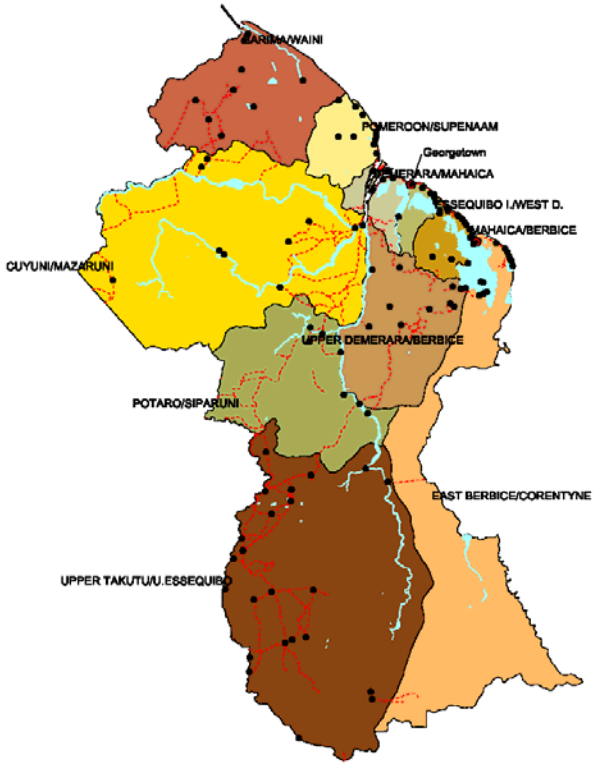
FAO - NUTRITION COUNTRY PROFILES

GUYANA



FOOD AND AGRICULTURE ORGANIZATION

OF THE UNITED NATIONS

Note for the reader

The objective of the Nutrition Country Profiles (NCP) is to provide concise analytical summaries describing the food and nutrition situation in individual countries with background statistics on food-related factors. The profiles present consistent and comparable statistics in a standard format. This pre-defined format combines a set of graphics, tables and maps each supported by a short explanatory text. Information regarding the agricultural production, demography and socio-economic level of the country are also presented.

In general, data presented in the NCP are derived from national sources as well as from international databases (FAO, WHO...).

Technical notes giving detailed information on the definition and use of the indicators provided in the profile can be obtained from ESNA upon request. An information note describing the objectives of the NCP is also available.

Useful suggestions or observations to improve the quality of this product are welcome.

The data used to prepare the maps are available in Excel upon request at:

E-mail: ncp@fao.org

Nutrition Country Profile of Guyana

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SUMMARY

In Guyana, one or more of the multiple forms of malnutrition remain significant public health concerns and a threat to human and national development. Protein-energy malnutrition (PEM), anaemia, and overweight/ obesity are the most common nutrition-related disorders. PEM primarily affects young children. Although there has been an overall declining trend in prevalence levels over the last 2-3 decades, survey data indicate no discernable improvements in nutritional status of children in the last 5 years.

The critical features relating to the nutritional status of the Guyanese population are as follows:

1. A significant proportion of children under five years of age suffer from malnutrition (survey data indicate that 14% were underweight for age; 11% had low height for age and 11% had a low weight for height (UNICEF, 2000).

2. Persistently high levels of iron-deficiency anaemia affecting about 48% of young children, 57% of school age children, 41% of adults and 52% of pregnant women (PAHO/CFNI, 1997).

3. About 40% of adults are overweight, with the prevalence of obesity increasing with age. Significantly more women are obese compared to men.

4. Nutrition and obesity-related diseases – diabetes, hypertension, and heart disease – are among the ten leading causes of death. Survey data indicate that persons with these chronic conditions were more likely to be obese (PAHO/CFNI, 2000.)

*A micronutrient study conducted in 1996-97 revealed that, among children 0-4 years old, the level of undernutrition (weight for age, Z-score) was 11.8% and the level of overweight was only 1.0%. (**Table 4a**) Among children 5-9 years old, 8.5% were undernourished and a higher proportion of females were undernourished compared to males. However, a larger proportion of males suffered from overweight. According to data collected by the Ministry of Health relating to children 0-5 years old, moderate to severe undernutrition (weight for age) stood at 21.7% in 1995 up from 16.0% in 1994. Severe undernutrition was reported at 0.5% in 1999 declining from 0.9% in 1996. Among this same age group the level of overweight (weight for age) was reported at 4.3% in 1999, declining from 5.6% in 1995.*

*The latest available data indicate that among the adolescents in the age group 10-14 years, 5.1% are overweight of which significantly more females are overweight. Among this group, 17.9% are underweight, with a significantly larger proportion of males being underweight (**Table 4b**).*

*A national study on physical activity conducted in 2000 (results not yet officially available), found that 22.4% of the population 20 years and older are obese and that an additional 29.0% are overweight. Significantly more females are obese compared with males (**Table 4c**). Compared to a previous survey (1996-97) these values indicate an increase in the prevalence of excess weight over the period 1996-97 to 2000. According to the 1996-97 survey there were marked variations with respect to the prevalence of overweight and obesity at the regional level.*

*Iodine and iron are the micronutrient deficiencies of public health concern in Guyana. According to the findings of a 1996 survey, the national prevalence of severe iodine deficiency was 3.2% among children 5-14 years and 2.1% among pregnant women. However, among the children and pregnant women an additional 23.7% and 40.7%, respectively, were mildly to moderately deficient (**Table 5**).*

*With regards to iron deficiency, over 40% of all the groups targeted in the 1996 study were deficient according to the WHO standard (**Table 5**). Vulnerable groups, such as pregnant women (52.0%) and pre-school children (47.9%), had particularly high levels of deficiency. The deficiency level seen in the pregnant women shows a significant decrease from the 1982 level of 73.7% and a marginal decease from the 1971 level of 55.0%. On the other hand the prevalence of iron deficiency among the pre-school children has seen a steady increase since 1971.*

No recent national surveys on food consumption, among adults, have been conducted in Guyana that could help explain the current nutritional status. The prevalence of moderate undernutrition among the pre-school children may be related to the low level of exclusive breast-feeding occurring during the first 4-6 months. The current levels of iodine and iron deficiencies suggest that insufficient quantities of the foods rich in these nutrients are being consumed or other factors may be inhibiting the proper absorption of these nutrients, or a combination of both.

Economic access to food may be a major cause of the nutritional problems in the country. The percentage of the population living below the poverty line up to 1996 was approximately 40%. Therefore a significant number of persons, especially among the Amerindians are likely to be vulnerable to insufficient nutrient intake and hence malnutrition.

