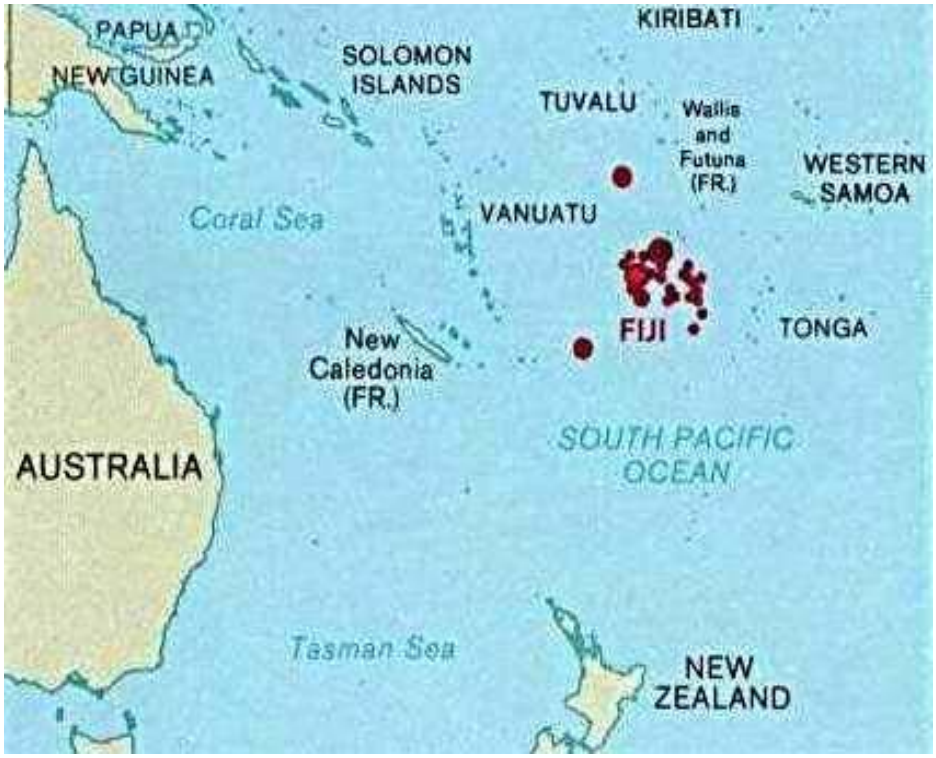
FAO - NUTRITION COUNTRY PROFILES

FIJI

2003



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.

Nutrition Country Profile of Fiji prepared for
the Food and Agriculture Organization of the United Nations by Ms Penina Vatucawaqa (National Food and Nutrition Centre) in collaboration with Rosanne Marchesich (ESNA-FAO).

Table of contents

MAPS are presented after the <REFERENCES>

- General map of Fiji

Graphs, tables and maps can be visualised by clicking on the words in bold and underline, only in the "Full profile" pdf file

SUMMARY

Fiji, in transition towards increasing industrialisation, is facing nutritional problems associated with both undernutrition and overnutrition. Lack of access to food due to economical shortages is one of the major causes of malnutrition in the country. One quarter of the population is living below the poverty line. The problem of overnutrition on the other hand may be associated with the change in the consumption patterns towards a diet high in energy but low in fibre, vitamins and minerals and a sedentary lifestyle. Fiji relies heavily on food imports, which account for more than half of the national dietary energy supply (FAOSTAT, 2002).

Comparison of the National Nutrition Survey in 1980 with the one in 1993 and data from a longitudinal survey conducted in Naduri Village from 1952 to 1994, seems to indicate a change in the food consumption pattern of the population of Fiji. This change is characterized by an increase in the consumption of cereals, animal fat and processed imported foods, along with a decrease in the consumption of traditional root crops and other local food products, especially for Fijians (Saito, 1995).

*Malnutrition in children resulting from insufficient dietary intake is a concern. The 1993 National Nutrition Survey reported a low prevalence of underweight and stunting and a medium prevalence of wasting in children under five years of age, according to WHO classification. However, ethnical comparisons reveal that the prevalence of underweight and wasting is much higher in Indian children than in Fijians. Among Indian children less than five years, underweight and wasting have a medium and high prevalence respectively, whereas among Fijian children prevalences are low. When comparing anthropometric data on the basis of the same cut-off points, the very different body sizes of these two ethnic groups must be taken into consideration (Saito, 1995) (**Table 5a**).*

Underweight was identified as a problem among Fijian infants in the weaning period. Nutritionally inadequate complementary foods, reduced feeding frequencies and poor sanitation, besides adverse socio-economic conditions, seem to be the main contributing factors (Schultz and Seniloli, 1995).

