group is almost exclusively composed of cassava and to a much lesser extent of sweet potatoes, both locally produced. The protein content of cassava is much lower than that of cereals (USDA), therefore protein intake can be insufficient when the diet is mainly based on this staple. After a decline during the late 1970s-early 80s, the supply of starchy roots has remained relatively stable over the

[5] Poor consumption: FCS ≤ 21; borderline consumption: FCS > 21 and ≤ 35; acceptable consumption: FCS > 35 (WFP, SETSAN/GAV, 2010, based on typical thresholds defined in WFP/VAM, 2008).

[6] Based on Household Dietary Diversity Score (HDDS): HDDS is a measure of the total number of different food groups eaten in the previous 24 hours by any household member.
For further information on this tool, refer to: http://www.fao.org/docrep/014/i1983e/i1983e00.pdf

last two decades (FAO, FAOSTAT). The implementation of the Cassava Development Strategy (2008-2012) is intended to promote this crop (MIC, 2007). Sweet potatoes, which have a protein content which is equivalent to that of cassava, are a relatively minor crop currently but are gaining importance. Varieties that are traditionally produced and consumed are white-fleshed sweet potatoes (Naico and Lusk, 2010). The Government and NGOs promote orange-fleshed carotenoid-rich sweet potatoes production to improve vitamin A intake, with encouraging results on the availability and consumption of this crop (MoARD, 2003; Bechoff et al., 2011).

The per capita supply of cereals, composed primarily of maize and to a lesser extent of wheat, rice and sorghum, has increased over the last decade (FAO, FAOSTAT).

Trends over the last four decades (from 1965-67 to 2005-2007) show a slight decrease in the per capita supply of starchy roots compensated by a parallel increase in that of cereals.

The per capita supply of fruit and vegetables, already initially low, has been halved since the 1960-70s and is currently extremely limited. It is composed of tomatoes, cabbage, pumpkin, garlic, okra, cucumber, onions, mango, paw-paw, banana, papaya and citrus among others (IIASA, 2001). The per capita supply of fruit and vegetables in Mozambique is the lowest in the region (compared to neighbouring countries: Zambia, Tanzania, Kenya and Malawi). Fruit and vegetables production declined in the late 1990s-early 2000s, probably as a result of recurrent droughts and floods over this period (FAO, FAOSTAT). Few markets sell fruit and vegetables (WFP, SETSAN/GAV, 2010).

The per capita supply of foods of animal origin, which are good sources of high quality protein and of micronutrients, is extremely limited and shows a decreasing trend. The per capita supply of meat/offals has not changed over the period and remains very low overall. That of milk/milk products, already initially very low, has decreased over the last two decades. Despite fairly rich fishery resources, the per capita supply of fish/seafood remains extremely limited (FAO, FAOSTAT). Overall, the per capita supply of foods of animal origin is the lowest of the region, similar to what is observed in Malawi.

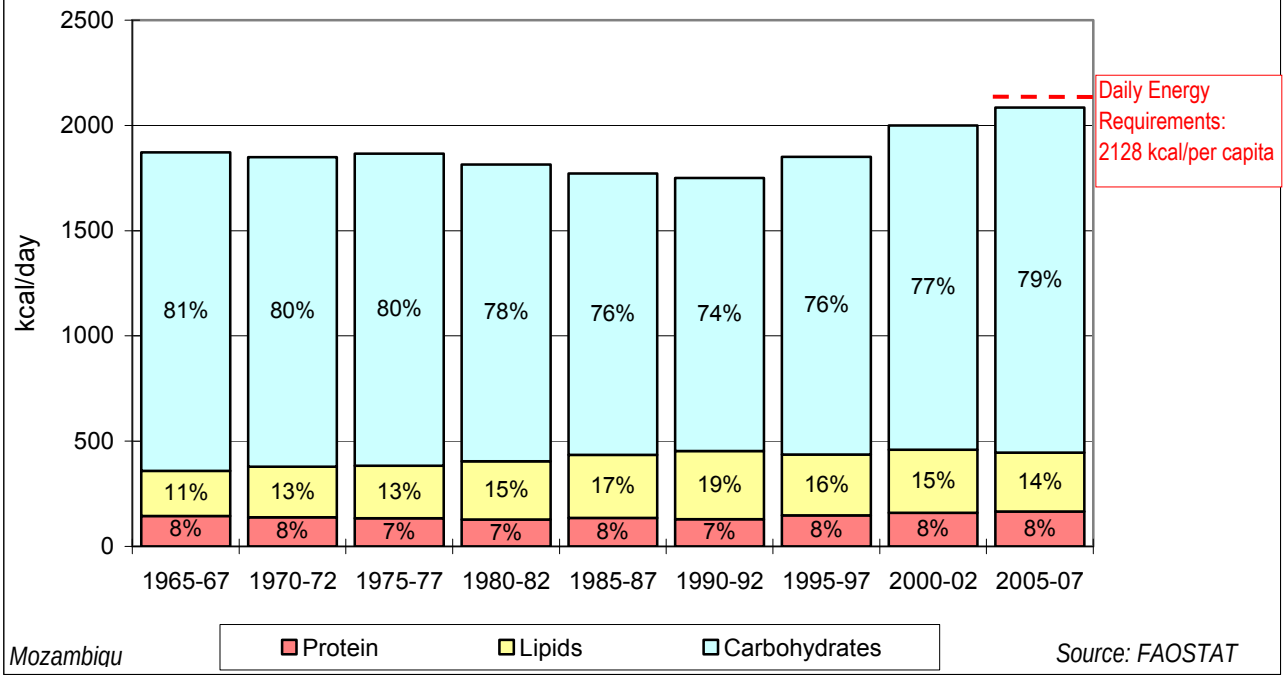
The per capita supply of pulses/nuts/oilcrops (cowpeas, mung beans, common beans, groundnuts, pigeon peas and cashew) is also low. That of vegetable oils - imported palm oil and locally produced coconut oil - doubled over the whole period considered (FAO, FAOSTAT). Donated vegetable oils during the crisis years (1975-1992) contributed to an increase over this period (MoARD, 2003). Currently, the per capita supply of vegetable oils is one of the highest in the region.

The per capita supply of sweeteners showed a sharp decrease in the late 80s-early 90s, which may be related to civil war when this food and others were rationed. Thereafter, the supply has increased (FAO, FAOSTAT).

Dietary energy supply, distribution by macronutrient and diversity of the food supply

- Figure 1: Dietary energy supply (DES), trends and distribution by macronutrient

Figure 1: Trends in DES per capita and percentages from protein, lipids & carbohydrates



The dietary energy supply (DES) declined between 1975-77 and 1990-92, in relation with the post-independence civil war. After this period, it has increased to reach 2085 kcal per capita/day in 2005-2007, a level still insufficient to meet the population energy requirements estimated at 2128 kcal per capita/day[7] (FAO, FAOSTAT; FAO, 2004).

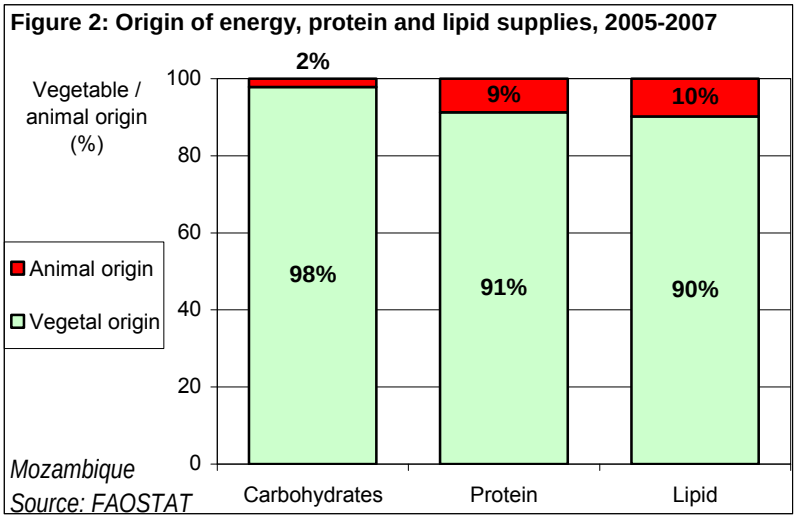
According to the *State of Food Insecurity in the World* (2010), the prevalence of undernourishment was 38% in 2005-2007. Although still very high, it has decreased substantially over the last decade, from 59% in 1990-92 and 48% in 1995-97 (FAO, 2010).

The share of lipids in the DES has increased slightly at the expense of that of carbohydrates. Despite this rise, it remains low and this may interfere with the metabolism of fat soluble vitamins (vitamin A for example). However, food consumption data indicated a higher share (about 20% - see I.3 Food consumption). It is possible that the share of lipids in the DES is underestimated. Due to the very high supply of cassava (poor in protein) and the very limited supply of protein-rich foods, the share of protein in the DES was lower than the recommended level of 10-15% over the whole period considered (FAO, FAOSTAT; WHO/FAO, 2003).

[7] Energy requirements are for a healthy and active lifestyle. Software default values attribute to 90 % of the urban adult population a light Physical Activity Level (PAL=1.55) and greater than light activity to the remaining 10% (PAL=1.85), and to 50% of the rural adult population a light activity (PAL=1.65) and greater than light physical activity (PAL=1.95) to the other 50%. (FAO, 2004).

Vegetable/animal origin of macronutrients

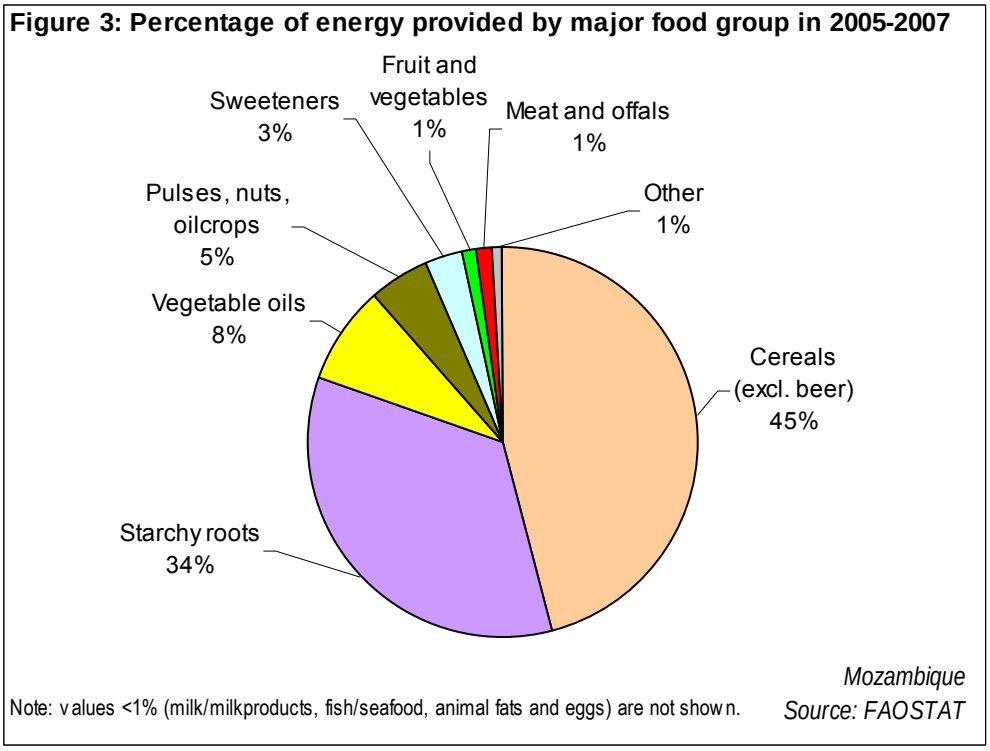
- Figure 2: Vegetable/animal origin of energy, protein and lipid supplies



The predominance of starchy roots and cereals in the food supply is reflected in the very high share of macronutrients of vegetable origin (FAO, FAOSTAT). Limited supplies of foods of animal origin imply low intake/bioavailability of micronutrients in the diet, especially vitamin A, iron, zinc and calcium.

Dietary energy supply by food group

- Figure 3: Dietary energy supply by food group



The food diversification index (percentage of DES from food groups other than cereals and starchy roots) was only 21% in 2005-2007, indicating a very low dietary diversity, with an extremely limited contribution of fruit/vegetables and foods of animal origin; the diet is thus very poor in several essential micronutrients. The food diversification index has not increased over four decades and is currently the lowest in the region (FAO, FAOSTAT).

Table 2: Share of the main food groups in the Dietary Energy Supply (DES), trends

Food groups	% of DES								
	1965-67	1970-72	1975-77	1980-82	1985-87	1990-92	1995-97	2000-02	2005-07
Cereals (excl. beer)	35	30	33	32	36	34	41	43	45
Starchy roots	44	45	43	42	41	41	37	35	34
Vegetable oils	4	5	7	10	11	13	10	9	8
Pulses, nuts, oilcrops	6	7	5	4	5	5	6	6	5
Sweeteners	4	6	7	6	2	1	2	3	3
Meat and offals	2	2	2	2	2	2	2	2	1
Fruit and vegetables	2	2	2	2	2	2	2	1	1
Milk and milk products	1	1	1	1	1	1	1	0	0
Fish, seafood	0	1	0	0	0	0	0	0	0
Eggs	0	0	0	0	0	0	0	0	0
Animal fats	0	0	0	0	0	0	0	0	0
Other	1	1	1	0	0	0	1	1	1

Source: FAOSTAT

In conclusion, besides being quantitatively insufficient, the food supply also lacks diversity and remains very poor in protein and micronutrient-rich foods. Mozambique's food supply is poorer in micronutrient-rich foods than that of the neighbouring countries. More efforts to diversify agricultural production and promote dietary diversity through food-based approaches are needed to improve the nutritional status of the population in a sustainable way.