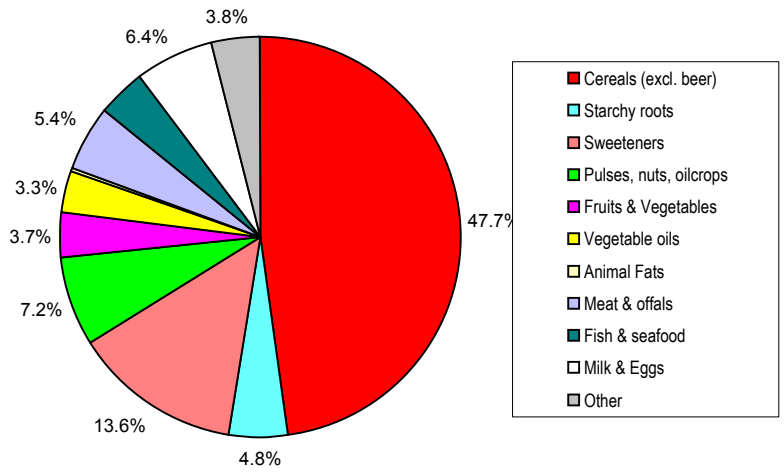
TABLE 1: GENERAL STATISTICS OF GUYANA

Last updated: 27/08/2003

Indicator (§)	Year	Unit	
A. Land in use for agriculture			
1. Agricultural land	1995	ha per person	2.080
2. Arable and permanent crop land	1995	ha per person	0.598
B. Livestock			
1. Cattle	1996-98	thousands	230
2. Sheep & goats	1996-98	thousands	209
3. Pigs	1996-98	thousands	20
4. Chickens	1996-98	millions	11
C. Population			
1. Total population	2000	thousands	761
2. 0-5 years	2000	% of total pop.	
3. 6-17 years	2000	% of total pop.	
4. 18-59 years	2000	% of total pop.	
5. >= 60 years	2000	% of total pop.	6.9
6. Rural population	2000	% of total pop.	63.7
7. Annual population growth rate, Total	2000-2005	% of total pop.	0.2
8. Annual population growth rate, Rural	2000-2005	% of rural pop.	
9. Projected total population in 2030	2030	thousands	1080
10. Agricultural population	2000	% of total pop.	17.6
11. Population density	1995	pop. per km^2	3.9
D. Level of Development			
1. GNP per capita, Atlas Method	2001	current US$	840
2. Human Development Index rating (new)	2000	min[0] - max[1]	0.708
3. Incidence of poverty, Total	...	% of population	...
4. Incidence of poverty, Rural or Urban	...	% of population	...
5. Life expectancy at birth (both sexes)	2000	years	
6. Under-five mortality rate	2000	per 1,000 live births	74
E. Food Trade			
1. Food Imports (US $)	1996-98	% of total imports	8.2
2. Food Exports (US $)	1996-98	% of total exports	40.8
3. Cereal Food Aid (100 t)	1996-98	% of cereals imports	...
F. Indices of Food Production			
1. Food Production Index	1996-98	1989-91=100	185.1
2. Food Production Index Per Capita	1996-98	1989-91=100	174.7

Indicator (§)	Year	Unit	
G. Average Food Supply			
1. **Dietary Energy Supply (DES)**	1998-2000	kcal/caput/day	2554

Percentage of DES by major food groups



Note: Value not indicated if below 1%

% Energy from:			
2. Protein	1998-2000	% of total energy	11.4
3. Fat	1998-2000	% of total energy	17.6
4. **Proteins**	1998-2000	g/caput/day	72.5
5. Vegetable products	1998-2000	% of total proteins	51.2
6. Animal products	1998-2000	% of total proteins	48.8
H. Food Inadequacy			
1. Total population "undernourished"	1995-97	millions	...
2. % population "undernourished"	1995-97	% of total pop.	...

... no data available § see References for data sources used

GUYANA

I. OVERVIEW

1. Geography

Guyana is located on the northeastern coast of South American, bordered to the west by Venezuela, to the south west by Brazil, to the east by Suriname and to the north by the Atlantic Ocean. Its land mass covers 214,970 km^2, making it the largest English-speaking Caribbean country in terms of size. Its highest peak, Mt. Roraima (2,772 m), is located next to the border with Venezuela and Brazil. Georgetown, the capital, lies to the north east of the country, in region 4, along the coast (**General Map**). Guyana is the only English-speaking country in South America and is a member of the Caribbean community (CARICOM).

The country is divided into four natural geographic regions: the low-lying coastal plain situated along the Atlantic coast constitutes about 10% of the total land area and is extensively cultivated; the hilly sand and clay area lies south of the coastal plain, covering approximately 20% of the country, is an undulating expanse of hardwood forests and hills; the highland region, representing 60% of the country, is characterised by dense rainforest in mountainous areas (rich deposits of gold and diamonds are a feature of this region); and the interior savannahs situated in the south-west of the country are predominantly grassland interspersed with rivers and streams. There are ten administrative regions, of which a part of region 1 and all of regions 2-6 are located on the coast (PAHO/CFNI, 1997).

Like the topography, the climate is varied. On the coastal plain, two wet seasons are normal and annual rainfall ranges between 600-800 inches. In the forest zone, rainfall is heavier. Throughout the savannahs, rainfall is much lower and there is only one wet season.

2. Population

The population of Guyana was estimated to be 761,000 in the year 2000, with 36.3% living in urban areas. The level of urbanization is expected to rise slowly, reaching 53.4% by 2030. The slow rate of urbanization may be due to the fact that the leading sources of employment and income generation are the natural resource-based activities found primarily in the rural areas (PAHO, 2002). Although the annual population growth rate was 0.7% between 1995 and 2000, it is expected to decrease to 0.2% over the period 2000-2005. Further, the population is projected to decrease to 674,000 in 2030 (**Table 2**), possibly due mainly to the influence of migration. In 2000, 10.7% of the population were under 5 years of age, 30.5% were under 15 years of age, and 6.9% were over 60 years of age. The ratio of males to females was 94.3:100 (UN, 2001). Females accounted for 51% of the total population, and for 53% of the population over age 60 (PAHO, 2002). The population density was 3.9 persons per km^2 in 1995 up from 3.3 in 1970 and 3.7 in 1990, among the lowest in the Caribbean (FAOSTAT, 1999 & **Table 1**).

In 1999, persons of East Indian descent accounted for 48% of the total population, Negroes/Blacks accounted for 27%, Amerindians (most live in the rural areas of regions 1, 2, 7, 8 and 9) comprised 6.3%, while the rest of the population was made up of Portuguese, Chinese and persons of mixed descent (PAHO, 2002). In 1992-93, 61.3% of the total

population resided in 2 of the 10 administrative regions, six of which were classified as 100% rural. Region 4, in which the capital (Georgetown) is located, has the largest population (41.1% of total) of which 51% are urban; 67.4% of the total urban population live in region 4. This is followed by region 6 (19.9% of total population) with 28% of the inhabitants in urban areas. Region 10 has 5.5% of the total population with 80% being urban, and region 2 as an urban population of 5.8%. The 1980's witnessed a massive outward migration of skilled personnel to other Caribbean countries and North America because of the devastation of the Guyana economy and a dramatic decline in living conditions (PAHO/WHO, 1999).

Data from the 1999 Guyana Survey of Living Conditions, indicate that over two thirds of the population (70%) lives in rural areas, with 61% living in the rural coastal regions. The rural interior remains sparsely populated. The survey also showed that the average household size was 4.15 and some 59% of household heads were educated only to the primary level.

3. Level of development: poverty, education and health

In 1999, 36% of the population were reported to be living in absolute poverty (less than US$ 510 per year or US$ 1.40 per day), with 19% living in critical poverty (less than US$ 364 per year or US$ 1.00 per day) (PAHO, 2002). This is a slight reduction from the 1992-1996 period, when just over 40% of the population lived below the national poverty line. There was a relatively higher concentration of poverty in rural interior areas (78.4%) and rural coastal areas (40%). Approximately 31% of household heads were self-employed. Another thirty eight percent were involved in manual labor with the economically inactive population estimated at 7% (Government of Guyana,, 1999)

A Poverty Reduction Strategy Paper (PRSP) is being developed and is in its final stages of review. The PRSP is set within the context of the National Development Strategy and sets out a detailed program of action for reducing poverty. The strategy aims at: i) maintaining a sound macroeconomic, trade and investment framework; ii) improving the business environment; iii) maintaining and expanding economic infrastructure; iv) improving social services, including health, education, nutrition, family planning, and access to safe water and housing; and, v) implementing special intervention programs in areas where poverty levels still remain high.

In 1997, the public sector monthly minimum wage was US$ 63 up from US$ 52 in 1996 and US$ 25 in 1992 (PAHO/WHO, 1999). The gross national product (GNP) per capita in 2001 was US$ 840, up from US$ 800 in 1997 (World Bank, 2002). The human development index rating (a composite measure of the country's achievement in terms of life expectancy, health, knowledge and living standard) was 0.708, marginally higher than the rating given in 1997 (0.701) (UNDP, 2002). By 1996, 89.6% of the urban population and 45.2% of the rural population had drinking water supply service. At the same time 91.8% of the urban population and 80.4% of the rural population had sewage and excreta service (PAHO/WHO, 1999).

The adult literacy rate (percent of population age 15 years or older) was estimated to be 98% in 1999, with no significant gender difference (PAHO, 2002). This level was slightly higher than that estimated for 1992 (96% overall; 98% for males and 94% for females) (PAHO/WHO, 1999). The net primary and secondary school enrolments were 95% and 68% respectively for the period 1997-1998 (PAHO, 2002). By 1992, 52.5% of the population had attained primary-school level education, 34.5% attained secondary-school level, and 10% attained higher than secondary level education. Despite this level of literacy, there are still concerns about functional literacy (PAHO/WHO, 1999).

Life expectancy for both sexes at birth in 1998 was 64.6 years, which is low compared with most other Caribbean countries, which have figures of over 70 years. Over the period 2000-2005 life expectancy is projected to be 58 years for males and 66.9 for females (UN, 2001). It is not certain what would cause this reduction in life expectancy among males.