*The prevalence of overweight and obesity in adults is increasing in Fiji. In the National Nutrition Survey of 1993, more than one quarter of the population was overweight, and one fifth of the women were obese. The prevalence of overweight and obesity is particularly high among Fijian women. The risk for mild energy deficiency, however, is much higher for Indian men and women than for their Fijian counterparts (Saito, 1995) (**Table 5c**).*

*The prevalence of iodine deficiency disorders (IDD) is high in Fiji. Almost half of the population had goitre detected by ultrasound in 1994. The prevalence of goitre in school age children (6 to 12 years old) was nearly 75% in Ba and Sigatoka Valley. A new survey will reveal if the legislation on the exclusive import of iodised salt in 1996 has had an impact on the IDD prevalence (Gutekunst, 1994) (**Table 6a**).*

*Iron deficiency anaemia is a major public health problem mainly affecting women of childbearing age and children less than five years. Anaemia is more prevalent in Indian women, but the rates among Fijians are also increasing. Pregnant women are the group most at risk, more than half of them being anaemic, particularly Indian women (Saito, 1995; MOH, 1998) (**Table 6b**).*

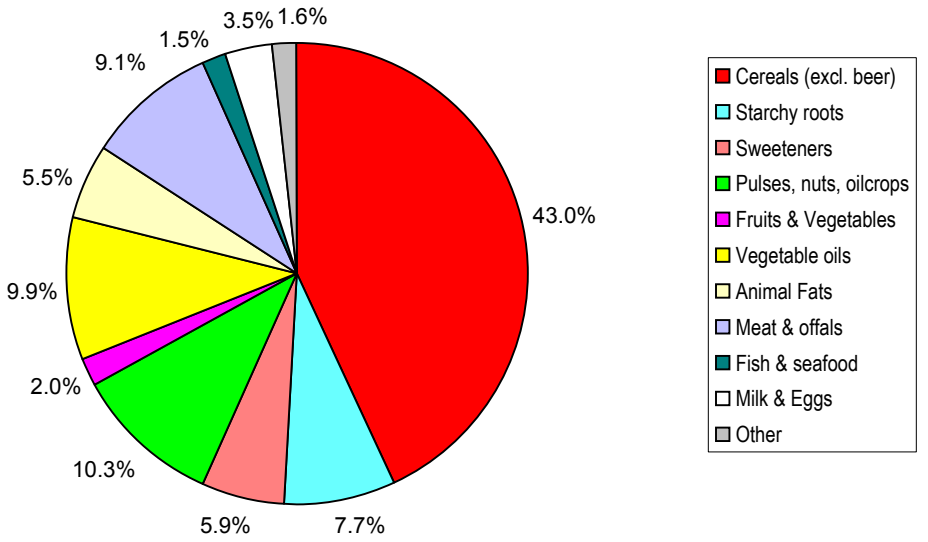
TABLE 1: GENERAL STATISTICS OF FIJI

Last updated: 31/07/2002

Indicator (§)	Year	Unit	
A. Land in use for agriculture			
1. Agricultural land	2000	ha per person	0.565
2. Arable and permanent crop land	2000	ha per person	0.350
B. Livestock			
1. Cattle	1998-2000	thousands	337
2. Sheep & goats	1998-2000	thousands	245
3. Pigs	1998-2000	thousands	131
4. Chickens	1998-2000	millions	4
C. Population			
1. Total population	2000	thousands	816
2. 0-4 years	2000	% of total pop.	11.9
3. 5-14 years	2000	% of total pop.	21.5
4. 15-24 years	2000	% of total pop.	20.4
5. >= 60 years	2000	% of total pop.	5.7
6. Rural population	2000	% of total pop.	50.6
7. Annual population growth rate, Total	2000-2005	% of total pop.	1.4
8. Annual population growth rate, Rural	2000-2005	% of rural pop.	0.6
9. Projected total population in 2030	2030	thousands	1155
10. Agricultural population	2000	% of total pop.	39.9
11. Population density	2000	pop. per km^2	44.6
D. Level of Development			
1. GNP per capita, Atlas Method	1998	current US$	2 210
2. Human Development Index rating (new)	1999	min[0] - max[1]	0.757
3. Incidence of poverty, Total	1996	% of population	25
4. Incidence of poverty, Rural	_	% of population	_
5. Life expectancy at birth (both sexes)	2000-2005	years	72.7
6. Under-five mortality rate	2000	per 1,000 live births	22
E. Food Trade			
1. Food Imports (US $)	1998-2000	% of total imports	10.5
2. Food Exports (US $)	1998-2000	% of total exports	26.7
3. Cereal Food Aid (100 t)	1998-2000	% of cereals imports	0.0
F. Indices of Food Production			
1. Food Production Index	1998-2000	1989-91=100	93.6
2. Food Production Index Per Capita	1998-2000	1989-91=100	84.2