Food imports and exports

During the war years, food production was stagnant, with large quantities of cereals imported every year, including major shipments of food aid. From the end of the civil war onwards, production of cereals – especially maize – has more than doubled, and that of starchy roots has increased by two-thirds (FAO, FAOSTAT). Cereals imports, however, continue to be an important source of supply, while the food aid shipments have decreased considerably.

Cereals are the major food group imported in terms of quantity; there are large imports of wheat and rice, which are common staples in urban areas, and of maize to a lesser extent. Sweeteners are largely imported but also re-exported. Mozambique imports large and increasing quantities of vegetable oils (mainly palm oil) (FAO, FAOSTAT, reference period 2005-2007). For all these food groups, imports have increased considerably since the 1960s.

During the civil war period, the country's dependence on imports of cereals increased sharply: the import dependency ratio[8] (IDR) for cereals increased from about 10% in 1965-67 to about 20% in 1975-77 and peaked at 60% in 1990-92 (see II.3 Agriculture). After this period, the IDR for cereals decreased, but it is still high (34% in 2005-2007). The IDR for vegetable oils is also high (56% in 2005-2007) as well as that for fish/seafood. High-value fish/seafood products are exported while low-value fish are imported (FAO, FAOSTAT; FAO, 2007).

In 2005-2007, the major food exports, in terms of quantity, were sweeteners (both locally produced and imported) and pulses/nuts/oilcrops (cashew, cottonseed, sesameseed, groundnuts) (FAO, FAOSTAT).

There are no official statistics for cassava exports but it is well known that cassava is traded informally across borders (MIC, 2007).

Food aid

In 2008, Mozambique received a total food aid of 125 698 t, of which 119 296 t of cereals (mainly hard red winter wheat, maize, rice and maize meal) and 6 402 t of non-cereals (mainly peas) (WFP, FAIS). This food

[8] Import dependency ratio is defined as: IDR = (quantity imported / (quantity produced + quantity imported – quantity exported)) *100. It represents the share of domestic supply which comes from imports. IDR takes into account supply of food groups (quantity) whatever its utilization and not only what is destined to human consumption.

aid was mainly delivered as project (67%) and emergency food aid (33%)[9]. Food aid deliveries decreased considerably after the end of the civil war (1992) (WFP, FAIS).

In 2005-2007, cereal food aid[10] (grain equivalent) represented approximately 5% of the national cereal supply for human consumption. This share has decreased considerably since the last years of the civil war: from 61% in 1990-92 to 15% in 1995-97 and 5% for the most recent estimates (2005-2007) (FAO, FAOSTAT; WFP, FAIS).

I.3 Food consumption

National level surveys

The Mozambique Household Budget Survey (HBS) conducted from July 2002 to June 2003 provides data on food consumption. This survey, representative at national level, included 8682 households. Quantities and monetary values of food consumed by households were recorded by field workers using a diary over a period of seven days (NSI, 2008).

In some regions/sectors, underreporting of consumption is suspected, therefore overall energy intake and differences by region/sector are not discussed here. The share of lipids in the energy intake is higher than what is estimated using Food Balance Sheets; in the urban sector, this share is higher than in the rural sector. Half of the energy intake was provided by cereals, while the contribution of foods of animal origin was very limited (NSI, 2008).

It is difficult to draw conclusions from the HBS to document food availability and dietary patterns at household level. Methodological improvements are needed for the survey to be useful for nutrition assessment.

I.4 Infant and young child feeding practices

Three national surveys provide data on infant feeding practices: the Multiple Indicator Cluster Survey (MICS) of 2008, the Moçambique Inquérito Demografico e de Saude (IDS) of 2003 and the IDS of 1997 (NSI, 2009a; INE et al., 2005; INE and Macro Int. Inc., 1998). Because data on percentage of children everbreastfed, median duration of breastfeeding, exclusive breastfeeding rate by age-group and bottle-feeding rate are not available in MICS 2008, data from IDS 2003 are discussed in detail here and further results from MICS 2008 are presented for assessing trends.

According to the IDS 2003, breastfeeding is a universal practice, as 98% of children born in the five years preceding the survey have been breastfed. Among children everbreastfed, about two-thirds were put to the breast within one hour of birth (early initiation of breastfeeding). Children living in rural areas were more likely to benefit from early initiation than their urban counterparts. This practice was also more frequent among less educated women than among women with secondary education. Large differences by province were observed: surprisingly, early initiation was much less common in Maputo city than in other provinces, although more than 90% of births take place in a health facility in this city (INE et al., 2005). This observation is difficult to explain; it should be noted that MICS 2008 preliminary data does not confirm this low figure in early initiation of breastfeeding in Maputo city (NSI, 2009a).

Median duration of breastfeeding among children under three years was 22 months. It was slightly higher in rural areas (23 months) compared with urban areas (21 months) and among less educated women (INE et al., 2005).

[9] *Emergency* food aid is destined to victims of natural or man-made disasters; *Project* food aid aims at supporting specific poverty-alleviation and disaster-prevention activities; *Programme* food aid is usually supplied as a resource transfer for balance of payments or budgetary support activities. Unlike most of the food aid provided for project or emergency purposes, it is not targeted to specific beneficiary groups. It is sold on the open market, and provided either as a grant, or as a loan.

[10] cereal food aid may include cereal-soya blend.

Table 3: Initiation and duration of breastfeeding

Survey name/date (Reference)	Background characteristics	Sample size (all children under five years)	Percentage of children under five years everbreastfed	Number of children under five years ever-breastfed	Among children everbreastfed, percentage breastfed within one hour of birth	Among children everbreastfed, percentage breastfed within 24 hours of birth[1]	Number of children under three years	Median duration of breastfeeding in children under three years (in months)
Moçambique Inquérito Demografico e de Saude 2003 (INE et al., 2005)	Total	10620	98.3	10441	64.7	91.9	6323	22.1
	Sex							
	M	5241	98.3	5154	63.6	91.6	3130	22.2
	F	5379	98.3	5288	65.8	92.3	3194	22.1
	Residence							
	urban	3087	97.2	3002	57.3	91.2	1840	20.6
	rural	7533	98.8	7440	67.7	92.2	4483	22.9
	Province							
	Niassa	527	98.1	517	86.0	98.4	316	23.5
	Cabo Delgado	968	99.2	960	56.4	70.5	583	22.4
	Nampula	2250	97.7	2199	69.8	93.6	1345	23.4
	Zambézia	1622	98.2	1593	65.6	90.0	966	20.4
	Tete	1096	98.7	1082	61.4	97.1	633	23.7
	Manica	820	99.0	812	84.5	97.5	501	22.0
	Sofala	794	97.8	777	66.2	92.6	472	21.4
	Inhambane	822	99.0	813	60.1	98.1	483	22.0
	Gaza	539	98.6	531	51.0	98.3	330	22.0
	Maputo	667	98.0	653	67.0	94.2	379	20.5
	Maputo Cidade	516	97.8	504	25.5	84.5	314	19.9
	Mother's education							
	no education	4906	98.7	4843	68.5	92.5	2922	22.5
	primary	5315	98.0	5209	62.8	91.9	3132	22.0
	secondary*	387	97.4	377	43.5	86.3	259	16.4

[1] Includes children who started breastfeeding within one hour of birth

*: higher than secondary not included as the sample size is too small and data are not provided.

Exclusive breastfeeding for the first six months is not widely practiced in Mozambique. In 2003, less than a third of infants under 6 months of age were exclusively breastfed. Exclusive breastfeeding rate declined sharply with age (INE et al., 2005).

Prevalence of HIV/AIDS is high in Mozambique. The Prevention of Mother-to-Child Transmission (PMTCT) programme recommends that all HIV-positive pregnant women receive counselling on infant feeding options. In 2004-2005, a revised Policy on Infant and Young Child Feeding in the context of HIV/AIDS was developed, which states that only when replacement feeding is acceptable, feasible, affordable, sustainable and safe, should avoidance of all breastfeeding by HIV positive women be recommended (UNICEF, 2006). In Mozambique, where access to safe drinking-water is limited, environmental hygiene unfavourable and poverty widespread, replacement feeding is generally neither safe nor affordable and exclusive breastfeeding is likely to be the only feasible option for most women (UNICEF, no date, a; Forum PMTCT, 2007). Great efforts are thus still necessary to promote exclusive breastfeeding.

The timely complementary feeding rate is satisfying: 80% of children aged 6-9 months are given complementary foods. However, they are still often introduced prematurely (before the age of 6 months) (INE et al., 2005).

Bottle-feeding is not a common practice in Mozambique (INE et al., 2005).

More than 90% of children were breastfed for at least one year and 65% were still breastfed at 2 years of age (INE et al., 2005).

The exclusive breastfeeding rate (under 6 months) has remained stable since 1997, but MICS 2008 preliminary data indicate an increase (37%); timely complementary feeding rate has decreased since 1997 and, although the population sample is not strictly identical in all surveys, a significant drop in early initiation of breastfeeding has been observed since the late 1990s (INE et al., 2005; INE and Macro Int. Inc., 1998; NSI, 2009a).

Table 4: Type of infant and young child feeding

Survey name/date (Reference)	Type of feeding in the 24 hours preceding the survey		
	Indicator by age	Sample size	Percentage of children
Moçambique Inquérito Demografico e de Saude 2003 (INE et al., 2005)	Exclusive breastfeeding rate		
	0-1 month	323	49.8
	2-3 months	385	28.6
	4-5 months	358	13.7
	<6 months	1065	30.0
	Timely complementary feeding rate		
	6-9 months	707	79.7
	Bottle-feeding rate		
	0-11 months	2101	8.9
	Continued breastfeeding rate		
	12-15 months (1 year)	682	94.0
	20-23 months (2 years)	549	64.5

Complementary feeding lacks diversity and is poor in foods of animal origin: consumption of milk and dairy products is extremely rare among young children and few of them consume meat, fish or eggs. Consumption of fruit and vegetables rich in vitamin A is more common (INE et al., 2005).

Table 5: Consumption of complementary foods, and meal frequency by breastfeeding status and age

Survey name/date (Reference)	Age (months)	Breastfeeding status	Number of children	Foods consumed by children in the 24 hours preceding the survey					
				Percent of children having consumed the following foods					
				Infant formula	Other milk and dairy products	Pulses	Meat/ fish/ eggs	Foods with oil/ fat/butter	Fruit and vegetables rich in vit. A*
Moçambique Inquérito Demografico e de Saude 2003 (INE et al., 2005)	6-11	breastfed children	989	6.1	3.1	n.a.	17.8	31.2	35.6
	12-23	breastfed children	1551	2.8	4.1	n.a.	33.6	54.3	68.9
	12-23	non breastfed children	325	12.2	14.3	n.a.	41.4	56.4	67.5
	24-35	breastfed children	295	1.0	1.0	n.a.	34.6	50.7	71.0
	24-35	non breastfed children	982	4.5	8.1	n.a.	40.0	55.2	73.3

*: including oranges, yams, carrots, orange sweet potatoes, green leafy vegetables, mango, papayas, other fruit and vegetables rich in vitamin A
n.a.: not available

In conclusion, inappropriate infant and young child feeding practices persist, in particular non-exclusive breastfeeding, delayed initiation of breastfeeding (especially in urban areas and among educated mothers) and low quality complementary feeding, which could be proximal causes of the high prevalence of chronic malnutrition among young children.

Actions have been taken in recent years to improve these practices. In 2009, the Ministry of Health initiated the implementation of a Communication and Social Mobilization Plan for the Promotion, Protection and Support to breastfeeding. This Ministry and several NGOs have activities related to nutrition education at community level (RoM, 2010). The training of health workers in all provinces on infant and young child feeding as part of the Basic Nutrition Package is ongoing (UNICEF, no date, a). The Baby Friendly Hospital Initiative (BFHI) was already initiated in 1993 in five pilot hospitals of different provinces. Due to lack of training of health personnel, unclear orientation on breastfeeding policy in the context of HIV, etc. , BFHI was unsuccessful. This initiative was re-activated in 2008 but due to lack of coordination and integration, as well as adequate supervision and monitoring, it was not possible to assess its level of implementation and results (MdS and UNICEF, 2009). The Code on the Marketing of Breastmilk Substitutes was officially approved in 2005 but only came into force in late 2008 (MdS and UNICEF, 2009).

I.5 Nutritional anthropometry

Low birth weight
(less than 2 500 g)

In 2003, among children born in the five years preceding the survey, the prevalence of low birth weight was 6%. However, 53% of neonates did not have data on birth weight (INE et al., 2005). Children with a recorded birth weight are predominantly those born in a more privileged environment (in urban areas and/or of mothers with higher education, etc.) (INE et al., 2005). Due to the low proportion of newborns weighed at birth and the lack of representativity of recorded birth weights, the prevalence of low birth weight must be interpreted with caution and could be underestimated.

As the percentage of neonates that were weighed increased between 1997 and 2003, trends in the prevalence of low birth weight cannot be assessed.

In 2003, according to mother's own assessment on their baby's size at birth, 2% of neonates were considered "very small" and 18% were considered "smaller than average" (INE et al., 2005).

Anthropometry of preschool children

Several nationally representative surveys document the nutritional status of preschool children in Mozambique: Multiple Indicator Cluster Survey Mozambique 1995, Moçambique Inquérito Demografico e de Saude 1997, Moçambique Inquérito Demografico e de Saude 2003, Multiple Indicator Cluster Survey 2008 (preliminary data)[11] and the Third National Poverty Assessment in 2008-2009 (GoM and UNICEF, 1996; INE and Macro Int. Inc., 1998; INE et al., 2005; NSI, 2009a; MPD/NDSPA, 2010, WHO, Global database on child growth and malnutrition). All these surveys included children aged 0-5 years except the 1997 survey which included children under three.