The infant mortality rate was 55 per 1000 live births in 2000, down from 58 in 1998. In 200, the mortality rate of children under five years was 74 per 1000 live births, down from 79 in 1998 (UNICEF, 2002). These levels were considerably higher than those seen in most of the other Caribbean countries.

In 1994, Guyana's medical authorities listed among its first set of health care priorities malaria, sexually transmitted diseases, acute respiratory infections, vaccine-preventable diseases and perinatal problems. Among its next set of priorities were malnutrition, accidents and injuries, diabetes, hypertension, and dental caries (PAHO/WHO, 1999).

The leading causes of mortality for all age groups for the period 1997-1999 in decreasing order were cerebrovascular diseases, ischemic heart disease, Acquired Immune Deficiency Syndrome, undetermined injury, diabetes mellitus, acute respiratory infections, disease of the pulmonary circulation, hypertensive disease, intestinal infections and chronic liver disease. These data indicate that nutrition-related chronic non-communicable diseases are significant causes of mortality in Guyana.(GOVERNMENT OF GUYANA 20000

While there is limited information on the prevalence of these nutrition-related diseases, two national surveys conducted recently (1996-97 and 2000) revealed that the prevalence of obesity and pre-obesity were on the increase; these are risk factors for the major chronic illnesses (PAHO/CFNI, 1997 & CFNI, 2000). The results of the unpublished study also revealed that the problem of overweight also affected adolescents, as 12.9% of persons 15-19 years were over weight, the proportion of females (16.6%) being twice that of the males (8.2%).

The main providers of health care have traditionally been the government and quasi-public institutions, but with the decline in the quality of service in recent times, the contribution of private sector facilities have become increasingly important. The private sector includes six private hospitals (all in Georgetown), five company hospitals (in regions 1, 4 and 10), a large number of private medical and dental practitioners, pharmacists, and traditional healers. There are five levels of organization within the public sector; levels I and II include 166 health posts (in regions 1, 2, 7, 8, 9, and 10) and 112 health centres across the country, 22 district hospitals at level III, four regional (2, 3, 6 and 10) hospitals at level IV, and Georgetown Public Hospital along with three speciality hospitals at level V.

Currently three types of user fees are in place in these public health facilities. These include fees for physiotherapy, laboratory pregnancy tests, and rooms in private wards. However, the latter two do not reflect true costs (PAHO/WHO, 1999). Between 1997 and 1999, there were 3 to 4 physicians per 10,000 population, 0.4 dentists per 10, 000 population, 2 pharmacists per 10,000 population, and 7 to 15 professional nurses per 10,000 persons (PAHO, 2002). There were 88 midwives, as well as several medex, nursing auxiliaries and nursing assistants working in the public health sector in Guyana (PAHO/WHO, 1999 & PAHO, 2002).

The National Development Strategy outlines some of the major constraints and issues relating to the health sector. These include inequity in access to health care, poor quality of care at the lower levels largely due to inadequacy of trained medical staff, supplies and equipment, and lack of timely information for planning and decision-making.(GOVERNMENT OF GUYANA 2000)

A National Plan of Action on Nutrition (NPAN) has been developed and is intended to give direction and focus to multisectoral actions required for nutrition improvement (SIMAP, 1998). Some of the priority goals listed in the NPAN are:

- Reduction of the prevalence of malnutrition in children under five years in all Regions to less than 15% within three years.
- Reduction in the prevalence of anaemia in all vulnerable groups to less than 30% within three years.
- Increased production and consumption of nutritionally beneficial locally produced and processed foods.
- Prevention and control of obesity and nutrition- related chronic diseases, in particular diabetes and hypertension.

4. Agricultural production, land use and food security

Agriculture, the main foreign exchange earner in Guyana, accounted for 35.1% of GDP in 1999 down from 39.9% in 1989, but up from 22.3% recorded in 1979 (World Bank, 2000). In 2000 the agricultural population represented only 17.6% of the total population, even though 63.7% of the population lived in rural areas (**Table 1**). In 1995, according to FAOSTAT (1999), the total agricultural land was shared in 2.08 hectares per person, of which 0.598 hectare per person was arable and permanent crop/meadow land. Approximately 168.8 thousand square kilometres make up the forest area of the country (World Bank, 2002).

Over the years, Guyana's main food exports have been sugar (sweeteners) and rice (cereals). Cereal exports increased significantly over the period 1964-2000, while the export of sweeteners decreased over the same period. Other large-scale exports include oilcrops, alcoholic beverages, and fish and seafood. Guyana is the regions largest exporter of fish and shrimp. In addition to the crops grown, a variety of livestock are also reared in Guyana, which included: cattle, sheep, goats, pigs and chickens (FAOSTAT, 1999 & 2002).

In general, food availability is not a problem in Guyana as per caput dietary energy supply (DES) has consistently been above the per caput energy requirements. In addition, the share of imported products in the DES have been relatively low, reflecting further improvement in the level of independence as far as food supplies are concerned (FAOSTAT, 2002).

Constraints to food access may be more important in light of the persistence of

poverty in some areas, for example the coastal areas. According to the nutrient cost index computed by the Food Policy Unit, MOH, for the first quarter of 2001, the average cost of a 2400 C diet in four coastal regions was approximately one-third of the minimum wage in the public sector. The limited purchasing power of low income, under- and unemployed groups, particularly where there is a lack of resources for own-production, may not ensure adequate food access on a sustainable basis.

In order to reduce the burden on some vulnerable groups, the government increased the personal income tax threshold from US$ 107 per month in 1996 to US$ 129 per month in 1997. Government pensions were also adjusted in order to assist the elderly so that these transfers would not fall below 50% of minimum wage in force (PAHO/WHO, 1999).

5. Economy

Guyana is rich in natural resources. It has a small open economy based mainly on agriculture (primarily sugar and rice), gold, bauxite and timber (PAHO, 2002). The agricultural and services sectors are the main contributors to GDP, followed by industry (Bauxite being the major export) (PAHO/WHO, 1999). In 1999, it was estimated that agriculture contributed 35.1% to GDP, services 36.4%, industry 28.5% and manufacturing 10.1% to GDP. The contribution of these sectors to GDP showed a decrease from the 1989 levels, except for the services sector which experienced a 5.8% increase (World Bank, 2000). In 1999, per capita GDP was US$ 800, up from US$ 766 in 1996; the 1991-1994 average per capita GDP was US$ 504 (PAHO/WHO, 1999). Despite negative growth in 1998 and weaker positive growth at the end of the decade, Guyana's economy showed overall positive growth from 1991 to 2000 (PAHO, 2002).

Guyana was approved for debt relief by the IMF and World Bank in 1997, under an arrangement in which an annual average of US$ 30 million (in debt) for 20 years is forgiven. The funds released through debt relief have allowed for reallocation of public spending towards health, education, and poverty alleviation. Despite the debt relief, the country's external debt is still high and in 199 stood at US$ 1.4 billion. In 1999, although the economically inactive population was estimated to be 7%, approximately 50% of the country's work force was not gainfully employed (PAHO, 2002).

In 1989, the Guyana government in collaboration with the International Monetary Fund and the World Bank embarked on economic recovery and structural adjustment programs aimed at transforming the state-dominated economy against the background of nearly two decades of economic decline. By 1992-1996 economic and social indicators were suggesting that living conditions were improving, despite the relatively high level of poverty. Inflation, which was extremely high in the late 1980s and early 1990s because of the structural adjustment program, declined from a high of 101.5% in 1991 to 8.1% in 1995 and 4.5% in 1996; the average inflation rate for the period 1991-1994 was 27.1% (PAHO/WHO, 1999). Inflation has been gently trending upwards since 1996, increasing to 7.4% in 1999 (PAHO, 2002).

Since 1998 there have been declines in the economy with growth rates of less than 0.5% during the period 1998-2001 largely due to (i) declines in the prices of major exports such as sugar, rice and lumber during 1998–99; (ii) drought conditions caused by *El Niño* during 1997–98; and (iii) protracted labour disputes within the public sector in 1999 and political disturbances after the 1997 general elections.

Food production has increased since 1989-91, when the index was set at 100, to an index of 185.1 in 1996-98. Between 1974-76 and 1984-86 there was a period of decline where the food production index fell from 143.3 to 124.9 (FAOSTAT, 1999).