Indicator (§)	Year	Unit	
G. Average Food Supply			
1. **Dietary Energy Supply (DES)**	1998-2000	kcal/caput/day	2827

Percentage of DES by major food groups



Note: Value not indicated if below 1%

	% Energy from:			
2.	Protein	1998-2000	% of total energy	10.7
3.	Fat	1998-2000	% of total energy	30.2
4.	**Proteins**	1998-2000	g/caput/day	74
5.	Vegetable products	1998-2000	% of total proteins	60.3
6.	Animal products	1998-2000	% of total proteins	39.7
H. Food Inadequacy				
1.	Total population "undernourished"	1997-99	millions	_
2.	% population "undernourished"	1997-99	% of total pop.	_

- Data not available. § see References for data sources used

See Technical Notes for definitions used.

FIJI

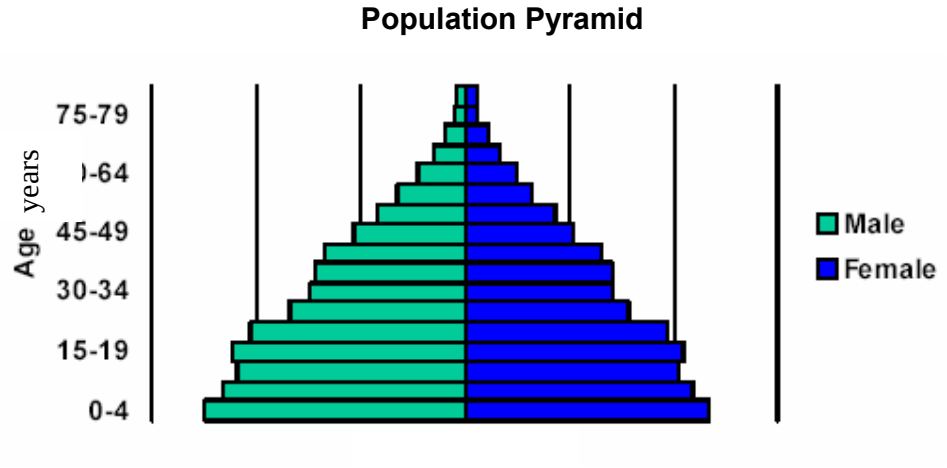
I. OVERVIEW

1. Geography

The Fiji Islands are situated in the South Western part of the Pacific and consist of more than 300 islands. Most of the islands are of volcanic origin and only a few are atolls. The total land area is 18 272 km^2 (BOS, 1998a). Ninety percent of the population live on the two largest islands Viti Levu and Vanua Levu, representing 87% of the land area. The country has a tropical climate with two marked seasons, the cool and dry season (May to October) and the hot, wet and humid season (November to April). The eastward side of the larger islands, where the capital Suva is located, has more rainfalls (1150 mm average per annum) than the westward side (492 mm average per annum) (BOS, 1998a). The south-east trade winds prevail throughout the year varying from mild breezes to hurricanes in the hotter months. Hurricanes, also known as cyclones, have been responsible for considerable devastation of crops and houses during the months of November to April (**General Map**).

2. Population

Fiji's mid-year population in 2000 was estimated to be 816 000 inhabitants and grew at an average annual rate of 1.4 percent between 2000 and 2005 (**Table 1**). The country is a multi-racial society comprising Fijians (50.8%), Indians (43.7%) and others (5.5%) (BOS, 1998b). Reports from the 1996 population census indicate a declining population growth rate (UN, 2001) (**Table 1**). The majority (60%) of the population live in rural areas, however in 2030 it is estimated that the urban population will reach 59% (UN, 2001), with intensified urbanization particularly for Fijians. The capital city of Suva in the Central Division together with the surrounding semi-urban areas now accounts for more than one-quarter of the total population. Other major urban centres are in the Western Division, contributing 14% to the total population (BOS, 1998b). While Fiji's population remains predominantly young, it has aged steadily over the last 30 years. The percentage of the population under 15 years was 47% in 1966 decreasing to 33% in 2000 (BOS, 1998b). From 1995 to 2000 the crude birth-rate and crude death rate was 26 and 7 per 1000 population, respectively. The total fertility rate for the same time period was 3.2 (UN, 2001).