According to the MICS 2008 preliminary data, the prevalence of stunting among children aged 0-59 months was 44%, that of wasting was 4% and that of underweight was 18% (NSI, 2009a). Based on the prevalence of stunting, the severity of malnutrition in Mozambique is defined as "very high" according to WHO criteria (WHO, 1995). Data from the Third National Poverty Assessment conducted in 2008-2009 are rather similar to MICS 2008 estimates: the prevalence of stunting was 46%, that of wasting was 7% and that of underweight was 19%. Since sample sizes are not provided in this assessment, data are not reported in the tables nor discussed in detail here (MPD/NDSPA, 2010).

A high proportion of children under 6 months were stunted (21%). Intrauterine growth retardation in young women may be a contributing factor as about 40% of women already had children prior to the age of 19 and young women (15-19 years) are more likely to suffer from chronic energy deficiency (see Anthropometry of adult women) (INE et al., 2005). Inadequate infant feeding practices are probably a stronger determinant: the exclusive breastfeeding rate is very low even among young children (0-3 months), and a large proportion of them are given plain water (possibly contaminated) in addition to breastmilk. The prevalence of stunting increased during the first years of life to reach 54% among children aged 24-35 months (NSI, 2009a). Inappropriate complementary feeding practices, combined with cumulative effects of illnesses and lack of access to health care, are among the main factors contributing to the deterioration of the nutritional status after the age of 6 months.

The prevalence of stunting was higher among children living in rural areas (47%) when compared to those living in urban areas (35%). Chronic malnutrition was most widespread in the northern region, especially in the provinces of Cabo Delgado and Nampula, where more than half of the children were stunted and a very large proportion were severely stunted. The prevalence decreased in the centre (provinces of Zambezia, Tete, Sofala, Manica) and was the lowest in the south (Maputo, Gaza, Inhambane) (NSI, 2009a).

Southern Mozambique is the area of the country with the least favourable conditions for food production; however, in the South, lower vulnerability to chronic food insecurity, frequent delivery of food aid, and influx of remittances from Mozambicans working in South Africa may contribute to a lower prevalence of chronic malnutrition - although still moderate to high (USAID, 2007). Moreover, access to health services, safe water,

[11] Tables for Moçambique Inquérito Demografico e de Saude 1997 and 2003 are shown in appendix.

sanitation and education are better in the southern part of the country than in the north, where distances to basic infrastructures and services are long and transportation further hampered by poor roads. However, considerable improvements in physical access (distance) to primary health facility have been achieved since 2003 in the rural north (MPD/NDSPA, 2010).

The prevalence of stunting decreased markedly with increasing mother's education (NSI, 2009a). This observation should not automatically be interpreted as a direct effect of mother's education but more as the correlation between economic status of the family and the prevalence of stunting.

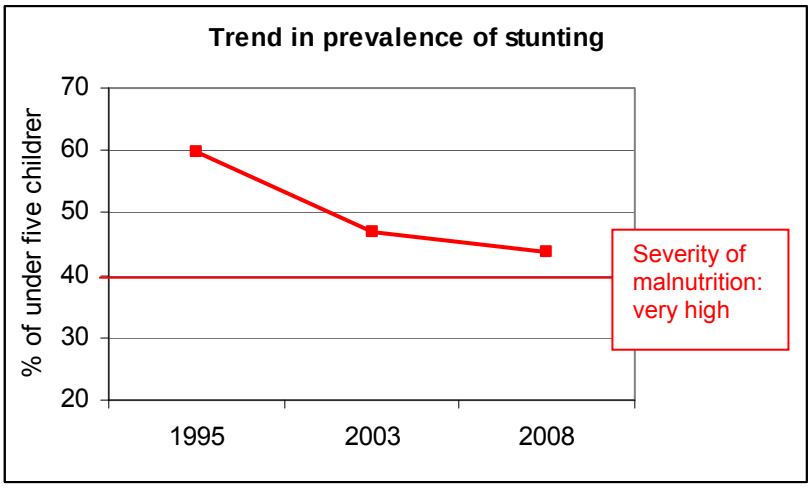
The prevalence of wasting, estimated partially during the period of food shortage, was low at national level but provincial disparities were marked, Nampula showing the highest prevalence (9%) (NSI, 2009a). This province is affected by high levels of both chronic and acute malnutrition.

The prevalence of overweight was very low (4%) at national level and disparities by place of residence were not marked. The highest prevalence was reported in the province of Maputo (about 10%), probably in relation with the changes in food consumption habits currently underway in these areas (street foods in particular) (NSI, 2009a).

A downward trend in the prevalence of stunting is observed: prevalence among children aged 0-59 months decreased from 60% in 1995 to 47% in 2003 and 44% in 2008. Over the last period, the decline was mainly due to a decrease in the prevalence of stunting in rural areas (from 52% in 2003 to 47% in 2008) while the prevalence remained stable in urban areas (35-36%) (WHO, Global database on child growth and malnutrition; GoM and UNICEF, 1996; INE et al., 2005; NSI, 2009a).

Since all surveys were not conducted during the same season, trends in the prevalence of wasting cannot be estimated over the whole period (1995-2008). The two most recent surveys (2003 and 2008), conducted during the season of food shortage, indicated that the prevalence of wasting among preschool children has remained stable (WHO, Global database on child growth and malnutrition; INE et al., 2005; NSI, 2009a).

- Figure 4: Trends in prevalence of stunting among children under five years of age



Sources: WHO, Global database on child growth and malnutrition; GoM and UNICEF, 1996; INE et al., 2005; NSI, 2009a.

Although the prevalence of stunting has decreased since the 1990s, chronic malnutrition among preschool children remains a serious public health problem. Many factors account for the high prevalence of chronic malnutrition, among which inadequate young child feeding practices, an insufficiently diversified diet, limited access to health services in the context of a heavy burden of diseases, in particular HIV/AIDS, restricted access to safe water and sanitation especially in rural areas, widespread poverty and food insecurity.

Nutrition screening with Mid Upper Arm Circumference (MUAC) was integrated to the facility-based National Child Health Weeks (NCHW)[12]. In 2008, among 2.4 million children screened, about 12,000 moderately malnourished children (0.5%) have been provided with maize soya blend and 11,000 severely malnourished children (0.5%) have been provided with nutritional rehabilitation therapy (UNDP et al., 2009). Since the prevalence of acute malnutrition is low in Mozambique, screening with MUAC is not very relevant.

[12] The National Child Health Weeks aim to reach all children under five years with a package of nutrition and health services, including MUAC screening, vitamin A supplementation, iodine supplementation in selected provinces, vaccination against measles, deworming and mosquito net distribution. NCHW are bi-annual and are meant to complement routine health services by ensuring that basic services reach all children through fixed health units and mobile teams (UNDP et al., 2009; UNICEF, no date, a).

On the occasion of the evaluation of PARPA II (Plan for the Reduction of Absolute Poverty 2006-2009), a comprehensive analysis on the children's nutritional situation was done, with emphasis on chronic malnutrition. Using MICS 2008 data, this study showed that low education level of mothers and poor access to safe water and sanitation were among the major determinants of chronic malnutrition. Poverty determines strongly all these factors. This study highlighted chronic malnutrition as an emergency requiring urgent approach at national scale and high priority in the Government's plans (MdS and UNICEF, 2009).

In line with the recommendations of this study and the National Summit on Nutrition, a Multi-Sectorial Plan for the Reduction of Chronic Malnutrition in Mozambique was finalized on September 2010. The objective of the Plan is to reduce the prevalence of chronic malnutrition in children below 5 years from 44% in 2008 to 30% in 2015, and 20% in 2020 (RoM, 2010) (see I.7 Policies and programmes aiming to improve nutrition and food security).

Table 6: Anthropometry of preschool children

Name/date of survey (month/year) (Reference)	Background characteristics	Age (years)	Sex	Sample size	Prevalence of malnutrition						
					Percentage of children with						
					Stunting Height-for-age		Wasting Weight-for-height		Underweight Weight-for-age		Overweight Weight-for-height
					<-3 Z-scores	<-2 Z-scores*	<-3 Z-scores	<-2 Z-scores*	<-3 Z-scores	<-2 Z-scores*	>+2 Z-scores
Multiple Indicator Cluster Survey 2008 (summary) (Aug. - Dec. 2008) (NSI, 2009a)	Total	0-4.99	M/F	10412	17.5	43.7	1.4	4.2	4.3	17.5	3.7
	Sex										
		0-4.99	M	5141	20.2	46.9	1.4	4.9	4.9	19.9	4.1
		0-4.99	F	5269	14.8	40.5	1.4	3.6	3.7	15.2	3.3
	Age										
		0-0.49	M/F	1103	8.8	20.9	3.1	7.7	4.6	12.5	6.9
		0.5-0.99	M/F	1216	11.7	32.2	1.4	6.8	8.0	22.1	3.3
		1-1.99	M/F	2251	18.8	48.2	1.8	5.6	5.1	20.9	2.1
		2-2.99	M/F	2023	22.6	53.8	1.0	3.1	5.0	19.0	4.2
		3-3.99	M/F	2003	20.4	49.8	0.9	1.9	2.7	14.9	4.2
		4-4.99	M/F	1817	15.9	41.4	1.0	2.5	1.7	14.6	3.1
	Residence										
	urban	0-4.99	M/F	3003	12.9	34.8	1.0	3.0	2.9	12.9	4.6
	rural	0-4.99	M/F	7409	19.3	47.2	1.6	4.7	4.9	19.4	3.4
	Province										
	Cabo Delgado	0-4.99	M/F	1072	21.7	55.8	0.9	3.6	5.0	22.5	2.6
	Gaza	0-4.99	M/F	700	8.8	34.1	0.2	1.4	1.6	6.8	3.4
	Inhambane	0-4.99	M/F	670	12.9	34.5	2.0	3.8	2.3	11.8	4.2
	Manica	0-4.99	M/F	506	15.7	48.3	1.1	3.7	3.8	19.2	2.6
	Maputo	0-4.99	M/F	611	8.3	28.0	0.7	2.3	1.3	7.4	9.2
	Maputo Cidade	0-4.99	M/F	425	6.6	25.1	0.4	1.9	1.3	6.7	5.4
	Nampula	0-4.99	M/F	1495	29.4	50.9	3.8	8.9	8.5	25.8	4.5
	Niassa	0-4.99	M/F	573	18.5	45.2	1.2	5.4	3.0	18.1	7.3
	Sofala	0-4.99	M/F	1543	13.8	40.5	0.8	3.2	3.8	15.5	2.2
	Tete	0-4.99	M/F	1032	19.3	48.0	0.9	2.6	4.4	18.5	1.6
	Zambezia	0-4.99	M/F	1786	18.0	45.7	1.4	4.9	5.1	20.6	3.2
	Mother's education										
	no education	0-4.99	M/F	3325	21.2	48.7	1.8	5.2	5.9	20.4	3.3
	primary	0-4.99	M/F	6309	16.9	43.2	1.3	4.0	4.0	17.2	3.8
	secondary or higher	0-4.99	M/F	766	6.1	25.1	0.4	2.1	0.6	7.4	4.6

* Category <-2 Z-scores includes <-3 Z-scores

Anthropometry of school-age children

No survey documents anthropometry of school-age children in Mozambique.

The ongoing school feeding programme, implemented by the Ministry of Education and Culture (MEC) with support from WFP, currently provides support to 195,000 students in 172 primary schools. This initiative is also complemented by the provision of take-home rations to girls and orphaned and vulnerable children in schools in the centre and northern regions of Mozambique (UNDP et al., 2009).

Anthropometry of adolescents

No survey documents anthropometry of adolescents in Mozambique.

Anthropometry of adult women

The Moçambique Inquérito Demografico e de Saude (IDS) 1997 and 2003 provide anthropometric data on adult women which are representative at national level[13] (INE and Macro Int. Inc., 1998; INE et al., 2005).

In 2003, at national level, 9% of mothers of children under five years of age were affected by chronic energy deficiency (CED, BMI < 18.5 kg/m²). The prevalence was higher among young mothers (15-19 years) and among those living in rural areas. It was highest in the northern provinces - with the exception of Niassa -, and in Gaza, located in the south (INE et al., 2005). Poorer access to basic infrastructures and services and higher vulnerability to chronic food insecurity are among the probable major determinants of the high prevalence of CED in the northern provinces.

Prevalence of overweight and obesity was 15% at national level and showed marked disparities by place of residence, being three-fold higher in urban areas than in rural areas. In urban areas, the prevalence of overweight and obesity was considerably higher than that of CED, reflecting the ongoing nutrition transition. In Maputo city and Maputo province, about a third of mothers were overweight or obese. Prevalence increased with age and with increasing educational level (INE et al., 2005).

Although the sample is not strictly comparable between IDS 1997 (mothers of children under 3) and IDS 2003 (mothers of children under 5), trends can be estimated. Between 1997 and 2003, the prevalence of CED among mothers decreased (11% in 1997 outside the season of food shortage, against 9% in 2003 partially during the season of food shortage). In parallel, the prevalence of overweight and obesity increased by 5 percentage points over the same period (INE and Macro Int. Inc., 1998; INE et al., 2005).

[13] Tables for Moçambique Inquérito Demografico e de Saude 1997 is shown in appendix.