II. THE FOOD AND NUTRITION SITUATION

1. Trends in energy requirements and energy supplies

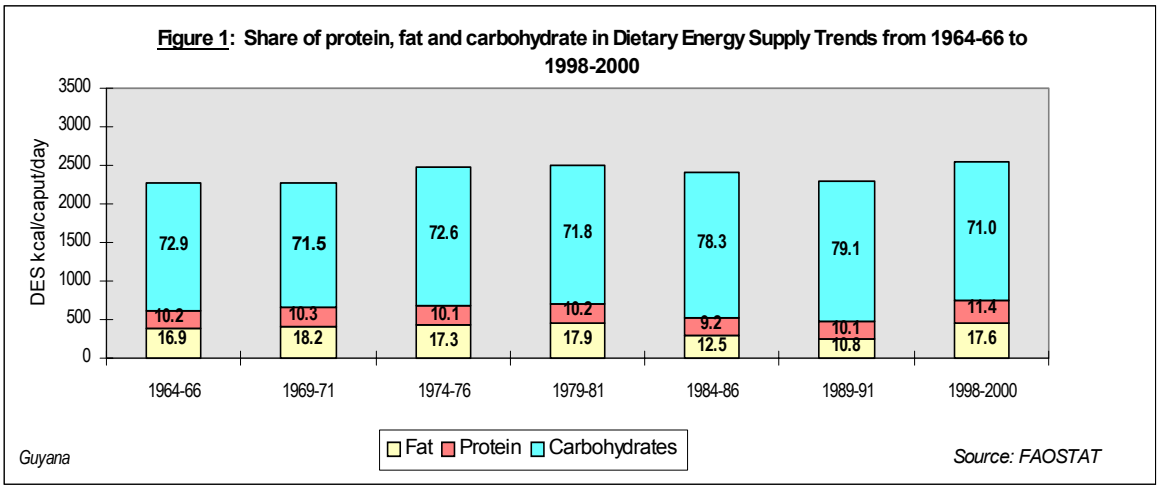
Between 1965 and 2000 the population of Guyana increased by 18%. However, the population is projected to decrease by 11.4% by the year 2030. The population structure also changed in terms of the proportion of urban dwellers, moving from 29.2% in 1965 to 36.3% in 2000; this is projected to reach 53.4% by 2030. Per caput energy requirements, although increasing by 6.4% over the period 1965-2000, is expected to decline by 0.4% by the year 2030 (**Table 2**).

Table 2: Total population, urbanisation, energy requirements and dietary energy supplies (DES) per person and per day in 1965, 2000 and 2030

Year	1965	2000	2030
Total population *(thousands)*	645	761	674
Percentage urban *(%)*	29.2	36.3	53.4
Per caput energy requirements *(kcal/day)*	2118	2254	2246
Per caput DES *(kcal/day)* *	2272	2554	__

* Three-year average calculated for 1964-66 and 19968-2000 (*Source*: FAOSTAT)

The per caput dietary energy supply (DES) remained significantly higher than the energy requirements over the period 1965-2000, and also experienced a 12.4% increase. This indicates that food availability should not be a major problem in Guyana.

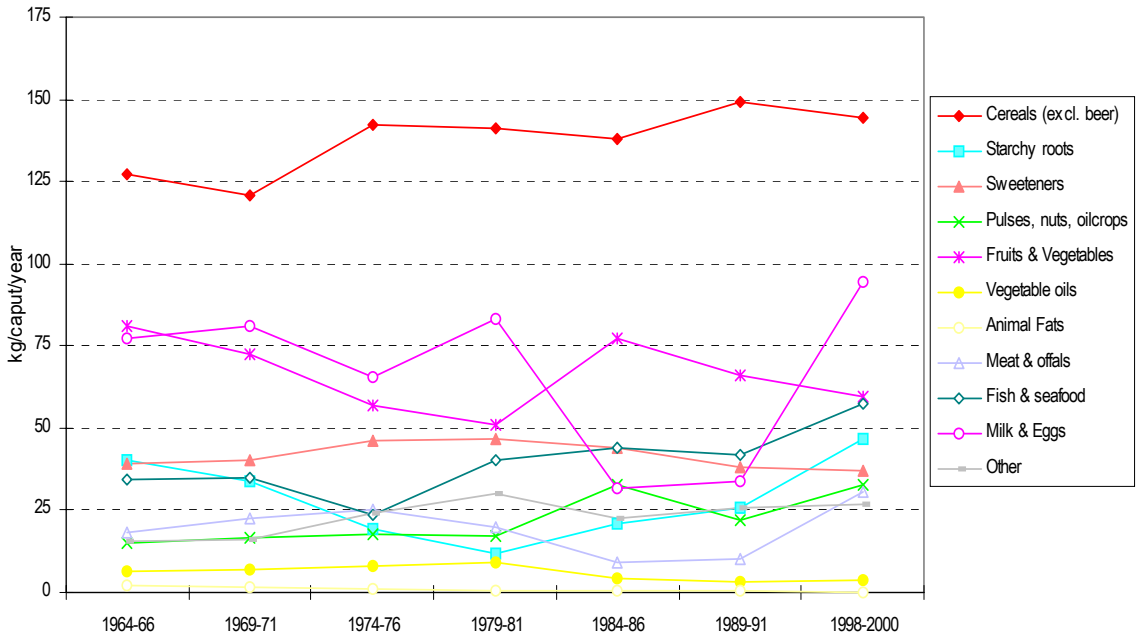


The contributions of protein, fat and carbohydrate as a percentage of DES experienced variations throughout the period 1964-2000, but changed only slightly overall. Protein increased its contribution from 10.2% to 11.4%, fat increased from 16.9% to 17.6%, while the contribution of carbohydrate decreased from 72.9% to 71.0% over the same period (**Figure 1**).

2. Trends in food supplies

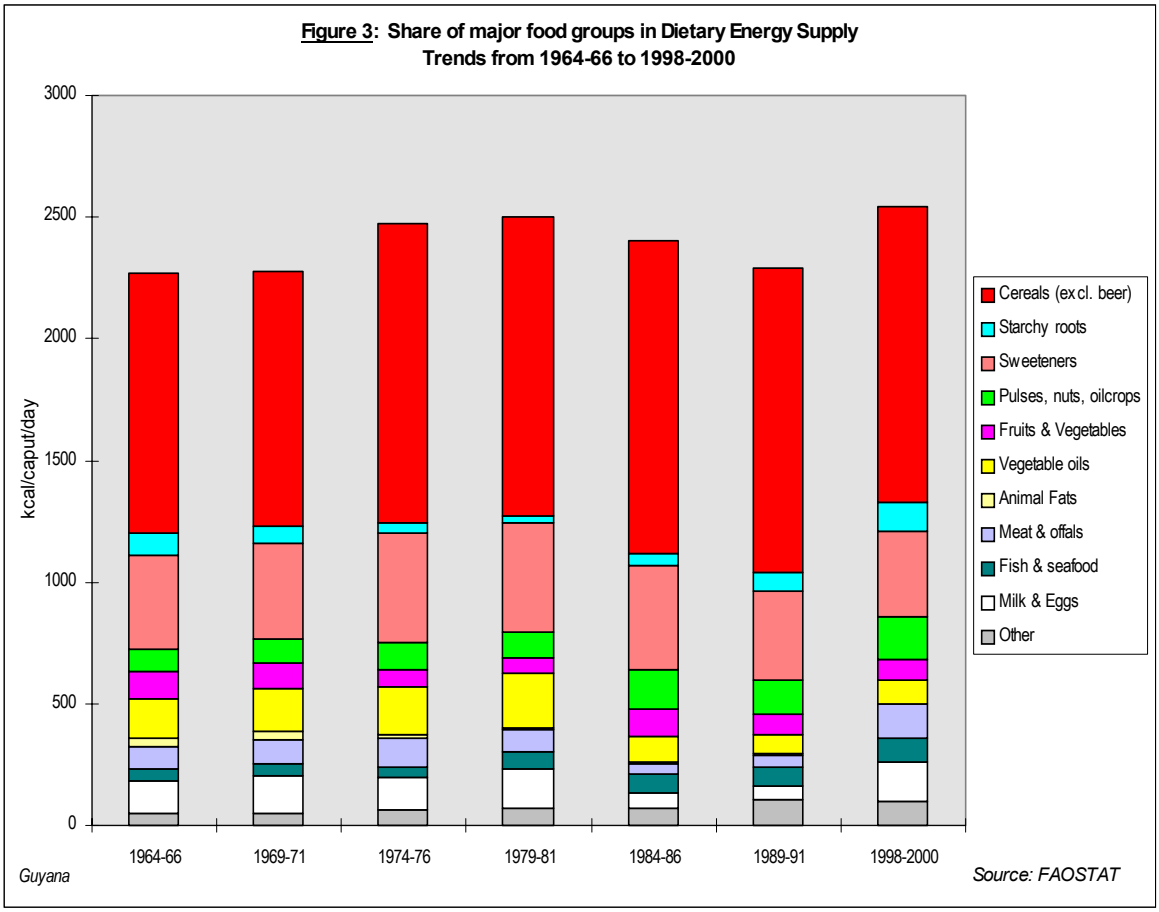
Quantity: The supply (kg/caput/year) of all the major food groups experienced variations between 1964 and 2000, especially the groups fruits and vegetables, and milk and eggs as seen in (**Figure 2**). While fruits and vegetables and milk and eggs experienced decreases in volume, the supply of cereals (the most abundant food group) increased significantly overall. Pulses, nuts, and oil crops, fish and seafood, and meat and offals all experienced increases over the period, while sweeteners and animal fats supplies decreased over the same period.