Source: UNAIDS/WHO, 2002.

3. Level of development: poverty, education and health

The Fiji Poverty Report of 1996 revealed that one quarter of the population was living below the poverty line, based on basic living costs for a household of five people of about $US83 a week (UNDP, 1997). The poor people of Fiji are not necessarily the subsistence villagers or the unemployed. Most poor households are headed by someone in paid employment, who is, however, not paid well enough to keep their family out of poverty. Income is distributed unevenly: 50% of all households receive just one-fifth of all income earned in the country while the other 50% receive almost four-fifths (UNDP, 1997). The unemployment rate increased from 5.4% in 1995 to 6% in 1996 (MNP, 1997).

Generally, Fiji's population is well educated with easy access to primary and lower secondary schools. The adult literacy rate was 92% in 1997, estimated to be 94% for males and 89% for females. Compulsory education for primary schools and "free tuition education" for students from Class 1 to Form 4 has resulted in a high rate of enrolment in 1997, about 99% for primary schools and 72% for secondary schools (MNP, 1998).

Fiji's basic health indicators have greatly improved. This is reflected in a high life expectancy at birth (72.5 years for the 2000–2005 period), and lower infant and maternal mortality rates, dropping by 60% and 80% over the last 20 years. Infant mortality rate was 20 per 1000 live births from 1995 to 2000 and the maternal mortality rate was 20 per 100 000 live births in 2000 (UNAIDS/WHO, 2002). Some major disease threats to children such as polio and tetanus have been eliminated (MNP, 1997). However, tuberculosis is increasing, although, not at a high rate (Fiji Government, 2002). This overall improvement in the health situation may be attributed to the successful implementation of public health programmes. As, a result of changing lifestyle and problems of overweight and obesity, there is a growing concern about the increase of non-communicable diseases such as diabetes, cardio-vascular diseases, cancer and respiratory diseases.

Information on sexually transmitted diseases (STDs), including gonorrhoea, syphilis, HIV and AIDS, is difficult to obtain due to unreported cases, but the incidence of STDs is believed to be increasing. The prevalence of HIV/AIDS among adults at the end of 2000 was estimated to be approximately 0.3% (UNAIDS/WHO, 2002).

4. Agricultural production, land use and food security

Agricultural land represents approximately 56% of Fiji's total land cover. Approximately 1/3 of the land cover is arable and permanent crop land (Lands Dept, 1999). The amount of agricultural, arable and permanent crop lands is given in **Table 1** (FAOSTAT, 2002).

In 1997, the Fiji Ministry of Agriculture, Fisheries and Forestry's (MAFF) implemented the "land conservation and improvement act" which is a commitment to the concepts of sustainability of agriculture and rural development, fisheries and forestry resources. This has been implemented through legislation, farmer education and awareness, which covers conservation and pest management; research on erosion and fertilisers; and infrastructure improvements on land and water resource management (Fiji Government, 2002).

Fiji has total forested land areas of 1.83 million ha. Thus, approximately 0.8 million ha or about 47% of the country remains under natural forest cover. The driest parts of the two main islands have suffered deforestation but reforestation has brought some 90 000 ha of deforested land back into production. The majority of production forests are under communal ownership. Fiji promotes sustainable forest management through domestic policy development (Fiji Government, 2002).

Agriculture is the largest sector of the economy, contributing 16.8% to the GDP in 2000, 36% to the domestic export earnings and nearly 50% to the total employment in the country (MNP, 2001). Cane sugar, responsible for 24% of the total domestic export earnings in 2000, contributed about 7.7% of Fiji's GDP (MNP, 2001). Other crops such as rice are grown mainly for subsistence. The production of traditional root crops such as taro and kava increased markedly due to a great demand in the overseas market. Coconuts remain an important source of food and cash income for many households in Fiji.

Fiji has a low level of self-sufficiency (43% of energy derived from local foods in 1997) in terms of local production of major food commodities. Therefore, it is necessary to meet the shortfall with imports (Vatucawaqa, 2001). Food imports have decreased from 16.6% of total imports in 1985 to 15% in 1998 (BOS, 1995; 2000), due to increases in imports of other commodities such as manufactured goods.

Approximately 57% of the country's food as well as 60% of its protein and 64% of its fat are imported. The Government's current policy is to improve and strengthen household food security. One objective is to increase domestic food production, with the aim of having more than 50% of the country's food supplied locally. UNICEF has assisted the Ministry to refocus on domestic food production and the World Food Summit in Rome has encouraged MAFF to redirect resources so that food security issues can be addressed (Fiji Government, 2002).