Table 7: Anthropometry of adult women

Name/date of survey (month/year) (Reference)	Background characteristics	Age (years)	Anthropometry of adult women								
			Height			Body Mass Index[1] (kg/m²) (BMI)					
			Sample size	Mean (cm)	% of women with height < 1.45 m	Sample size	Mean (kg/m²)	Percentage of women with BMI			
								<18.5 (chronic energy deficiency)	18.5-24.9 (normal)	25.0-29.9 (overweight)	≥30.0 (obesity)
Moçambique Inquérito Demografico e de Saude 2003 (Sep.-Dec. 2003) (INE et al., 2005)	Total	15-49	11731	155.2	4.9	10239	22.1	8.6	77.3	10.3	3.9
	Age										
		15-19	2263	154.5	5.9	1969	21.3	12.6	79.1	7.2	1.1
		20-24	2321	155.1	5.1	1916	21.6	8.9	82.2	7.6	1.3
		25-29	2115	155.2	6.2	1736	22.0	6.8	80.0	10.8	2.4
		30-34	1715	155.5	4.5	1497	22.5	6.7	76.7	11.7	4.9
		35-39	1340	155.8	4.0	1217	22.8	7.4	72.9	12.7	7.0
		40-44	1072	156.1	2.2	1021	23.0	8.0	69.6	13.8	8.6
		45-49	905	155.5	4.0	882	22.6	8.3	73.4	11.7	6.6
	Residence										
	urban	15-49	4178	156.4	3.3	3762	23.3	6.2	69.4	15.9	8.4
	rural	15-49	7553	154.6	5.8	6477	21.4	10.0	81.9	6.9	1.2
	Province										
	Niassa	15-49	414	153.8	4.8	344	21.7	6.5	85.2	6.9	1.4
	Cabo Delgado	15-49	961	152.9	10.3	840	21.2	12.2	80.9	6.0	1.0
	Nampula	15-49	2299	153.9	7.6	2030	21.6	10.0	80.3	7.2	2.5
	Zambézia	15-49	1873	153.5	7.7	1613	21.4	11.0	81.3	6.1	1.6
	Tete	15-49	1021	155.9	2.8	864	21.6	10.6	79.0	8.7	1.7
	Manica	15-49	735	155.4	3.0	586	21.8	6.1	82.6	9.9	1.3
	Sofala	15-49	782	155.2	3.6	652	21.5	8.6	84.6	5.1	1.6
	Inhambane	15-49	1038	156.9	2.0	944	22.8	4.8	76.7	14.6	3.9
	Gaza	15-49	659	157.6	1.5	577	21.7	12.6	74.5	10.4	2.4
	Maputo (province)	15-49	977	157.5	1.5	885	24.2	3.7	64.5	20.3	11.4
	Maputo Cidade	15-49	972	158.4	1.1	903	24.3	4.4	61.7	20.6	13.3
	Level of education										
	no education	15-49	4875	154.4	6.6	4197	21.5	9.3	82.6	6.8	1.3
	primary	15-49	5974	155.5	3.9	5216	22.4	8.2	74.7	12.2	4.8
	secondary*	15-49	855	157.9	1.9	800	23.6	7.4	66.4	15.5	10.8

[1] excludes pregnant women and women with a birth in the 2 preceding months

Note: the sample represents mothers of children under three years of age

*: higher than secondary not included as sample size is too small

I.6 Micronutrient deficiencies

Iodine deficiency disorders (IDD)

Prevalence of goitre and urinary iodine level

A nationally representative survey conducted in 2004 indicated that the prevalence of goitre in children aged 6-12 years attending primary schools was 15%, a level well above the WHO cut-off point (5%) that defines a mild public health problem (MdS, 2006a; WHO/UNICEF/ICCIDD, 2007). Rural areas were more affected than urban ones. The prevalence was very high in the provinces of Niassa, Zambézia and Nampula, indicating a moderate to severe public health problem in these areas (MdS, 2006a).

In determining the impact of interventions to control IDD, urinary iodine is more sensitive than the prevalence of goitre because it is reflective of the current intake of iodine in the diet. In 2004, median urinary iodine concentration (60 µg/L) indicated insufficient iodine intake and mild iodine deficiency at national level. Three provinces, namely Niassa, Zambézia and Nampula, showed moderate iodine deficiency (i.e. median urinary iodine between 20 and 49 µg/L). Overall, iodine deficiency affected over two-thirds (68%) of school-age children, with marked disparities by place of residence and province (MdS, 2006a).

High levels of IDD might be related to low consumption of iodine-rich foods such as fish and poor availability of iodine in the soil. Another important determinant is the large consumption of cassava, a staple in Mozambique, which contains goitrogens that may worsen iodine deficiency disorders. Cassava is the main staple food in the northern provinces (Cabo Delgado, parts of Niassa, Nampula and north of Zambézia province) (FAO, 2001) which are the provinces most affected by IDD.

Iodized oil supplementation was initiated by the Ministry of Health from 1992 to 1999 in the provinces of Tete and Niassa, and it continued irregularly until 2007. The supplementation was targeted to school-children aged 6-15 years and women of childbearing age (15-49 years). In 2008, iodine supplementation of children aged 7-24 months was done as part of the activities carried out through the bi-annual National Child Health Weeks (NCHW) in the provinces of Niassa, Nampula, Tete and Zambézia, reaching about 89% of the target group (MdS and UNICEF, 2009; UNDP et al., 2009). No iodine supplementation was done since then due to financial issues (MdS and UNICEF, 2009).

It is regrettable that the country lacks an integrated strategy to combat iodine deficiency.

Table 8: Prevalence of goitre and level of urinary iodine in school-age children

Survey name/date (Reference)	Background characteristics	Age (years)	Sex	Prevalence of goitre		Level of urinary iodine		
				Sample size	Percentage with goitre [Total Goitre]	Sample size	Median (µg/L)	Percentage with urinary iodine <100µg/L
Estudo nacional sobre a deficiencia em iodo nas crianças dos 6 aos 12 aos de idade (versao final) October 2004 (MdS, 2006a)	Total	6-12	M/F	10008	14.5	9165	60.3	68.1
	Sex							
		6-12	M	5051	13.9	4659	59.2	68.6
		6-12	F	4956	15.2	4505	61.7	67.6
	Residence							
	urban	6-12	M/F	2991	10.3	2788	89.6	54.8
	rural	6-12	M/F	7017	15.7	6377	53.6	71.9
	Province							
	Niassa	6-12	M/F	888	35.8	849	37.3	82.5
	Cabo Delgado	6-12	M/F	789	9.8	698	87.8	56.1
	Nampula	6-12	M/F	1000	23.7	913	47.3	72.9
	Zambézia	6-12	M/F	842	23.9	699	46.7	82.3
	Tete	6-12	M/F	743	11.0	677	74.1	61.0
	Manica	6-12	M/F	968	0.1	782	52.1	76.9
	Sofala	6-12	M/F	933	4.3	856	87.6	54.9
	Inhambane	6-12	M/F	989	2.8	948	68.9	64.3
	Gaza	6-12	M/F	910	1.8	847	95.0	51.6
	Maputo	6-12	M/F	963	4.5	956	90.0	53.6
	Maputo cidade	6-12	M/F	983	9.9	940	82.0	57.5

The sample comprises children aged 6-12 years frequenting primary schools throughout the country.

Iodization of salt at household level

The legislation making universal iodization of salt mandatory in Mozambique was approved in 2000. More than ten years later, it is urgent that measures for its effective enforcement should be taken. Awareness campaigns should be actively carried out (MdS, 2006b).

At national level, according to MICS 2008 preliminary data, only a quarter of households used adequately iodized salt. Consumption was more widespread in urban areas than in rural areas and differences by province were marked, ranging from only 5% in Nampula, where IDD are widespread, to 71% in Gaza, where iodized salt coming from South Africa is available (NSI, 2009a; WFP, SETSAN/GAV, 2010). There are many small scale local salt producers in the coastal areas but most do not have equipment or expertise to produce iodized salt.

Table 9: Iodization of salt at household level

Survey name/date (Reference)	Background characteristics	Number of households where salt was tested or that had no salt	Iodine level of household salt				Percentage of households where the salt was tested
			Households without salt	None (0 ppm)	Inadequate (<15 ppm)	Adequate (≥15 ppm)	
Multiple Indicator Cluster Survey 2008 (summary) (Aug. - Dec. 2008) (INE, 2009)	Total	13699	5.7	36.0	33.3	25.1	92.6
	Residence						
	urban	4263	4.3	26.3	32.5	36.9	94.0
	rural	9436	6.3	40.3	33.6	19.7	91.9
	Province						
	Niassa	814	11.5	14.3	29.0	45.2	86.7
	Cabo Delgado	1488	7.9	62.0	21.8	8.3	90.7
	Nampula	2447	6.7	63.8	24.8	4.7	88.8
	Zambézia	2524	4.0	54.5	32.2	9.2	95.6
	Tete	1272	6.7	26.0	49.0	18.3	92.6
	Manica	623	7.0	11.7	51.9	29.4	92.5
	Sofala	1107	2.0	17.3	45.7	35.0	97.8
	Inhambane	920	4.8	6.8	52.5	35.9	92.6
	Gaza	831	6.2	2.4	20.8	70.6	92.3
	Maputo	934	3.8	19.0	29.1	48.1	94.3
	Maputo Cidade	741	2.8	13.1	26.5	57.6	96.0

Note: ppm = parts per million

Vitamin A deficiency (VAD)

Prevalence of sub-clinical and clinical vitamin A deficiency

The 2001-2002 survey conducted in all provinces of the country except Nampula revealed that vitamin A deficiency (low level of serum retinol) affected 69% of children aged 6-59 months, a level well above the WHO cut-off point (20%) that defines a severe public health problem (MdS, 2006b; WHO, 2009b).

Boys were slightly more affected than girls and children living in rural areas were more affected than those living in urban areas. This is probably related to the lower socio-economic status of populations living in rural areas and to diets poorer in vitamin A (MdS, 2006b).

Table 10: Prevalence of sub-clinical and clinical signs of vitamin A deficiency in children 6-59 months

Survey name/date (Reference)	Background characteristics	Age (months)	Sex	Prevalence of low level of serum retinol		Clinical signs of xerophthalmia		
				Sample size	Percentage with serum retinol <20 µg/dL or 0.70 µmol/L	Sample size	Type of sign	Percentage
Inquérito nacional sobre a deficiência de vitamina A, anemia e malária nas crianças dos 6 aos 59 meses de idade e sua mães (Dec. 2001 - Feb. 2002) (MdS, 2006b)	Total	6-59	M/F	705	68.8	n.a.	n.a.	n.a.
	Sex							
		6-59	M	364	71.9	n.a.	n.a.	n.a.
		6-59	F	340	65.6	n.a.	n.a.	n.a.
	Residence[1]							
	urban	6-59	M/F	310	63.3	n.a.	n.a.	n.a.
	rural	6-59	M/F	395	73.1	n.a.	n.a.	n.a.
	Breastfeeding status (6-23 months only)							
	Not breastfed	6-23	M/F	104	67.5	n.a.	n.a.	n.a.
	Breastfed	6-23	M/F	253	75.8	n.a.	n.a.	n.a.

Note: the survey was conducted in 32 clusters distributed over all the provinces of the country except Nampula due to an outbreak of cholera.

[1]: Urban/rural results should be interpreted with caution due to the relatively small number of urban clusters (14).

n.a.: not available

Two surveys document vitamin A deficiency among mothers: a survey conducted in 2001-2002 in all provinces except Nampula documents the level of serum retinol; the nationally representative Moçambique Inquérito Demografico e de Saude 2003 documents the prevalence of night blindness (MdS, 2006b; INE et al., 2005).

In 2003, the prevalence of night blindness during pregnancy (clinical manifestation of vitamin A deficiency) was 1%, which is lower than the WHO cut-off (5%) for defining a public health problem (INE et al., 2005; WHO, 1996). Prevalence was similar in urban and rural areas; by province, it was highest in Zambézia (3%) (INE et al., 2005).

The prevalence of ocular manifestations is recognized to far underestimate the magnitude of the problem of functionally significant VAD. Serum retinol values can reveal marginal VAD before the deficiency is severe enough to cause clinical manifestations (WHO, 2009b; WHO/FAO, 2004; Gorstein et al., 2007).

The 2001-2002 survey indicated that 11% of mothers of children aged 6-59 months had low serum retinol (<20 µg/dL). The prevalence of sub-clinical vitamin A deficiency was higher in urban areas (14%) than in rural areas (8%) (MdS, 2006b).

Table 11: Prevalence of clinical and subclinical signs of vitamin A deficiency in mothers during their last pregnancy and in breastfeeding mothers

Survey name/date (Reference)	Background characteristics	Age (years)	Prevalence of night blindness during pregnancy[1]			Prevalence of low level of retinol in breastmilk	
			Number of mothers	Percentage non adjusted	Percentage adjusted for daytime blindness	Number of breastfeeding mothers	Percentage with retinol in breastmilk ≤1.05 µmol/L
Moçambique Inquérito Demografico e de Saude 2003 (INE et al., 2005)	Total	15-49	7179	5.3	1.4	n.a.	n.a.
	Residence						
	urban	15-49	2239	6.2	1.4	n.a.	n.a.
	rural	15-49	4940	4.9	1.4	n.a.	n.a.
	Province						
	Niassa	15-49	326	4.2	0.8	n.a.	n.a.
	Cabo Delgado	15-49	638	4.5	1.4	n.a.	n.a.
	Nampula	15-49	1458	8.2	1.7	n.a.	n.a.
	Zambézia	15-49	1118	8.0	3.1	n.a.	n.a.
	Tete	15-49	694	1.6	0.2	n.a.	n.a.
	Manica	15-49	535	2.7	0.5	n.a.	n.a.
	Sofala	15-49	524	4.6	1.1	n.a.	n.a.
	Inhambane	15-49	576	5.6	1.7	n.a.	n.a.
	Gaza	15-49	381	1.8	0.6	n.a.	n.a.
	Maputo	15-49	519	4.1	1.1	n.a.	n.a.
	Maputo Cidade	15-49	409	5.1	0.6	n.a.	n.a.

[1] During the last pregnancy of women with a live birth in the 5 years preceding the survey
n.a.: not available

Table 11: Prevalence of clinical and subclinical signs of vitamin A deficiency in mothers (cont'd)

Survey name/date (Reference)	Background characteristics	Age (years)	Prevalence of low level of serum retinol	
			Sample size	Percentage with serum retinol <20 µg/dL or 0.70 µmol/L
Inquérito nacional sobre a deficiência de vitamina A, anemia e malária nas crianças dos 6 aos 59 meses de idade e sua mães 2001-2002 (Dec. 2001 - Feb. 2002) (MdS, 2006b)	Total	<20 - >30	705	10.8
	Residence[1]			
	urban	<20 - >30	310	14.0
	rural	<20 - >30	395	8.2
	Pregnancy/Breastfeeding status			
	Not pregnant	<20 - >30	557	11.0
	Pregnant	<20 - >30	(70)	(14)
	Not breastfeeding	<20 - >30	394	11.7
	Breastfeeding	<20 - >30	290	10.2

Note: the survey was conducted in 32 clusters distributed over all the provinces of the country except Nampula due to an outbreak of cholera.
[1]: Urban/rural results should be interpreted with caution due to the relatively small number of urban clusters (14).