Figure 2: Supplies of major food groups (in kg/caput/year)
Trends from 1964-66 to 1998-2000



Guyana *Source: FAOSTAT*

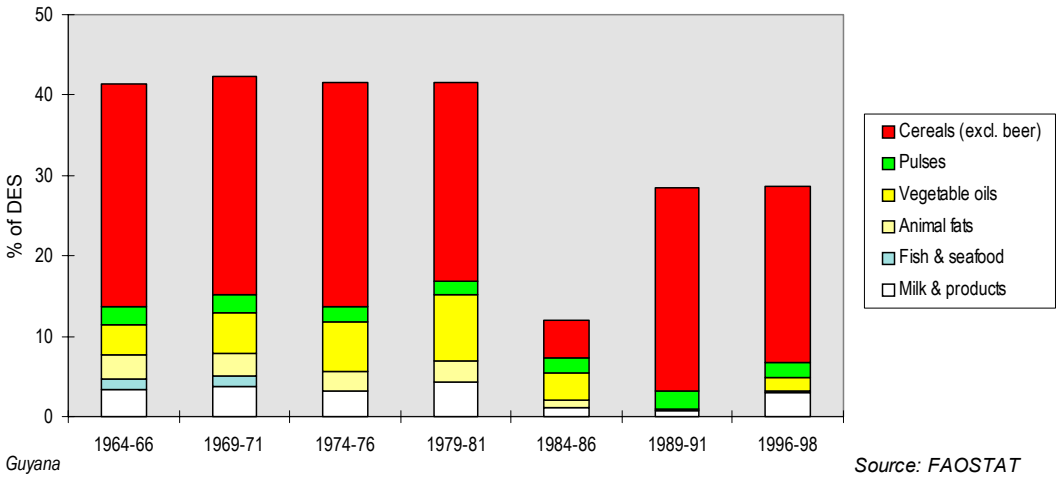
Energy: As shown in (**Figure 3**), cereals remained over the period 1964-66 to 1998-2000 the major share in DES, increasing marginally from 47.0% to 47.7%, peaking at 54.6% in 1989-91. This was followed throughout the same period by the group sweeteners, which decreased from 16.9% to 13.6% peaking at 18% between 1974 and 1981. The other major food groups experienced continuous variations both in terms of their actual share in DES and their ranking. For example, vegetable oils had the third largest share in DES between 1964-66 and 1979-81, but between 1984-86 and 1998-2000 held fifth, sixth and eighth positions (in that order). Fish and seafood, and pulses, nuts, and oilcrops increased over the period 1964-66 to 1998-2000, while animal fats, vegetable oils, and fruits and vegetables decreased as a percentage of DES over the same period. Meat and offals, and milk and eggs remained relatively unchanged in terms of their share in DES.



Major food imports and exports: **Figure 4** shows the variations in food imports as a percentage of DES, which remained stable between 1964-66 and 1979-81 at roughly 41%, declined sharply in 1984-86 to about 12% then increased again to approximately 29% between 1989 and 1998. The importation of cereals, although the single largest component of the food imports throughout the period, was relatively low compared to other Caribbean countries (decreasing from 27.7% to 21.9% over the period, with an extraordinary low level of 4.6% in 1984-86). It should be noted that most food imports were banned in the late 1970s which combined with foreign exchange shortages and general economic crises in the 1980s could account for the low levels of food imports in 1984-86.

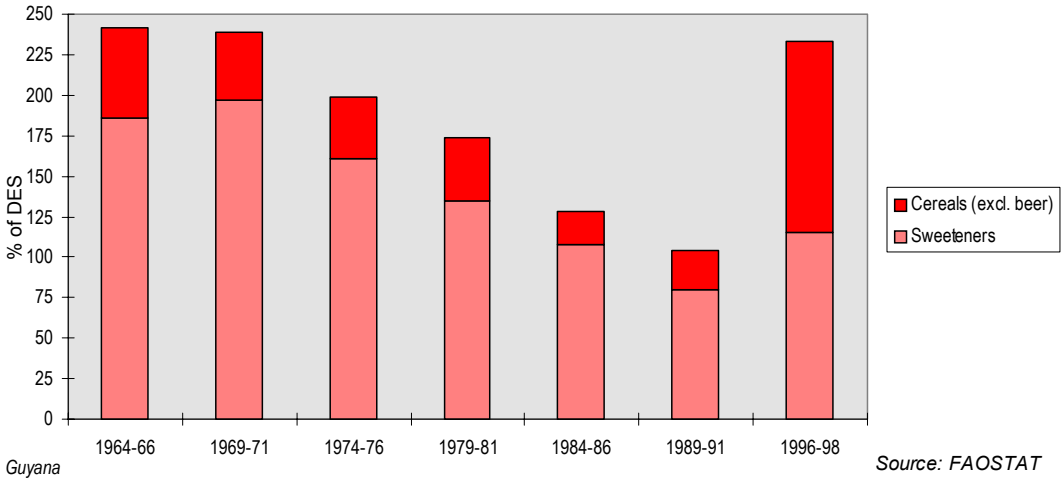
Vegetable oil imports as a percentage of DES increased steadily from3.8% to 8.3% between 1964-66 and 1979-81, declined to 3.3% in 1984-86 and to 0.1% in 1989-91, then increasing to 1.6% in 1996-98. Over the 32-year period animal fat imports declined steadily along with those of fish and seafood to almost negligible levels in terms of being a proportion of DES. Given the relatively low level of food imports as a percentage of DES, Guyana does not rely heavily on international food trade in order to supply its population with food.

Figure 4: Major food imports as a percentage of Dietary Energy Supply
Trends from 1964-66 to 1996-98



Guyana *Source: FAOSTAT*

Figure 5: Major food exports as a percentage of Dietary Energy Supply
Trends from 1964-66 to 1996-98



Guyana *Source: FAOSTAT*

The primary food exports of Guyana, sweeteners and cereals, have declined as a percentage of DES between 1964-66 and 1989-91. They moved from 185.5% and 55.8% to 79.5% and 25.0% respectively, but rose sharply in 1996-98 (117.8% in the case of sweeteners and 117.8% in the case of cereals). In fact, cereal exports surpassed those of sweeteners, which through the years had been the number one food export (**Figure 5**).

3. Food consumption

There are no current national survey data on current food consumption practices, particularly among adults. A national food consumption survey was completed in 2002 and the findings are being analyzed. The previous food and nutrition survey was carried out in 1971. The results showed that food consumption patterns differ between the Indo and Afro-Guyanese. Those of African origin ate more white bread, plantain, evaporated milk, beef and margarine; while people of East Indian origin preferred foods such as split peas, wheat flour cooked as roti, egg-plant, curry and shrimp. Both groups consumed eddoes, cassava, salt cod, bora (green beans), chicken and eggs.

Limited food consumption data were collected as part of a Micronutrient study in 1996 These data indicate that food choices do not differ much among these ethnic groups, but differences in the method of preparation and frequency of consumption of particular items were observed (PAHO/CFNI, 1997.a & PAHO, 1976). Among the most frequently consumed foods were peas and beans, meat and fish.