Local food consumption is promoted through nutrition and health education. Greater emphasis on local food production with resources allocated to research and improved cultivars and marketing of local foods may improve their competitiveness. The Committee for the Advancement in Nutrition and Agriculture (KANA), a non-government organization, provides support to schools to incorporate food and nutrition in the formal education system (Fiji Government, 2002).

5. Economy

Between 1997 and 2000, economic growth was 1.8% per year on average. The economy regressed by 2.8% due to the disruptions caused by the political crisis in May of 2000 (BOS, 2001). Private investment remained low due to low investor confidence in the economy. Annual inflation rate decreased to 1.1% in 2000 from 2% in 1999 (BOS, 2001b).

Fiji's economy has a very narrow base and performance is heavily dependent on sugar exports and on the tourism industry (MNP, 1997). Apart from the increase in exports of traditional commodities such as taro, kava and coconut oil, garment exports and tourism earnings have shown upward trends in the recent years (MNP, 1998).

Since 1992 mining and quarrying has contributed about 3% of total GDP (EIU, 1999). The production of gold represents the main mining activity. Manufacturing contributed 14.5% of GDP in 1998 (EIU, 1999). The main manufacturing activities include the processing of sugarcane and other agricultural products, like copra, coconut oil and timber.

II. THE FOOD AND NUTRITION SITUATION

1. Trends in energy requirements and energy supplies

Per caput energy requirements[1] increased from 1965 to 2000 and are expected to increase further, but only slightly, by 2030. In the year 2000, per caput energy requirements in rural areas were 2282 kcal/day and in urban areas 2194 kcal/day. At national level, trends in food requirements reflect the changes in population structure and in particular in the age, sex and urban-rural distribution of the population. The growth in per caput requirements is levelling off because urbanisation is increasing. The percentage of people living in urban centres has increased by one third between 1965 and 2000, and the total population almost doubled in the same time period. The per caput dietary energy supply (DES) has followed population growth and the trends in energy requirements, increasing from 2640 kcal/day in 1965 to 2827 kcal/day in 2000, exceeding per caput energy requirements (**Table 2**). This can be explained by an increase in food imports, the growth of domestic food crop production during the same period, and a shift to more energy dense foods in the diet.

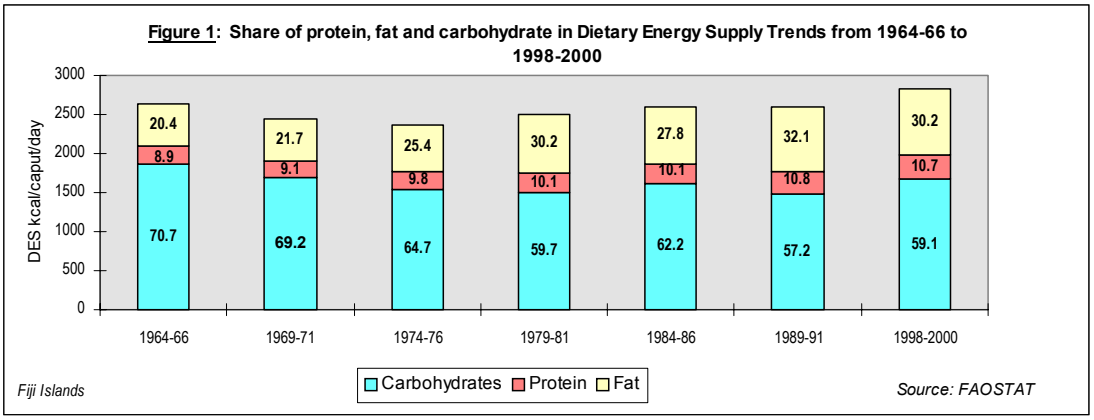
Table 2: Total population, urbanisation, energy requirements and dietary energy supply (DES) per person and per day in 1965, 2000 and 2030

Year	1965	2000	2030
Total population *(thousands)*	464	816	1155
Percentage urban *(%)*	32.6	49.4	59.3
Per caput energy requirements *(kcal/day)*	2138	2229	2263
Per caput DES *(kcal/day)* *	2640	2827	—

* The DES is expressed for an average-person of the country (*Source*: FAOSTAT).

The share of fat in total DES has increased from 20% to 30% in the period 1964-2000 while the percentage of carbohydrates decreased from 70% to 59% during the same period (**Figure 1**). The share of protein in total DES has increased slightly from 9% to 11% over the 36 year period.