In view of the characteristics of the food supply, intake of foods of animal origin (meat/offals, eggs, dairy products) which contain high amounts of preformed retinol is extremely limited; widespread poverty probably further hampers consumption of these foods, which are generally expensive. With the exception of green leafy vegetables which are frequently used to prepare stews, intake of other vegetables and fruit rich in carotenoids is also limited as well as the consumption of lipids that is needed for absorption of the carotenoids. Moreover, some preparation methods might further reduce the vitamin A content. Papaya, mango, pumpkin, carrots, and orange flesh sweet potatoes are produced in the country. However, some of them (papaya, carrots) are sold for income rather than consumed by the household; mangos are available only during a 3 month-period (December-February) and orange flesh sweet potatoes need to be promoted more widely.

According to the 2003 nationally representative IDS survey, only half of the children under three years had consumed fruit and vegetables rich in vitamin A in the seven days preceding the interview. The proportion of children consuming fruit and vegetables rich in vitamin A was lowest in Nampula (INE et al., 2005).

Vitamin A supplementation

Vitamin A supplementation of preschool children, adopted as a short to medium-term strategy, started in 1999; it was firstly integrated into National Immunisation Days, then into Mother and Child Health Days and into routine child health services in 2002 (Aguayo et al., 2004). But due to the low coverage of routine services, vitamin A supplementation has also been integrated in bi-annual National Child Health Weeks since 2008.

Coverage has improved significantly in recent years: according to MICS 2008 preliminary data, 72% of children aged 6-59 months had received vitamin A supplements in the 6 months preceding the survey compared to only 50% in 2003 (INE et al., 2005; NSI, 2009a). This substantial increase is related to the implementation of the bi-annual National Child Health Weeks. Although still significant, urban/rural disparities in vitamin A supplementation coverage have decreased. Coverage was below the national average in Tete, Zambézia, Nampula and Gaza (NSI, 2009a).

In 2002, post-partum vitamin A supplementation was introduced in Maputo city and was later extended in 2004 to maternity clinics in provincial capitals and to some maternity clinics in rural hospitals (UNICEF, 2006). As a consequence, vitamin A supplementation of mothers was extremely limited during 2003: at national level, only one mother out of five had received vitamin A supplements in the 2 months post-partum. Supplementation coverage was about twice as high in urban areas as in rural areas. Disparities by province were marked: coverage was negligible in Inhambane and Gaza (1%) while it reached 67% in Maputo City, where vitamin A supplementation was introduced earlier and access to health services is probably better (INE et al., 2005).

Long-term strategies such as food-based approaches, which promote a more diversified production and consumption of food crops rich in carotene, have the potential to improve the quality of the diet in a sustainable way. Promoting consumption of vitamin A-rich foods is included in several initiatives of the MoH and its partners. Various Information, Education and Communication (IEC) materials were developed and distributed in health facilities (MdS and UNICEF, 2009). These efforts should be strongly encouraged.

In 2000, after the floods, a multi-sectorial intervention (MOH-Nutrition and MOA-National Agriculture Research Institute) was implemented to promote production and consumption of orange fleshed sweet potatoes (OFSP) on affected areas. Thereafter, different projects had also promoted OFSP production and consumption all over the country.

Except iodized salt no other foods are fortified in Mozambique, by the public or private sector. Some imported fortified foods, such as oil, butter and sugar are available, but are too expensive to allow widespread consumption (USAID Mozambique, 2010). At the moment, MOH with some partners is in the process of fortifying cooking oil with vitamin A and wheat flour with iron.

Table 12: Vitamin A supplementation of children

Survey name/date (Reference)	Background characteristics	Children			
		Age (months)	Sex	Number of children	Percent of children who received vit. A supplements in the 6 months preceding the survey
Multiple Indicator Cluster Survey 2008 (summary) 2008 (INE, 2009)	Total	6-59	M/F	10193	71.5
	Sex				
		6-59	M	5003	72.5
		6-59	F	5188	70.4
	Residence				
	urban	6-59	M/F	2868	77.8
	rural	6-59	M/F	7325	69.0
	Province				
	Niassa	6-59	M/F	603	73.0
	Cabo Delgado	6-59	M/F	1008	72.7
	Nampula	6-59	M/F	1536	67.6
	Zambézia	6-59	M/F	1803	62.3
	Tete	6-59	M/F	1013	61.0
	Manica	6-59	M/F	519	84.9
	Sofala	6-59	M/F	1421	81.3
	Inhambane	6-59	M/F	654	79.5
	Gaza	6-59	M/F	656	70.5
	Maputo	6-59	M/F	585	77.5
	Maputo Cidade	6-59	M/F	396	76.2

Table 12: Vitamin A supplementation of children and mothers (cont'd)

Survey name/date (Reference)	Background characteristics	Children				Mothers		
		Age (months)	Sex	Number of children	Percent of children who received vit. A supplements in the 6 months preceding the survey	Age (years)	Number of mothers[1]	Percent of mothers who received vit. A supplements within 2 months postpartum
Moçambique Inquérito Demografico e de Saude 2003 (INE et al., 2005)	Total	6-59	M/F	8318	49.8	15-49	7179	20.8
	Sex							
		6-59	M	4098	48.9			
		6-59	F	4220	50.7			
	Residence							
	urban	6-59	M/F	2458	65.0	15-49	2239	30.0
	rural	6-59	M/F	5860	43.4	15-49	4940	16.6
	Province							
	Niassa	6-59	M/F	398	36.5	15-49	326	20.7
	Cabo Delgado	6-59	M/F	713	47.8	15-49	638	20.8
	Nampula	6-59	M/F	1741	46.7	15-49	1458	5.9
	Zambézia	6-59	M/F	1283	49.8	15-49	1118	36.7
	Tete	6-59	M/F	865	46.8	15-49	694	23.9
	Manica	6-59	M/F	637	56.0	15-49	535	33.8
	Sofala	6-59	M/F	607	42.4	15-49	524	13.4
	Inhambane	6-59	M/F	668	41.7	15-49	576	1.4
	Gaza	6-59	M/F	431	54.7	15-49	381	1.1
	Maputo	6-59	M/F	540	62.2	15-49	519	17.8
	Maputo Cidade	6-59	M/F	435	77.0	15-49	409	66.5

[1] Women with a birth in the 5 years preceding the survey. For women with two or more births during that period, data refer to the most recent birth

Iron deficiency anemia (IDA)

Prevalence of IDA

The 2001-2002 survey conducted in all provinces of the country except Nampula is the only nationally representative survey that documents the prevalence of anemia among preschool children (MdS, 2006b).

The survey showed that prevalence of anemia (hemoglobin < 11.0 g/dL) among children aged 6-59 months was 75%, largely above the 40% threshold defined by WHO as representing a severe public health problem in the country (MdS, 2006b; WHO, 2001).

Children living in rural areas were more affected than those living in urban areas. Prevalence decreased with age: it was highest among children aged 6-11 months (89%), which is due to increasing iron requirements during this period coupled with inadequate complementary feeding practices, in particular insufficient intake of iron-rich foods. Prevalence was similar among breastfed and non-breastfed children aged 6-23 months (MdS, 2006b).

Iron deficiency (defined as high level of serum transferrin receptor[14]) largely contributed to anemia (44% of children 6-59 months with anemia showed high levels of transferrin receptor) (MdS, 2006b). Vitamin A deficiency and malaria were also strongly associated with anemia among preschool children (MdS, 2006b).

Previously, in 1998, a sub-national survey implemented in 4 provinces of the country (Cabo Delgado, Manica, Gaza, Maputo) had indicated a prevalence of anemia of 74% among children aged 1-5 years (Fidalgo et al., 1999; WHO Global database on anaemia).

Table 13: Prevalence of anemia in preschool children

Survey name/date (Reference)	Background characteristics	Age (months)	Sex	Sample size	Percentage of children with	
					Any anaemia (Hb<11.0 g/dL)	Severe anaemia (Hb<7.0 g/dL)
Inquérito nacional sobre a deficiência de vitamina A, anemia e malária nas crianças dos 6 aos 59 meses de idade e sua mães (Dec. 2001 - Feb. 2002) (MdS, 2006b)	Total	6-59	M/F	707	74.5	7.2
	Sex					
		6-59	M	365	75.6	7.7
		6-59	F	341	73.2	6.7
	Age					
		6-11	M/F	124	88.7	16.2
		12-23	M/F	243	77.7	8.6
		24-59	M/F	340	67.0	2.9
	Residence[1]					
	urban	6-59	M/F	312	66.8	3.6
	rural	6-59	M/F	395	80.5	10.0
	Breastfeeding status (6-23 months only)					
	Not breastfed	6-23	M/F	104	80.1	7.4
	Breastfed	6-23	M/F	253	81.8	11.5

Hb: Hemoglobin

[1]: Urban/rural results should be interpreted with caution due to the relatively small number of urban clusters (14).

No data document the prevalence of anemia among school-age children in Mozambique.

According to the 2001-2002 survey conducted in all provinces of the country except Nampula, anemia[15] affected 48% of mothers of children aged 6-59 months, a prevalence which was above the 40% threshold defined by WHO to define a severe public health problem (MdS, 2006b; WHO, 2001). Urban/rural disparities were not marked (MdS, 2006b).

Iron deficiency and vitamin A deficiency were strongly associated with anemia among mothers (MdS, 2006b).

[14] Level of serum transferrin receptor > 8.5 mg/L

[15] Cut-off used to define anemia (any anemia): 12.0 g/dL among both pregnant and non pregnant mothers.

The sub-national survey implemented in 4 provinces of the country (Cabo Delgado, Manica, Gaza, Maputo) in 1998 indicated a prevalence of anemia of 53% among non pregnant women (aged 15-49) and 58% among pregnant women[16] (Fidalgo et al., 1999; WHO Global database on anaemia).

Table 14: Prevalence of anemia in women of childbearing age

Survey name/date (Reference)	Background characteristics	Age (years)	Sample size	Percentage of women with	
				Any anaemia (pregnant and non pregnant women Hb<12.0 g/dL)	Severe anaemia (all women Hb<7.0 g/dL)
Inquérito nacional sobre a deficiência de vitamina A, anemia e malária nas crianças dos 6 aos 59 meses de idade e sua mães (Dec. 2001 - Feb. 2002) (MdS, 2006b)	Total	<20 - >30	707	48.0	0.7
	Age				
		< 20	(88)	(53)	(0)
		20-29	413	49.6	1.0
		≥ 30	205	42.9	0.5
	Pregnancy/Breastfeeding status				
	Not pregnant	<20 - >30	558	48.4	0.5
	Pregnant	<20 - >30	(70)	(70)	(3)
	Not breastfeeding	<20 - >30	396	51.7	0.7
	Breastfeeding	<20 - >30	290	43.8	0.7
	Residence[1]				
	urban	<20 - >30	312	50.1	0.6
	rural	<20 - >30	395	46.4	0.8

Hb: Hemoglobin
Survey population: mothers of children aged 6-59 months
[1]: Urban/rural results should be interpreted with caution due to the relatively small number of urban clusters (14).

No data document the prevalence of anemia among adult men in Mozambique.

The high prevalence of anemia in Mozambique may be primarily related to low dietary intake of bioavailable iron. Consumption of meat is not common and it is likely that this food product is consumed in very small quantities. Iron deficiency anemia may also be related to parasitic diseases and chronic infections. Malaria, which is endemic in Mozambique, as well as HIV/AIDS epidemic, are important risk factors for anemia. Moreover, schistosomiasis and soil-transmitted helminths are highly prevalent, especially in the northern provinces (Augusto, et al., 2009). Deworming of young children is carried out through the NCHW and is part of the infant and child care programme; deworming of pregnant women is also in place (UNDP et al., 2009).

Interventions to combat IDA

Despite the high prevalence of anemia among mothers, only 58% of women had received iron supplements during pregnancy in 2003. Coverage was considerably larger in urban areas (76%) than in rural areas (49%). Disparities across provinces were marked, coverage ranging from 31% in Zambézia to 87% in the city of Maputo (INE et al., 2005).

[16] Cut-off used to define anemia (any anemia): 12.0 g/dL among non pregnant women, 11.0 g/dL among pregnant women.

Table 15: Iron supplementation: percentage of mothers who took iron tablets/syrups during pregnancy

Survey name/date (Reference)	Background characteristics	Number of mothers with a birth in the 5 years preceding the survey	Percent who took iron tablets/syrups during pregnancy
Moçambique Inquérito Demografico e de Saude 2003 (INE et al., 2005)	Total	7179	57.5
	Residence		
	urban	2239	76.3
	rural	4940	48.9
	Province		
	Niassa	326	57.2
	Cabo Delgado	638	64.8
	Nampula	1458	49.6
	Zambézia	1118	30.7
	Tete	694	58.4
	Manica	535	65.7
	Sofala	524	67.7
	Inhambane	576	57.9
	Gaza	381	68.2
	Maputo	519	76.4
	Maputo Cidade	409	86.7

Iron supplementation targets pregnant and breastfeeding women, but no other population group at the moment. MOH and partners are in the process of starting fortification of wheat flour with iron.

Other micronutrient deficiencies

Pellagra, a vitamin deficiency disease most commonly caused by a chronic lack of niacin (vitamin B3) usually associated with maize consumption as a staple, may still affect the Mozambican population (Golden, 2002).

I.7 Policies and programmes aiming to improve nutrition and food security

In 1998, in the aftermath of the 1996 World Food Summit, Mozambique was one of the first countries to develop a National Strategy for Food Security and Nutrition (ESAN), and that same year, to set up a Technical Secretariat for Food Security and Nutrition (SETSAN).