The majority of Amerindians reside in the hinterland and follow a traditional lifestyle. Their main staple is cassava. Consumption of legumes, cereals and green leaves appeared to vary but is generally low. Wild meats such as iguana and turtle are hunted and represent the principal flesh foods (PAHO/CFNI, 1997.a). Special Guyanese dishes include "Mettagee" (a one pot stew of pickled meat/fish, coconut milk with and provisions and vegetables), "Pepper Pot" (meat boiled in carsareep juice, i.e. fermented cassava), and "Cook-up rice" (rice with blackeye beans, vegetables and meat or fish) (CFNI, 1983).

The current levels of iodine deficiencies suggest that insufficient quantities of foods rich in these nutrients are being consumed, or other factors may be inhibiting the proper absorption of the nutrients of a combination of both. The high phytic acid and polyphenol content of the cereal and legume based diet of the Guyanese may be decreasing iron absorption and contributing to the levels of iron deficiency observed. (PAHO/CFNI, 1997a)

A 1999 survey of mothers attending clinics in the coastal regions showed that only 21.7% of all infants less than four months were being breastfed exclusively even though 93% of the women initiated breastfeeding after birth. The prevalence of breastfeeding between 12 and 15 months was 60%, but by the end of the second year of life, however, the rate was much lower, with only about 39.0% of babies 20-23 months still receiving breast milk.(SIMAP, 1999)

The 2000 Multiple Indicator Cluster Study (UNICEFF, 2000.b) reported similar patterns with an even lower rate of exclusive breastfeeding of 15%. Findings from both surveys point to a pattern of early supplementation and premature cessation of breastfeeding. Sixty per cent of the infants in the clinic survey had received plain or sweetened water and infant formula from as early as the first month of life; and other complementary foods were introduced to 30-40%, by the second month. The prevalence of breastfeeding between 12 and 15 months was 60%, but by the end of the second year of life, however, the rate was much lower, with only about 39% of babies 20-23 months still receiving breast milk.

The highest rates of exclusive breastfeeding are found in regions 10- 43.8%), 6 - 35.0%, and 2 - 30.0%, while the lowest are in regions 5 - 11.8%, 3 - 14.5% and 4 - Demerrara/Mahaica - 25.4%. Approximately 60% of the children continue to breastfeed up to the first year of life almost the same level found (PAHO/CFNI, 1997.a) for children 0-11 months who were still being breastfed. The proportion fell dramatically for those who continue through the second year to 39%.

Some of the foods reported to be introduced during infancy include juices (fruit and vegetables), water and most important the child's tea, any hot liquid that was likely to be placed in a bottle (e.g. milk, porridge, commercially available products such **Milo**, **Ovaltine**, and **Red Rose**, bush teas, and coffee). Children 3-12 months, are given crushed ground provisions (potato, eddoe, pumpkin) soup, steamed fish, steamed callaloo, biscuits and nut butter along with the porridge and juices similar to those offered to 0-3 months old. There are variations between the ethnic groups (East Indians and Blacks) as well as between the income levels in terms of the actual items used as weaning and complementary foods (PAHO/ CFNI, 1997.b). Among the most common foods given to the children during the weaning stage and later include plain water, fresh juice/fruit, porridge/cereal, infant formula, full cream milk (more commonly offered than infant formula and fresh cow's milk), "crush" and other family foods. Very few mothers used condensed milk, evaporated milk or bottled/canned foods. The most commonly used porridges are those made with cornmeal, plantain, barley, and Nestum. The use of locally milled wheat flour, an iron fortified product is low (7-8%) (CFNI, 2001).

4. Anthropometric data

A micronutrient study conducted by PAHO/CFNI in 1996-97, revealed that, among children 0-4 years old, 11.5% were wasted, 10.1% stunted and 11.8% were underweight. Among children 5-9 years old, 8.5% were underweight with a higher proportion of females were undernourished compared to males. 8.5% of these children were wasted and 8.1% stunted. Only 2.8% were overweight. However a larger proportion of males suffered from overweight. (**Table 4a**).

According to Ministry of Health figures (clinic data) relating to children 0-5 years old, undernutrition moved from 16.0% in 1994 to a high of 21.7% in 1995, thereafter it was reported at 0.9% in 1996 declining to 0.5% by 1999. The levels reported for 1994-1995 were based on one definition of under weight (<80% standard weight for age - moderate), while those for 1996-1999 were based on another (<60% standard weight for age - severe). Among this same age group the level of over weight (>120% standard weight for age) increased sharply from 3.4% to 5.6 % in 1995, declined to 4.0% in 1998, then increased slightly to 4.3% in 1999 (CFNI, 2000).

A 1994-95 study of primary school entrants aged 5-7 years showed 13.7% stunting and 8.1% wasting. A high proportion of stunting was found among the Amerindian children (61.7%) compared with children of other ethnic groups (7.5-12.3%). Wasting was highest among Indo-Guyanese (14.3%)compared with other ethnic groups (1.5% - 4.3%). Children that were both stunted and wasted accounted for 1.1% of the total sample with the highest proportion among the Indo-Guyanese. None of the Amerindian children were both stunted and wasted. (FOOD POLICY DIVISION, 1995).

An examination of more recent survey data indicates no discernable improvements in nutritional status of children in the last 5 years. A comparison of the findings of the 1997 Micronutrient Survey and the Guyana MICS 2000, reveal similar prevalence levels, with an increase in the proportion of children assessed to be severely wasted (low weight for height). Further analysis of the MICS 2000 data showed that children less than 12 months were the least likely to be malnourished, when assessed by the three anthropometric indicators. The higher risk in the older children was attributed to the combined effects of infections and the inadequacy of the diet, particularly after the cessation of breastfeeding.

It was also observed, in the MICS, that the pattern of malnutrition varied by location. In general, children from urban coastal areas were less affected. Acute malnutrition or wasting was more prevalent in rural coastal areas, while children from interior rural areas

were more likely to be stunted. The interior rural would be comprised mainly of Amerindian communities. (PAHO/CFNI, 1997) (UNICEF, 2000) (**Table 4a**).

The MICS study indicated that the education level of mothers might be a critical determinant in all areas as it was observed that children of less educated women were more likely to be malnourished. Other related potential determinants include nutrition knowledge, food preparation and allocation practices, provision of childcare, and the time and resource constraints of care providers, which may influence household food and feeding patterns, more particularly infant and young child feeding behaviours. (UNICEF, 2000)

Among adolescents (**Table 4b**) in the age group 10-14 years, data from the CFNI micronutrient survey indicate that 5.1% were overweight with significantly more females being in this category, based on their body mass index (BMI >85TH percentile). Some 18% were underweight (BMI < 5th percentile), with a significantly larger proportion of males being underweight. (PAHO/CFNI, 1997.a & **Table 4b**).

Among the adults 20 years and older, three times more women (20.9%) than men (6.0%) were obese (BMI: ≥ 30)(**Table 4c)**. Of the total population 15.3% were obese, while an additional 25.7% were overweight (BMI between 25 and 29). The mean BMI ranged from 22.5 to 26.2 (PAHO/CFNI, 1997.a, **Table 4c**). An unpublished national study on physical activity conducted by CFNI in 2000, found that 22.4% of the population 20 years and older were obese (BMI: 30 or higher). An additional 29.0% were overweight (BMI: 25-29.9), indicating an increase in the prevalence of excess weight between 1996-97 and 2000.Significantly more females (26.9%) are obese compared with males (14.3%) (CFNI, 2000, **Table 4c**).

Of the 18,3360 babies born in 1995, 15.3% had low birth weights (< 2,500g) (PAHO/WHO, 1999).