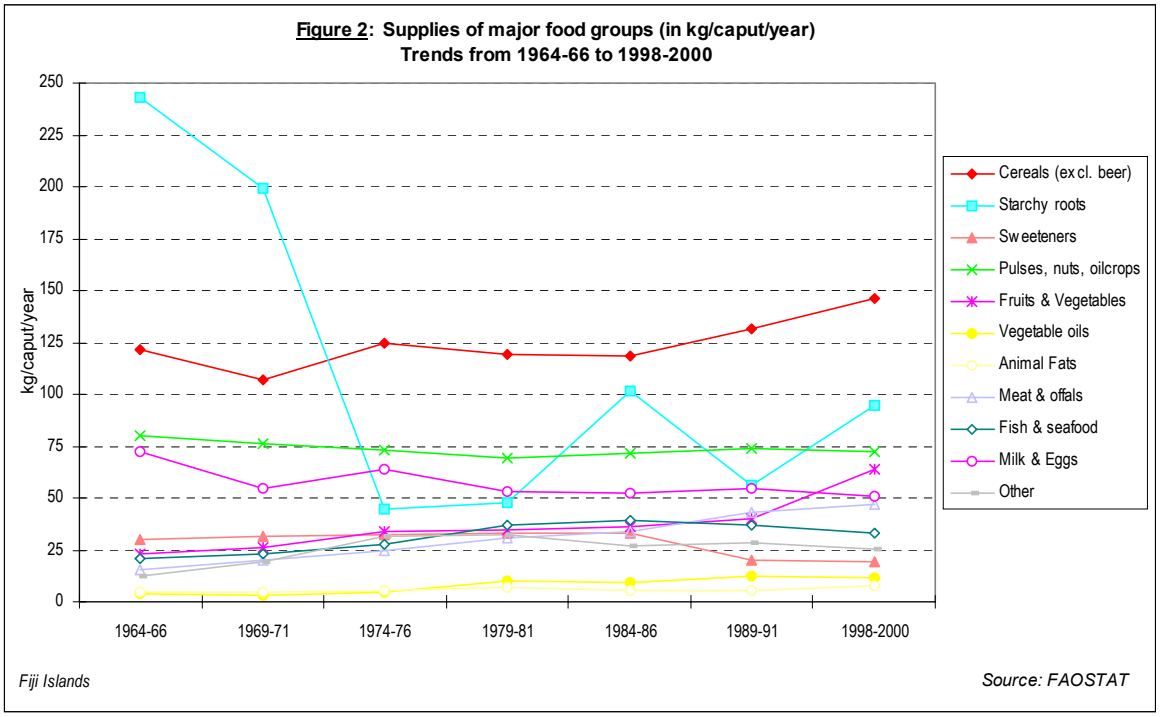
[1] Per caput energy requirements are calculated on the basis of the sex and age distribution of the population, using references for body size, physical activity levels (higher among the rural population, lower among the urban), energy needs for pregnancy and lactation. The method of calculation is derived from James & Schofield (1990). The requirements are expressed per average person of the country. Thus requirements are low in young and/or urbanized populations and higher in older or rural populations.



2. Trends in food supplies

Quantity: From 1964-66 to 1998-2000 the supply of cereals increased gradually from 121 kg/caput/year to 146 kg/caput/year (FAOSTAT, 2002). This increase can be attributed to the substitution of root crops with cereals in the diet, as a result of urbanisation (Thaman, 1990). Furthermore, the government's deregulation policy in the 1990's could also have contributed to this increase (MAFF, 1995).