SETSAN is a multi-sectoral body coordinating several ministries and hosted by the Ministry of Agriculture. The principal objective of the SETSAN is the promotion of a comprehensive diagnosis of food security and nutrition in Mozambique to facilitate appropriate and timely decision-making to fight malnutrition and food insecurity. At a provincial level, SETSAN-P acts as a focal point for the multi-sectoral coordination and implementation of provincial food and nutrition security strategies and develops provincial action plans (FIVIMS, not dated).

The main aim of the ESAN was to link food security to production increase and diversification of food crops, increased and more diversified sources of non-farm income, and improved knowledge of appropriate technologies for food production and conservation. The strategy was evaluated in 2005 with positive results despite some limitations, e.g. focus on rural food and nutrition insecurity only, no integration of the Right to Food approach, no linkage between HIV/AIDS and food and nutrition security, etc. (EGEval II, 2007).

In 2007, the second Food and Nutritional Security Strategy was launched (ESAN-II). ESAN-II 2008-2015 evolved from ESAN I to incorporate the Human Right to Adequate Food and fill gaps identified by the evaluation. The strategy of ESAN II calls for an integrated approach between food security and nutrition, safety nets and social promotion, and emphasizes the multi-sectoral approach already formulated in ESAN I (SETSAN, 2007; SETSAN and RdM, 2008; MoA, 2010).

The Multi-Sector Plan for the Reduction of Chronic Malnutrition in Mozambique, finalized in September 2010 to cover the period up to 2020, is a major programme aiming to improve the nutrition status of young children (RoM, 2010) (see paragraph I.5 Anthropometry of preschool children). Seven objectives are listed in this Plan, which give priority to children in the first two years of life, adolescent girls (10-19), and women of reproductive age (before and during pregnancy and breastfeeding). These objectives include notably:

- strengthening child-oriented nutrition activities in the first two years of birth: promote exclusive breastfeeding for their first six months of life and adequate complementary feeding, reduce micronutrient deficiencies in children aged 6-24 months
- strengthening interventions to improve mother's health and nutrition status: reduce micronutrient deficiencies before and during pregnancy and breastfeeding, control infections, increase weight gain during pregnancy
- strengthening household-oriented activities to improve production and consumption of highly nutritious foods, food processing and good hygiene practices
- strengthening activities with impact on teenager's nutrition status: reduce anemia, prevent early pregnancy, nutrition education
- strengthening nutrition skills of local staff (RoM, 2010).

Implementation of the Plan started in the first quarter of 2011.

In order to improve food availability and access, the Ministry of Agriculture has been promoting increased production of nutritious foods through implementation of several key national programmes aimed at diversifying food consumption, namely of maize, rice, flour, cassava, peanuts, potatoes, soy, beans, chickens and fish. In the framework of promoting nutritious foods, it has implemented the Rural Extension Programme whose objective is to show small farmers across the country how to grow special crops including those with high nutritional value. In some districts, FAO in collaboration with different ministries is implementing a special project related to school gardening (*Junior Farmer Field and Life Schools* - JFFLS) which disseminates knowledge on good agriculture practices, health, hygiene and nutrition (RoM, 2010).

In the social action sector, a Food Subsidy Programme of the Ministry of Women and Social Action distributes food to vulnerable people in all provinces. Target groups are the elderly unable to work, chronically sick people and pregnant women with malnutrition; coverage is still low (RoM, 2010).

Part II: Overview and basic indicators

II.1 Population

Population indicators

Mozambique's population was 20.6 million in 2007 (INE, 2009b). The country has a relatively low population density (UNPD). The population is very young and shows high fertility rates (5.8 children per women in 2007) (UNPD; INE 2009b).

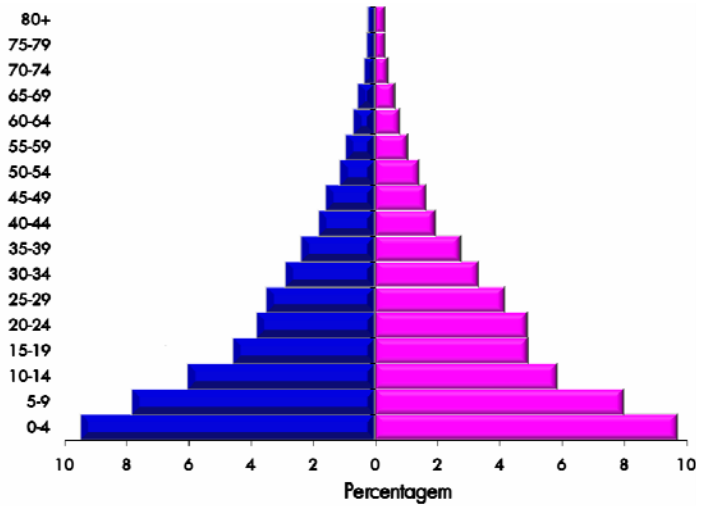
The annual population growth rate has declined since the mid-1990s (UNPD). The majority of the population lives in rural areas (62%), but the urban population is increasing rapidly (UNPD). It is estimated that slum dwellers represent more than 80% of the total urban population. A majority of these slums are situated in areas prone to floods and other natural disasters (UN Habitat, no date).

Recurrent natural disasters (floods, cyclones, drought) have caused widespread internal displacement, notably from the country's interior, prone to recurrent drought, to urban and coastal areas (IOM, 2009; UNICEF, no date, b). International migration is also common; many Mozambicans are labour migrants working in South Africa (IOM, 2009). Mozambique hosts almost 8 000 refugees and asylum-seekers coming from countries of the sub-region (UNHCR, 2011).

Table 16: Population indicators

Indicator	Estimate	Unit	Reference period	Source
Total population	20.6	million	2007	INE
Annual population growth rate	2.33	%	2005-2010	UNPD
Crude birth rate	39.5	‰	2005-2010	UNPD
Population distribution by age:			2010	UNPD
0-4 years	17	%		
5-14 years	27	%		
15-24 years	20	%		
60 and over	5	%		
Rural population	62	%	2010	UNPD
Agricultural population	76	%	2010	FAOSTAT
Population density	29	inhabitants per km^2	2010	UNPD
Median age	17.9	years	2010	UNPD
Life expectancy at birth	47.8	years	2005-2010	UNPD
Population sex ratio	94.9	males per 100 female	2010	UNPD
Net migration rate	- 0.2	‰	2005-2010	UNPD
Total dependency rate	89	%	2010	UNPD

Population pyramid (2007)



Source: INE, 2009b

II.2 Agroecological context

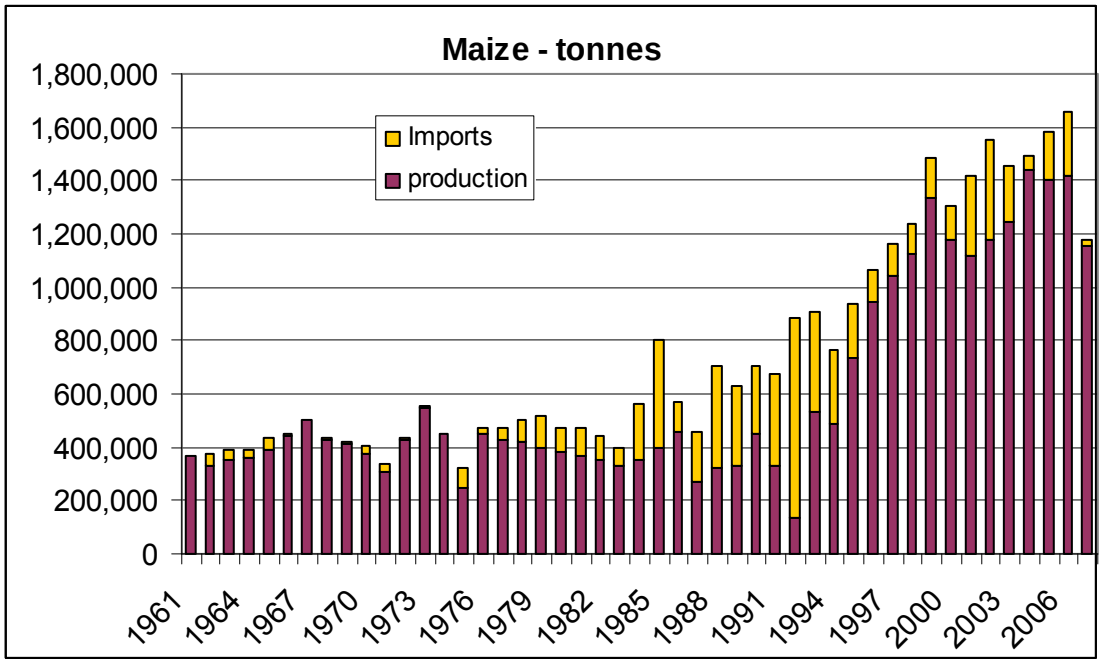
The climate is predominantly tropical; it ranges from arid and semi-arid (mostly in the south and southwest) to the sub-humid zones (mostly in the center and the north) to the humid highlands (mostly the central provinces). The arid region of the south and southwestern part of Gaza province are suitable only for livestock (WB, 2006). Rainfall pattern shows a sea-to-land and a north-south gradient (FAO, Forestry Division – Geography). The rainy season lasts from October-November to April-May (FAO, AQUASTAT, 2005). The country is highly vulnerable to droughts and floods (WB, 2006).

Starting from a very low base, agricultural growth was high in the immediate post-war period and throughout the 1990s, as farmers returned to their land and markets started to develop (WB, 2008). Agriculture is the main source of income for the majority of the population (FAO, FAOSTAT). The sector contributes significantly to GDP (29% in 2008) and is one of the main export earners along with fisheries (WB; STDF, 2008).

An overwhelming part of agricultural production takes place in the northern and central provinces which are the most fertile. The southern region is drier with sandy, infertile soils, and a higher risk of losses due to drought (WB, 2006).

Cassava and maize are the most important food crops, followed by rice, sorghum, beans and sweet potatoes. Cassava is considered as a food security crop because of its adaptability to cultivation under harsh conditions (MIC, 2007). It is cultivated throughout the country but production is mainly concentrated in the provinces of Cabo Delgado, Nampula, Zambezia and Inhambane, these provinces contributing more than 90% of the national production (MIC, 2007). Rice is produced in parts of Zambezia, Sofala and Gaza provinces. Important cash crops are cashew, cotton, tea, sugarcane and coconut (copra), developed during the Portuguese colonial period, as well as tobacco, sunflower and sesame (WB, 2006; Pitcher, 2002). Groundnuts are also important both as a food and cash crop. Diversification of food crops has increased considerably since the late 1990s (WB, 2006 and 2008).

- Figure 5: Import and production of maize (1961-2007)



Source: FAOSTAT

Agricultural potential is largely underutilized: only about 10% of the total arable land is cultivated and an extremely limited area is irrigated (mostly for sugarcane) (Biacuana, 2009; FAO, AQUASTAT, 2005; FAO, FAOSTAT). As a result, crop production is very vulnerable to weather-related risks: droughts were observed in 1994 and 1996 in the southern and central parts of the country, major floods took place in 1999-2000 and a sharp reduction in the 2010 cereal harvest was observed due to severe drought in central and southern regions (WB, 2006; FAO/GIEWS, 2010).

Figure 5 shows that from the end of the civil war onwards, production of maize has increased considerably while imports have dropped.

The smallholder sub-sector accounts for about 95% of the area under production. The majority of smallholders practice extensive shifting cultivation, characterized by small areas, low input, inadequate equipment, low yields and returns. Poor rural infrastructure and markets are among the major constraints for agricultural growth.

Since the 1992 peace accords, the agriculture sector has shown remarkable improvements, primarily through area expansion and through an increase in the labour force (return of migrants). However, access to land and use of improved technologies (fertilizer, improved seeds, drought-resistant varieties, small-scale irrigation, etc.) remain limited and crop yields are stagnant (WB, 2006).

Land use and irrigation statistics

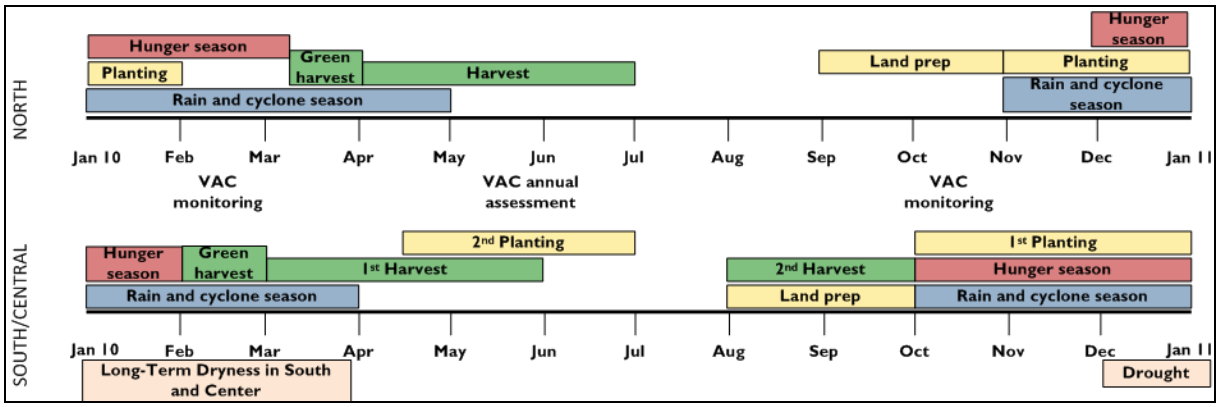
Table 17: Land use and irrigation

Type of area	Estimate	Unit	Reference period	Source
Total land area	78 638	1000 Ha	2007	FAOSTAT
Agricultural area	62	%	2007	FAOSTAT
Arable lands and permanent crops	6	%	2007	FAOSTAT
Permanent crops	0.5	%	2007	FAOSTAT
Permanent meadows and pastures	56	%	2007	FAOSTAT
Forest	25	%	2005	FAO, Forestry Division
Irrigated agricultural land	<1	%	2001	AQUASTAT
Arable and permanent cropland in Ha per agricultural inhabitant	0.31	Ha per agricultural inhabitant	2006	FAOSTAT

N.B. Percents are calculated on the total land area.