Table 4a: Anthropometric data on children

Source/ Year of survey	Location	Sample Size Number	Sex	Age Years	Percentage of malnutrition						
					Underweight % Weight/Age		Stunting % Height/Age		Wasting % Weight/Height		Overweight % Weight/Height
					< -3SD	< -2SD*	< -3SD	< -2SD*	< -3SD	< -2SD*	> +2SD
UNICEF		35483	F	…	2.4	12.8	3.2	9.7	2.1	9.7	…
MICS, 2000											
	Interior (rural)	10198	M&F	…	1.2	10.4	4.5	19.5	0.6	4.0	…
	Coast (urban)	2007	M&F	…	1.7	10.3	1.1	6.2	2.8	8.6	…
	Coast (rural)	45144	M&F	…	3.9	15.9	3.9	10.9	2.8	13.0	…
	Urban	20007	M&F	…	1.7	10.3	1.1	6.2	2.8	8.6	…
	Rural	55342	M&F	…	3.4	14.9	4	12.5	2.4	13.3	…
	< 6 months	5239	M&F	…	0.1	3.1	0.1	7.2	2.1	6.8	…
	6-11 months	7083	"	…	1.5	5.5	1.6	5.8	1.6	6.8	…
	12-23 months	15075	"	…	4.2	16.0	3.5	13.5	3.3	15.2	…
	24-35 months	15322	"	…	5.3	15.9	3.8	9.5	2.8	10.4	…
	36-47 months	17170	"	…	2.1	14.2	4.7	13.5	2.6	11.4	…
	48-59 months	15460	"	…	2.0	15.7	2.5	9.9	2.0	10.8	…
CFNI, 1997.	National	288	M&F	1.0-4.0	…	11.8	…	10.1	…	11.5	1.0
Micronutrient	"	156	M	"	…	…	…	…	…	10.9	1.9
Study, 1996-97	"	132	F	"	…	…	…	…	…	12.1	0.0
"	National	246	M&F	5.0-9.0	…	8.5	…	8.1	…	8.5	2.8
	"	119	M	"	…	…	…	…	…	4.2	5.0
	"	127	F	"	…	…	…	…	…	12.6	0.8

Notes: ... no data available

Each index is expressed in terms of the number of standard deviations (SD) units from the median of the NCHS/CDC/WHO international reference population.

* Includes children who are below -3 SD.

Table 4b: Anthropometric data on adolescents

Source/ Year of survey	Location	Sample Size (Number)	Sex	Age (Years)	Anthropometric status: Body Mass Index (kg/m^2) < 5th Percentile	> 85th Percentile	mean	SD	median
CFNI, 1997.	National	196	M/F	10.0-14.0	17.9	5.1	…	…	…
Micronutrient	"	95	M	"	23.2	3.2	…	…	…
Study, 1996-97	"	101	F	"	12.9	6.9	…	…	…
"	National	210	M/F	15.0-19.0	11.9	6.7	20.2	3.6	…
	"	96	M	"	18.8	5.2	19.8	3.9	…
	"	114	F	"	6.1	7.9	20.5	3.3	…

Notes: ... data not available

Table 4c: Anthropometric data on adults

Source/ Year of survey	Location	Sample Size (Number)	Sex	Age (Years)	Anthropometric status and Percentage of malnutrition: Body Mass Index (kg/m^2) mean	SD	median	Chronic Energy Deficiency % BMI <16.0	16.0-16.9	<18.5	Overweight % BMI 25.0 - 29.9	Obesity % BMI >30.0
CFNI,	National	1315	M/F	20+	…	…	…	…	…	…	29.0	22.4
Unpublished.	"	470	M	"	…	…	…	…	…	…	26.0	14.3
Physical	"	845	F	"	…	…	…	…	…	…	30.7	26.9
Acivity Study,												
Guyana, 2000												
CFNI, 1997.	National	786	M/F	20+	24.8	5.5	…	…	…	10.2	25.7	15.3
Micronutrient	"	298	M	"	…	…	…	…	…	9.4	22.8	6.0
Study, 1996-97	"	488	F	"	…	…	…	…	…	10.7	27.5	20.9
"	"	315	M/F	20-30	22.3	4.4	…	…	…	18.4	14.3	7.0
"	"	364	M/F	31-50	26.1	5.4	…	…	…	4.4	34.1	18.7
"	"	107	M/F	51+	27.2	6.1	…	…	…	5.6	30.8	28.0

Notes: ... data not available

5. Micronutrient deficiencies

As part of a nation-wide micronutrient study conducted in 1996-97 (PAHO/CFNI, 1997a) urinary iodine levels were assessed for children 5-14 years and pregnant women, using a cut-off point of < 20µg/L for severe deficiency. The results reported in **Table 5** indicate a national prevalence among the children of 3.2% (2.5% and 3.9% for males and females respectively), and 2.1% among pregnant women for severe iodine deficiency. However, among the children an additional 6.4% were moderately deficient (20-49 µg/L) and 17.3% were mildly deficient (50-99 µg/L). In the case of the pregnant women, an additional 16.5% were moderately deficient and 24.2% mildly deficient. Wide variations in the prevalence of severe iodine deficiency were observed at the regional level for both the children and pregnant women, with the prevalence ranging from 0.0% to18.2% among the children and 0.0% to 11.1% among pregnant women (**Table 5**).

According to the PAHO/CFNI 1997 micronutrient study, iodine deficiency disorder of public health significance exists in Guyana, partly due to the inadequate levels of iodization in imported table salt. Guyana imports salt from Cuba, Jamaica and Trinidad. Whereas Cuban salt is not iodised, the study found that samples of salt from the other countries had a maximum level of 2.1 ppm (recommended level is 25 ppm). The government has since implemented stricter conditions for the importation of iodised salt (PAHO/CFNI, 1997.a).

Severe vitamin A deficiency is not a problem in Guyana, although there is a relatively low prevalence of marginal vitamin A deficiency (children 0-4 years have the highest prevalence, 9.8%). Beta-carotene deficiency at low levels also exists, 4.2% among children 0-4 years and 2.1% among pregnant women (PAHO/CFNI, 1997.a).

Using haemoglobin as an indicator of iron status over 40% of all the groups targeted in the 1997 study were deficient according to the WHO standard (**Table 5**). Vulnerable groups, such as pregnant women (52.0%) and pre-school children (47.9%), had particularly high levels of deficiency. Wide variations were seen at the regional level among the target groups. Among children 0-4 years the prevalence ranged from 0.0% to 100.0%, among children 5-14 years from 22.2% to 80.0%, among pregnant women from 0.0% to 72.7% and among adults 15-60 years from 36.9% to 60.0%. The deficiency level seen in the pregnant women shows a marked decrease from the 1982 level of 73.7% and a marginal decease from the 1971 level of 55.0%. On the other hand the prevalence of iron deficiency among the pre-school children has seen a steady increase since 1971, moving from 41.0% in 1971 through 44.0% in 1982 to 47.9% in 1996-97 (PAHO/CFNI, 1997.a). The current level of iron deficiency is a public health concern. However, locally milled flour is fortified with iron. In addition, a national policy to address iron supplementation among pregnant women (none for children), in existence since the 1970s, provides ferrous sulphate and folic acid and/or inferon injections for low haemoglobin levels.

Table 5: Surveys on micronutrient deficiencies

Source/ Year of survey	Deficiency	Location	Sample			Percentage
			Size Number	Sex	Age Years	
	Iodine					
CFNI/PAHO, 1997	Urinary	National	161	M	5.0-14.0	2.5
Micronutrient	< 20 µg/L	"	181	F	"	3.9
Study, 1996-97						
"	"	National	285	Pregnant		2.1
	Iron					
CFNI/PAHO, 1997	Hemoglobin	National	140	M&F	0 - 4	47.9
Micronutrient	< 11g/dL					
Study, 1996-97						
"	< 12 g/dL	National	354	M&F	5.0-14.0	56.8
"	< 11 g/dL	National	265	Pregnant		51.7
"	< 12 g/dL	National	827	M&F	15.0-60.0	41.6
	"	"	438	"	15.0-30.0	42.2
	"	"	301	"	31.0-50.0	40.9
	"	"	88	"	51.0-60.0	40.9

Notes: ... data not available

REFERENCES

BUREAU OF STATISTICS. June 2001. Statistical Bulletin, Guyana.

BUREAU OF STATISTICS, Ministry of Finance and Planning Multiple Indicator Cluster Survey (MICS), Guyana, UNICEF, 2000.

CFNI. 1983. Dietary Practices in the Caribbean. Caribbean Foodways - Part 4. *Nyam News*. Caribbean Food and Nutrition Institute. CFNI Information Service, Jamaica.

CFNI. 2000. *Obesity Prevention and Control Strategies in the Caribbean 1990-2000.* Caribbean Food and Nutrition Institute (PAHO/WHO) in Collaboration with International Obesity Task Force. Kingston Jamaica

CFNI. 2001. *Young Child Feeding in Guyana*. Survey conducted by the Bureau of Statistics, Ministry of Finance, Guyana.

CFNI. 2000. Physical Activity Study, Guyana. Caribbean Food and Nutrition Institute. Jamaica.