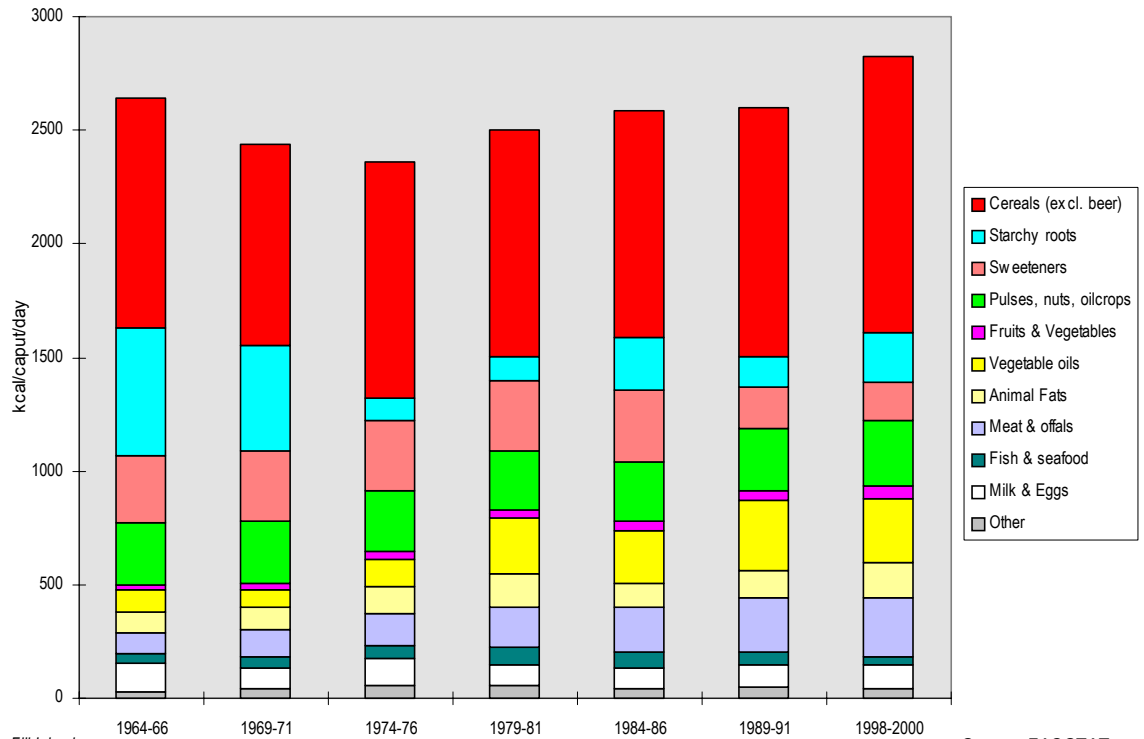
Starchy roots (mostly produced locally) showed a sharp decline from 243 kg/caput/year in 1964-66 to 95 kg/caput/year in 1998-2000 (**Figure 2**) (FAOSTAT, 2002). This decrease in the availability of root crops, which occurred in the 1970's, could be attributed to the abolition of the "Family Crops Regulation" in 1962 by the government. The Ministry of Fijian Affairs had enforced this regulation in 1949, which required males over the age of 14 years to cultivate land and grow crops sufficient for their requirements (MAFF, 1995).



In 1984-86, there was an increase in the availability of root crops due to the change in agriculture policy (**Figure 2**). This change in policy has increased the demand for taro on the export market thus increasing the production and availability of cassava and kumala for the local market (MAFF, 1995). Since then the availability of root crops has been fluctuating. The availability of sweeteners showed slight increases (10%) until 1984-1986, after which it decreased by 40% until 1998-2000. Vegetable oil (mostly imported soya bean oil and local coconut oil) showed stronger increasing trends than animal fats from 1964-66 to 1998-2000. Trends in other food groups varied.

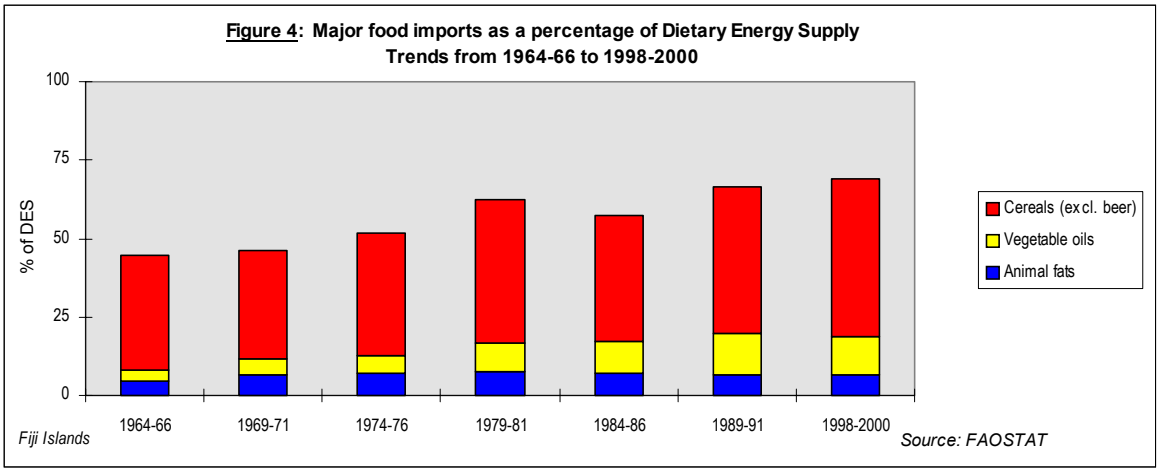
Energy – Cereals are the main source of energy in Fiji. They contributed 43% to the total DES in 1998-2000 (**Figure 3**). Pulses, nuts and oilcrops are the second most important energy source. The supply has stayed remarkably stable since 1964-66. Vegetable oils represent the third largest energy providing food group. The contribution of vegetable oils and meat and offals to the DES increased over the period 1964-66 to 1998-2000 explaining the growth in the share of fat in DES in this period (**Figure 1**). In the last decade, a significant increase was also observed for fruits and vegetables (34%) (FAOSTAT, 2002).