Main crops, agricultural calendar, seasonal food shortage

According to FAO estimates, the major food and agricultural commodities in quantity produced in Mozambique in 2005 were cassava, maize, sorghum, coconuts and pulses (FAO, Statistics Division). Cassava, maize, sorghum and pulses are mainly for local human consumption. Coconuts are processed and coconut oil is mainly for local consumption (FAO, FAOSTAT).



Source: USAID/FEWS NET, 2010

The season of food shortage generally occurs between December and March in the North and between October and January in the South.

Livestock production and fisheries

Livestock (mainly chicken, pigs, goats) make significant contributions to the livelihood of smallholders and of the rural poor. Only 4% of the population possesses cattle, which are used mainly for animal traction, as a status symbol and are rarely sold. The number of livestock has grown significantly over the past decade. However, productivity of the livestock sector is undermined by diseases, high mortality and inadequate feed. About two-thirds of total livestock production is in northern and central eastern provinces (WB, 2006).

Mozambique is endowed with fairly rich fisheries resources, both marine and freshwater. The fisheries sector plays an important role in the economy, contributing 13% of the export income. It is an important source of employment and revenue. An estimated 480,000 people are economically dependent on the sector, directly or indirectly (FAO et al., 2008). A wide range of marine fish products is available and marketed. The domestic market for marine products is small and consumption of such products is mainly confined to coastal areas (FAO, 2005). Large quantities of fish and seafood are exported (FAO, Faostat).

Table 18: Livestock and fishery statistics

Livestock production and fishery	Estimate	Unit	Reference period	Source
Cattle	1 425 880	number of heads	2007	FAOSTAT
Sheep and goats	5 218 882	number of heads	2007	FAOSTAT
Poultry birds	29 175	thousands	2007	FAOSTAT
Fish catch and aquaculture	93 177	tons	2007	FAO, FIGIS

II.3 Economy

Mozambique has emerged as one of Africa's most successful examples of post-conflict reconstruction and economic recovery, with impressive economic growth averaging 8% from 2000 to 2006, driven primarily by foreign-financed "mega-projects" and large aid inflows (UNICEF, no date, b; AfDB/OECD, 2008; AfDB/OECD, 2006). Mozambique's economy is more diversified than most other low-income African countries and industry, mining and construction sectors have registered strong growth (Maasdam, 2009; AfDB/OECD, 2008).

Despite strong economic performance, the impact on employment and income has been limited (FAO/WFP, 2005).

The road infrastructure network, the main mean of transportation for domestic trade, is not developed and in rural areas it is in very poor condition (AfDB, 2008; IFAD, 2008; ADF, 2005).

Table 19: Basic economic indicators

Indicator	Estimate	Unit	Reference period	Source
Gross Domestic Product per capita	802	PPP US $	2007	UNDP
GDP annual growth	6.8	%	2008	WB
Gross National Income per capita	380	$	2008	WB
Industry as % of GDP	24	%	2008	WB
Agriculture as % of GDP	29	%	2008	WB
Services as % of GDP	47	%	2008	WB
Paved roads as % of total roads	19	%	2001	WB
Internet users	1.6	per 100 inhabitant	2008	ITU
Total debt service as % of GDP	1.4	%	2005	UNDP
Military public expenditure as % of GDP	0.9	%	2005	UNDP

II.4 Social indicators

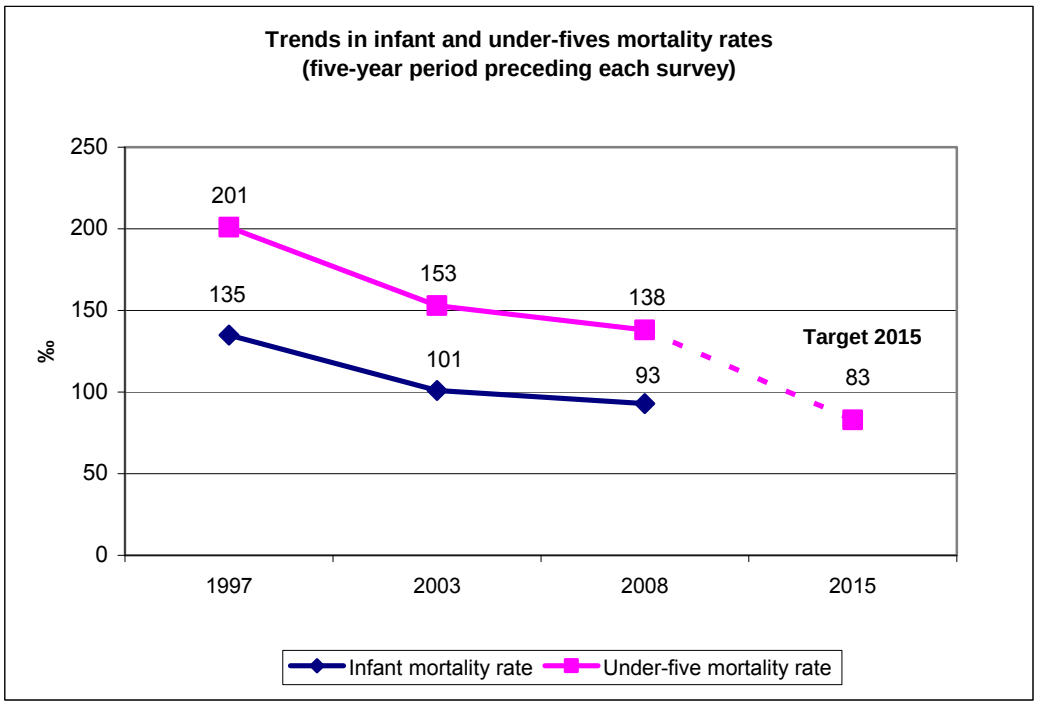
Health indicators

The epidemiological profile of Mozambique is still largely dominated by communicable diseases (malaria, diarrhoea, respiratory infections, HIV/AIDS, etc.) but non-communicable diseases (cardiovascular disease or diabetes) are emerging (MoH, 2001; RoM, 2006).

The infant mortality rate was estimated at 93‰ over the five-year period before the Multiple Indicator Cluster Survey 2008. The under-five mortality rate was estimated at 138‰ over the same period (NSI, 2009a). Trends in early childhood mortality rates for successive five-year periods before the 1997 IDS, the 2003 IDS and the 2008 MICS indicate a decline in child mortality rates. However, the pace of this decrease is slowing down and the rates remain among the highest of the region[17] (Figure 6) (INE and Macro Int. Inc. 1998; INE et al., 2005; NSI, 2009a). Pneumonia, HIV/AIDS, diarrhoea and malaria are the major causes of deaths among under-fives (WHO, 2010).

[17] Comparison with Zambia, Kenya, Malawi and Tanzania.

- Figure 6: Trends in infant and under-fives mortality rates



Sources: NSI, 2009a; INE and Macro Int. Inc. 1998; INE et al., 2005.

The national Expanded Programme on Immunisation (EPI) has made substantial progress in recent years: the percentage of children age 12-23 months fully immunized (BCG, measles and three doses DPT and polio) increased from 47% in 1997 to 63% in 2003 and 60% in 2008. However, coverage remains insufficient and shows marked disparities between urban and rural areas and between provinces (NSI, 2009a; INE and Macro Int. Inc. 1998; INE et al., 2005; UNICEF, 2006).

In 2000, the adjusted maternal mortality ratio was as high as 1 000 deaths per 100 000 live births, a ratio which dropped to 520 in 2005 (UNICEF, 2007 and 2009). The maternal mortality ratio, although still high, is now considerably lower in Mozambique than in some neighbouring countries such as Zambia, Zimbabwe or Tanzania (UNICEF, 2009). The implementation of the maternal mortality reduction strategy from 2000 has led to better access to health services and to a considerable increase in pre-natal visits and family planning, contributing to the decrease in maternal mortality (RoM, 2009).

While a number of neighbouring countries (Tanzania, Zambia, Zimbabwe) have seen a decline or at least a stabilization in HIV/AIDS prevalence among adults, it is on the rise in Mozambique (from 10% in 2001 to 12% in 2009); this is a significant threat to development (UNSTAT; UNAIDS, 2008; RoM, 2009; MdS, 2010). Among young women aged 15-24, HIV/AIDS prevalence was estimated at 11% in 2009 (MdS, 2010). Only one-third of pregnant women (30% in 2007) were enrolled in a programme for prevention of mother-to-child transmission (PMTCT), despite a rapid increase in the number of PMTCT sites (WHO, 2009a). However, coverage may have improved recently (UN Mozambique, 2009).

Table 20: Health indicators

Indicator	Estimate	Unit	Reference period	Source
Mortality				
Infant mortality rate	93	‰	2004-2008	MICS
Under-five mortality rate	138	‰	2004-2008	MICS
Maternal mortality ratio:				
reported	408	per 100 000 live births	1993-2003	IDS
adjusted	520	per 100 000 live births	2005	UNICEF
Morbidity				
Percentage of deaths among under-fives attributable to malaria	12	%	2010	WHO
Percentage of under-fives sleeping under an insecticide treated bednet	23	%	2008	MICS
Percentage of under-fives with diarrhoea in the last 2 weeks	14	%	2003	IDS
Percentage of under-fives with diarrhoea in the last 2 weeks who received oral rehydration therapy (ORT)[1]	71	%	2003	IDS
Percentage of under-fives with acute respiratory infections in the last 2 weeks	5	%	2008	MICS
Tuberculosis prevalence	624	per 100 000 people	2006	WHOSIS
HIV/AIDS				
Prevalence in adults 15-49 years	12	%	2009	INSIDA
Percentage of women 15-24 with comprehensive correct knowledge of HIV/AIDS	36	%	2009	INSIDA
Immunization				
Percent of children from 12 to 23 months with immunization against tuberculosis	88	%	2008	MICS
Percent of children from 12 to 23 months with DPT3 immunization	74	%	2008	MICS
Percent of children from 12 to 23 months with immunization against measles	74	%	2008	MICS
Percent of pregnant women immunized against tetanus	57	%	2003	IDS

[1] ORT includes solution prepared from oral rehydration salt (ORS) packets, recommended home fluids (RHF), or increased fluids.

Water and sanitation

Only a quarter of the rural population has access to an improved drinking-water source and only 19% has access to improved sanitation (UNICEF, 2009). The situation is better in urban areas, but even so, a large part of the urban population do not have access to safe water and improved sanitation (UNICEF, 2009). Access to safe water and sanitation is among the lowest in the region[18] and has not increased since 2002 (UNICEF, 2009 and 2005). The poor and uneven access to safe water and adequate sanitation is responsible for regular outbreaks of cholera and high prevalence of diarrhoea, a cause of malnutrition among young children (UNICEF, no date, a).

[18] Comparison with Zambia, Tanzania, Kenya and Malawi.

Table 21: Access to safe water and sanitation

Indicator	Estimate	Unit	Reference period	Source
Sustainable access to an improved drinking-water source				
Urban	71	% of population	2006	UNICEF
Rural	26	% of population	2006	UNICEF
Access to improved sanitation				
Combined urban/rural	31	% of population	2006	UNICEF

Access to health services

Health services are inadequate in terms of coverage and quality. Health facilities are few and far between, with more than half of the households living one hour or more on foot from the nearest health facility, a proportion which reaches 72% in rural areas (INE, 2006). These facilities often have limited supplies and drugs, lack suitable sources of water and this situation is compounded by a dire shortage of health personnel (UNICEF, no date, a; IRIN, no date). Moreover, the HIV/AIDS pandemic poses an enormous challenge to the health care system that must bear an additional and heavy burden of diseases (WHO, 2006; RoM, 2006).

Although still low, the percentage of births attended by skilled personnel has been gradually increasing over the last decade, from 44% in 1997, 48% in 2003 to 55% in 2008 (NSI, 2009a; INE and Macro Int. Inc. 1998; INE et al., 2005).

Table 22: Access to health services

Indicator	Estimate	Unit	Reference period	Source
Health personnel: number of physicians	3	per 100 000 people	2000-2004	UNDP
Percentage of children under-five with fever in the last two weeks receiving anti-malarial drugs	37	%	2008	MICS
Percentage of births attended by skilled health personnel	55	%	2008	MICS
Public expenditure on health	2.7	% of GDP	2004	UNDP

Education

Significant progress has been made in improving access to education. From 1992 to 2005, the number of pupils in primary schools tripled, driven by an expansion of the public school network and the abolition of school fees in 2004 (UNICEF, 2006; WB and UNICEF, 2009). However, about a quarter of primary-school-age children still do not enroll (UNESCO, 2008). In terms of gender equity, considerable improvements have also been made (UNESCO, 2008). Nevertheless, the rapid increase in enrolment has not been matched by increases in investment in the quality of education provided (UNICEF, 2006). There is an acute lack of classrooms, qualified teachers and basic teaching materials. Completion rate in primary education is still low, with notable gender disparities (UNESCO, 2008; WB and UNICEF, 2009; UNICEF, no date, d).

Poverty, low importance given by many parents to education, due to either cultural factors or the poor quality of education, distance from schools and the impact of HIV/AIDS constitute the main barriers to education in Mozambique and some of them, especially cultural practices, affect girls disproportionately (UNICEF, no date, c).

The adult literacy rate is by far the lowest of the region, with marked gender disparities: more than two-thirds of women are not literate (UNESCO, 2008). About 40% of women have no education; half of women have primary education, but almost all these women have not completed the primary school curriculum (INE et al., 2005).