FAOSTAT. 1999. *FAO Web page*. Statistics database. FAO, Rome

FAOSTAT. 2002. *FAO Web page*. Statistics database. FAO, Rome

FAO/WFS (World Food Summit). 1996. *Mapping Undernutrition – five years later-*. Poster for the World Food Summit 10-13 June 2002. FAO, Rome

GOVERNMENT OF GUYANA. 1999. *Report of the 1999 Survey of Living Conditions.* Georgetown. Guyana.

GOVERNMENT OF GUYANA. 2000. *Interim Poverty Reduction Strategy Paper (IPRSP)*. Ministry of Finance. Georgetown. Guyana.

GOVERNMENT OF GUYANA. 2000. National Development Strategy 2000-2001. Georgetown. Guyana.

HEALTH STATISTICS UNIT. Ministry of Health, Guyana (unpublished).

PAHO. 1976. *The National Food and Nutrition Survey of Guyana.* Pan American Health Organization. Washington D.C.

PAHO. 2002. Health in the Americas, Vol II, 2002 Edition. Scientific and Technical Publication No. 587. Pan American Health Organization. Washington D.C.

PAHO/CFNI. 1997.a. *Micronutrient Study Report - Guyana. An Assessment of the Vitamin A, Beta-Carotene, Iron and Iodine Status in the Population.* Ministry of Health, Guyana in Collaboration with CFNI/ PAHO/UNICEF. Kingston, Jamaica

PAHO/CFNI. 1997.b. Caribbean Young Child Feeding - Guyana (PAHO/CFNI/97.J11). Caribbean Food and Nutrition Institute, Jamaica.

PAHO/CFNI. 2000 Physical Activity Survey. Ministry of Health, Guyana. Caribbean Food and Nutrition Institute. Jamaica.

PAHO/CFNI. 1999. Guyana: Basic Country Health Profiles, Summaries 1999. PAHO/WHO Web page. Country Health Profiles (http://www.paho.org).

SIMAP. 1998. National Plan of Action on Nutrition (NPAN), Guyana,.

SIMAP. 1999. Breastfeeding Survey, Guyana.

FOOD POLICY UNIT. April, 2001, Ministry of Health, Guyana, Surveillance Bulletin.

FOOD POLICY DIVISION (GAHEF). May 1995 Ministry of Health, Guyana. Report on the Nutritional Status of Primary School entrants, Guyana 1994-95.

Tabatabai, H. 1996. *Statistics on poverty and income distribution. An ILO Compendium of data.* International Labour Office, Geneva.

UN. 2001. *World Population Prospects Database 1950-2050. The 2000 Revision.* United Nations Population Division. New York.

UN. 2002. *World Urbanisation Prospects. 2001 Revision.* United Nations Population Division. New York.

UNDP (United Nations Development Programme). 2002. *Human Development Report.* Oxford University Press. New York.

UNICEF. 2000.a. *The State of the World's Children 2000.* United Nations Children's Fund. Oxford University Press. New York.

UNICEF. 2000.b. Bureau of Statistics, Ministry of Finance and Planning, Multiple Indicator Cluster Survey (MICS), Guyana

World Bank. 2000. Guyana At A Glance. World Bank Country Data. World Bank, Washington, D.C.

World Bank. 2002. *The World Development Indicators 2002 CD-ROM. Win*STARS System Version 4.0.* World Bank, Washington, D.C.

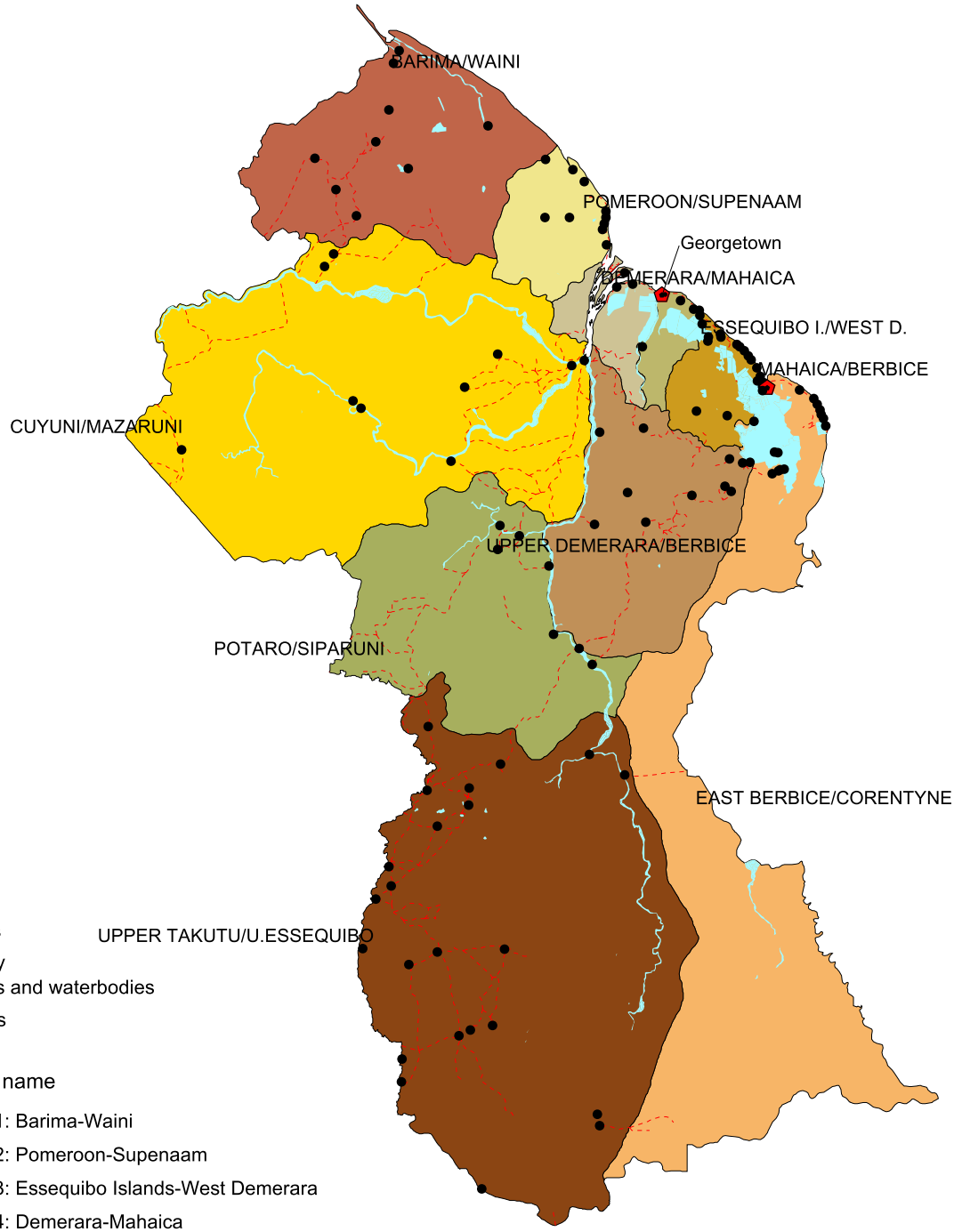
References of data presented in Table 1, unless otherwise stated:

Source:	*Indicator:*
FAOSTAT. 1999/2002	*A.1-2, B, C.10-11, E.1-3, F, G*
UN. 2000/2001 rev.	*C.1-9, D.5*
World Bank. 2002.	*D.1*
UNDP. 2002.	*D.2*
Tabatabai H. 1996.	*D.3-4*
UNICEF. 2002.	*D.6*
FAO/WFS. 2002.	*H*

NCP of GRENADA
MAPS

-General map of Grenada

General map of Guyana



- Main cities
- Capital city
- Main rivers and waterbodies
- Main roads

Region code and name

- Region 1: Barima-Waini
- Region 2: Pomeroon-Supenaam
- Region 3: Essequibo Islands-West Demerara
- Region 4: Demerara-Mahaica
- Region 5: Mahaica-Berbice
- Region 6: East Berbice-Corentyne
- Region 7: Cuyuni-Mazaruni
- Region 8: Potaro-Siparuni
- Region 9: Upper Takutu-Upper Essequibo
- Region 10: Upper Demerara-Upper Berbice

N
W E
S

Scale 1: 4 500 000 (approx.)
Geographic Projection (Lat/Long)

FAO-GIS/ESNA, July, 2002

Guyana