Table 23: Education

Indicator	Estimate	Unit	Reference period	Source
Adult literacy rate (aged 15 and over)	44	%	2006	UNESCO
Adult literacy rate: females as % of males	56	%	2006	UNESCO
Youth literacy rate (15-24 years)	52	%	2006	UNESCO
Net primary enrolment ratio	76	%	2006	UNESCO
Grade 5 completion rate	58	%	2005-2006	UNESCO
Ratio of girls to boys in primary education	0.93	number of girls per 1 boy	2006	UNESCO
Public expenditure on education	4.7	% of GDP	2006	UNESCO

Level of development, poverty

Between the late 1990s and early 2000s, Mozambique made impressive progress in reducing overall poverty: the proportion of people living below the poverty line decreased from 69% in 1996-97 to 54% in 2002-2003, putting the country on track to reach the MDG target related to poverty reduction (MPF et al., 2004).

Mozambique's rural poverty reduction strategy was one of the most successful in the world. Increased smallholder agricultural production was a fundamental part of this impressive achievement. The non-farm economy (small businesses, etc.) also performed strongly (WB, 2006).

However, over the last years, the incidence of poverty has not declined further: in 2008-2009, 55% of the population still lived below the national poverty line, with an incidence of 57% in rural areas and 50% in urban areas. The Centre was the most affected region (60%), followed by the South (57%) and the North (47%) (MPD/NDSPA, 2010).

Table 24: Human development and poverty

Indicator	Estimate	Unit	Reference period	Source
Human development index (HDI)	0.402	value between 0-1	2007	UNDP
Proportion of population living with less than 1$ a day (PPP)	75[1]	%	2002-2003	UNSTAT
Proportion of population living below the national poverty line	55	%	2008-2009	IOF
Human poverty index (HPI-1)	46.8	%	2007	UNDP

[1]: expenditure base; estimated from Inquérito aos Agregados Familiares Sobre Orçamento Familiar (IAF), 2002-2003.

Other social indicators

Poverty and vulnerability have a strong gender component: women have fewer income-earning opportunities than men and female-headed households are more likely to be poor, especially in rural areas (WB, 2008). Most rural women work in agriculture and are primarily responsible for food crops. Yet they have little access to or control over productive resources (IFAD, Rural poverty portal).

Mozambique has a lower gender-related development index than neighbouring countries (Tanzania, Zambia, South Africa) (UNDP, 2009). However, the improvement in gender-related development during the past few years has been faster than that in human development, suggesting a narrowing gap between women and men (WB, 2008).

Child labour is still common: in 2004-2005, a third of children between 7 and 17 years of age were engaged in some form of economic activity[19], a majority of them doing unpaid work for their family. Girls and boys are involved in equal proportions but child labour is more widespread in rural areas, where many children work on farms (UNICEF, 2006; UNICEF, Mozambique). In 2006, it was estimated that there were 1.6 million orphaned children (aged 0-17 years), of which almost a quarter had been orphaned as a result of HIV/AIDS (UNICEF, no date, c).

[19] Primary source: 2004-2005 Labour Force Survey (National Institute of Statistics). Results do not provide an indication of the proportion of children involved in domestic work, which evidence suggests is a significant proportion of the work undertaken by children.

Table 25: Other social indicators

Indicator	Estimate	Unit	Reference period	Source
Gender related development index (GDI)	0.395	value between 0-1	2007	UNDP
Ratification of ILO Convention 182 on The Worst Forms of Child Labour	yes		2003	ILO

Appendixes

Table A.1.: Anthropometry of preschool children

Name/date of survey (month/year) (Reference)	Background characteristics	Age (years)	Sex	Sample size	Prevalence of malnutrition						
					Percentage of children with						
					Stunting Height-for-age		Wasting Weight-for-height		Underweight Weight-for-age		Overweight Weight-for-height
					<-3 Z-scores	<-2 Z-scores*	<-3 Z-scores	<-2 Z-scores*	<-3 Z-scores	<-2 Z-scores*	>+2 Z-scores
Moçambique Inquérito Demografico e de Saude 2003 (Sep.-Dec. 2003) (WHO, Global database on child growth and malnutrition; INE et al., 2005)	Total	0-5.00	M/F	9078	23.4	47.0	2.1	5.4	7.9	21.2	6.3
	Sex										
		0-5.00	M	4492	26.0	49.5	2.2	5.8	8.8	22.6	7.3
		0-5.00	F	4586	20.9	44.6	2.0	5.1	7.0	19.9	5.3
	Age										
		0-0.49	M/F	1100	9.8	23.5	2.4	6.6	6.7	14.4	11.6
		0.5-0.99	M/F	958	14.9	32.8	2.7	9.6	9.9	24.7	6.0
		1-1.99	M/F	1818	25.7	50.7	3.0	7.7	10.3	25.3	4.1
		2-2.99	M/F	1643	30.6	55.8	2.1	4.7	9.4	24.0	5.9
		3-3.99	M/F	1925	28.5	56.3	1.5	3.6	7.1	21.0	6.4
		4-5.00	M/F	1633	21.7	47.4	1.2	2.5	4.4	16.9	5.6
	Residence										
	urban	0-5.00	M/F	2579	14.4	35.7	1.5	4.1	4.1	13.2	5.2
	rural	0-5.00	M/F	6499	27.0	51.6	2.3	5.9	9.4	24.5	6.8
	Province										
	Cabo Delgado	0-5.00	M/F	732	35.9	63.1	2.2	5.1	9.8	30.8	8.2
	Gaza	0-5.00	M/F	513	17.2	42.4	2.7	7.8	6.5	19.6	4.6
	Inhambane	0-5.00	M/F	775	16.1	41.9	0.4	1.5	2.7	9.9	7.8
	Manica	0-5.00	M/F	689	22.0	46.5	1.2	4.3	6.5	19.2	4.3
	Maputo	0-5.00	M/F	557	8.0	29.2	0.1	1.2	2.2	7.0	6.5
	Maputo Cidade	0-5.00	M/F	421	9.0	24.7	0.7	1.5	1.8	6.8	5.9
	Nampula	0-5.00	M/F	1939	23.8	46.9	4.0	9.2	10.0	25.9	6.1
	Niassa	0-5.00	M/F	406	30.6	51.7	0.6	2.4	6.1	21.8	5.1
	Sofala	0-5.00	M/F	647	22.3	47.0	4.7	8.8	9.5	23.0	5.2
	Tete	0-5.00	M/F	959	24.9	53.5	0.9	2.6	6.5	21.3	4.8
	Zambezia	0-5.00	M/F	1440	31.5	51.7	2.0	6.5	12.7	26.5	8.2
	Mother's education										
	no education	0-5.00	M/F	141	n.a.	57.7	n.a.	6.3	n.a.	24.4	n.a.
	primary	0-5.00	M/F	7739	n.a.	53.4	n.a.	6.4	n.a.	18.9	n.a.
	secondary**	0-5.00	M/F	311	n.a.	25.6	n.a.	6.9	n.a.	9.3	n.a.

Notes: Data based on WHO 2006 growth standards. For mother's education, prevalences reported in the report (NCHS estimates) were converted into WHO 2006 estimates using algorithms developed by Yang and de Onis (Yang et de Onis, 2008).

* Category <-2 Z-scores includes <-3 Z-scores; **: higher than secondary not included as sample size is too small (n=11) and data are not provided; n.a.: not available

Table A.1.: Anthropometry of preschool children (cont'd)

Name/date of survey (month/year) (Reference)	Background characteristics	Age (years)	Sex	Sample size	Prevalence of malnutrition						
					Percentage of children with						
					Stunting Height-for-age		Wasting Weight-for-height		Underweight Weight-for-age		Overweight Weight-for-height
					<-3 Z-scores	<-2 Z-scores*	<-3 Z-scores	<-2 Z-scores*	<-3 Z-scores	<-2 Z-scores*	>+2 Z-scores
Moçambique Inquérito Demografico e de Saude 1997 (March - July 1997) (WHO, Global database on child growth and malnutrition; INE and Macro Int. Inc., 1998)	Total	0-2.99	M/F	3621	24.8	45.3	5.3	12.5	13.2	28.1	6.0
	Sex										
		0-2.99	M	1846	27.8	49.3	5.5	12.9	13.5	30.8	5.5
		0-2.99	F	1776	21.6	41.2	5.2	12.2	13.0	25.3	6.4
	Age										
		0-0.49	M/F	797	11.5	24.8	7.8	15.4	6.4	18.4	7.8
		0.5-0.99	M/F	648	16.2	33.0	6.3	14.6	13.3	30.5	4.4
		1-1.99	M/F	1183	26.6	48.5	5.7	13.2	15.1	28.8	4.0
		2-2.99	M/F	993	38.2	65.1	2.4	8.2	16.5	33.7	7.8
	Residence										
	urban	0-2.99	M/F	763	12.6	33.3	4.7	12.4	8.1	17.0	4.9
	rural	0-2.99	M/F	2858	28.1	48.6	5.5	12.6	14.6	31.1	6.2
	Province										
	Cabo Delgado	0-2.99	M/F	201	35.0	61.1	8.6	19.1	15.7	43.5	3.6
	Gaza	0-2.99	M/F	410	15.8	36.9	4.0	10.6	2.6	10.4	11.1
	Inhambane	0-2.99	M/F	323	13.1	29.1	2.0	2.9	3.2	14.0	5.2
	Manica	0-2.99	M/F	280	24.4	46.7	2.1	8.3	11.6	31.5	2.7
	Maputo	0-2.99	M/F	204	6.3	21.7	0.2	3.9	4.6	10.0	3.8
	Maputo Cidade	0-2.99	M/F	182	12.1	29.5	6.0	9.3	2.9	6.5	11.5
	Nampula	0-2.99	M/F	585	37.7	58.0	6.0	14.0	24.6	40.5	4.1
	Niassa	0-2.99	M/F	204	33.7	58.2	3.4	9.0	10.9	37.5	6.0
	Sofala	0-2.99	M/F	540	24.1	45.4	8.2	16.5	14.3	28.3	5.2
	Tete	0-2.99	M/F	165	26.9	51.2	6.9	22.2	18.0	41.6	1.9
	Zambezia	0-2.99	M/F	528	29.2	49.0	7.3	16.9	20.2	35.7	8.2
	Mother's education										
	no education	0-2.99	M/F	1040	n.a.	52.4	n.a.	10.8	n.a.	23.9	n.a.
	primary	0-2.99	M/F	1678	n.a.	47.0	n.a.	11.0	n.a.	18.7	n.a.
	secondary or higher	0-2.99	M/F	119	n.a.	17.5	n.a.	18.7	n.a.	13.3	n.a.

Data based on WHO 2006 growth standards. For mother's education, prevalences reported in the report (NCHS estimates) were converted into WHO 2006 estimates using algorithms developed by Yang and de Onis (Yang et de Onis, 2008)

* Category <-2 Z-scores includes <-3 Z-scores; n.a.: not available

Table A.2.: Anthropometry of adult women

Name/date of survey (month/year) (Reference)	Background characteristics	Age (years)	Anthropometry of adult women								
			Height			Body Mass Index[1] (kg/m²) (BMI)					
								Percentage of women with BMI			
			Sample size	Mean (cm)	% of women with height < 1.45 m	Sample size	Mean (kg/m²)	<18.5 (chronic energy deficiency)	18.5-24.9 (normal)	25.0-29.9 (overweight)	≥30.0 (obesity)
Moçambique Inquérito Demografico e de Saude 1997 (March - July 1997) (INE and Macro Int. Inc., 1998)	Total	15-49	3743	155.3	4.8	3091	21.6	10.9	79.6	7.8	1.7
	Age										
		15-19	506	154.5	8.1	419	20.9	13.6	n.a.	n.a.	n.a.
		20-24	1024	154.5	7.4	823	21.5	8.5	n.a.	n.a.	n.a.
		25-29	953	155.7	2.1	796	21.4	12.2	n.a.	n.a.	n.a.
		30-34	594	156.2	4.4	491	21.8	10.7	n.a.	n.a.	n.a.
		35-49	666	156.2	2.5	563	22.1	10.7	n.a.	n.a.	n.a.
	Residence										
	urban	15-49	773	157.1	2.7	669	22.4	6.8	n.a.	n.a.	n.a.
	rural	15-49	2970	154.9	5.4	2423	21.3	12.1	n.a.	n.a.	n.a.
	Province										
	Niassa	15-49	215	153.9	4.3	177	21.1	9.4	n.a.	n.a.	n.a.
	Cabo Delgado	15-49	206	153.6	4.7	179	20.7	10.3	n.a.	n.a.	n.a.
	Nampula	15-49	619	152.3	11.4	530	20.9	16.2	n.a.	n.a.	n.a.
	Zambézia	15-49	524	153.6	4.7	429	21.3	18.4	n.a.	n.a.	n.a.
	Tete	15-49	174	155.7	4.3	140	20.9	13.3	n.a.	n.a.	n.a.
	Manica	15-49	275	156.3	3.4	235	21.2	12.9	n.a.	n.a.	n.a.
	Sofala	15-49	581	155.3	5.1	439	20.7	10.3	n.a.	n.a.	n.a.
	Inhambane	15-49	328	156.7	1.6	287	22.9	2.6	n.a.	n.a.	n.a.
	Gaza	15-49	427	158.7	1.6	321	22.3	5.8	n.a.	n.a.	n.a.
	Maputo (province)	15-49	217	158.7	2.2	201	23.0	6.2	n.a.	n.a.	n.a.
	Maputo Cidade	15-49	178	158.8	1.6	152	23.6	3.4	n.a.	n.a.	n.a.
	Level of education										
	no education	15-49	1531	154.6	5.4	1253	20.9	16.3	n.a.	n.a.	n.a.
	primary	15-49	2083	155.6	4.7	1716	21.8	7.5	n.a.	n.a.	n.a.
	secondary or higher	15-49	129	160.9	0.0	122	24.2	4.0	n.a.	n.a.	n.a.

[1] excludes pregnant women and women with a birth in the 2 preceding months

Note: the sample represents mothers of children under three years of age

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