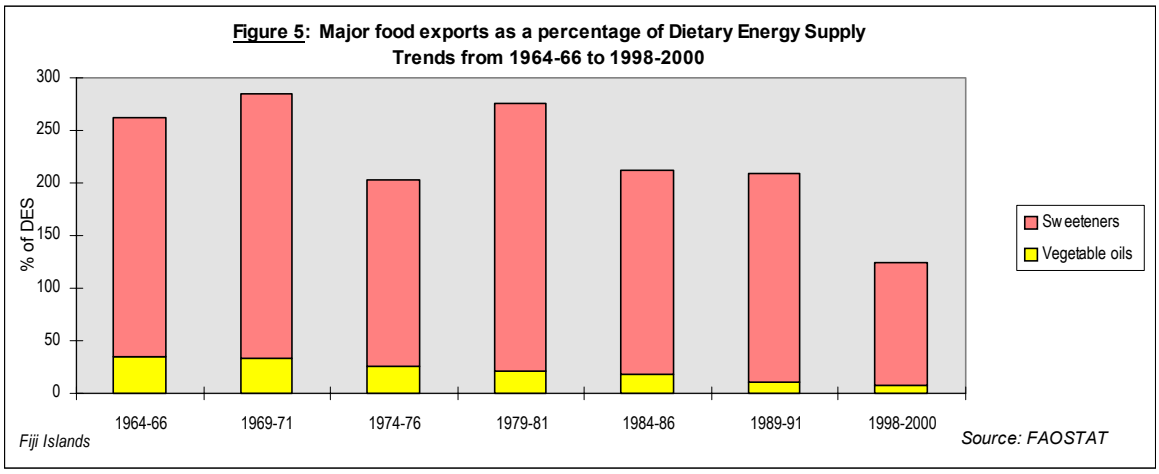
Figure 3: Share of major food groups in Dietary Energy Supply
Trends from 1964-66 to 1998-2000



Major food imports – The import of cereals, mainly wheat and rice, representing by far Fiji's major food import, increased markedly from 37% of total DES in 1964-66 to 45% in 1996-98 and to 50% in 1998-2000 (**Figure 4**). Rice imports almost doubled from 19 000t in 1985 to 30 000t in 1992 while local production decreased during the same period (FAOSTAT, 2002). Animal fats represented the second largest (6% of DES) food import item in the 1960s. It had been replaced by vegetable oils (soya bean oil) from 1979-81. Trends in the period from 1964-66 to 1998-2000 generally showed an increase in imports in terms of percentage of DES for cereals, pulses, vegetable oils, animal fats, milk products and meat and

offals. Generally food imports as a percentage of DES (mainly the import of cereals and vegetable oils) increased in the period from 1964-66 to 1998-2000 (FAOSTAT, 2002) (**Figure 4**).





Major food exports – Sweeteners (sugar cane and related products) represent by far the main export food item (307 255t in 1998-2000) (**Figure 5**). The export of sweeteners as a percentage of DES increased markedly from 1964-66 till 1979-81 and started a decreasing trend from 1984-86 to 1998-2000. Vegetable oil (coconut oil) export decreased sharply over the years from 17 557t in 1964-66 to 5 219t in 1996-98 and increasing to 6 931t in 1998-2000. The drop in 1996-98 could be attributed to the low price of coconut oil on the world market. Overall, food exports as a percentage of DES continued to decrease from 272% of DES in the period 1964-66 to 129% of DES in the period 1998-2000 (FAOSTAT, 2002).

3. Food consumption

The 1993 National Nutrition Survey found that both Fijians and Indians have a very high consumption of sugar and cereals, a relatively high consumption of animal fat and a low consumption of dietary fibre (Saito, 1995). Household food production and consumption patterns show a clear difference between ethnic groups, which reflect the difference in traditional dietary patterns. Fijian households tend to grow more root crops and green leafy vegetables, while Indian households preferably grow rice and pulses. In comparison to the 1980 National Nutrition Survey, a marked decrease was observed in the consumption of

cassava, taro, and green leafy vegetables among the Fijian population. The Indian diet, however, has included more animal protein than before (Johnson and Lambert, 1982; Saito, 1995). The change in dietary pattern coincides with economic development and a changing trade pattern. According to the Central Planning Office, fruit and vegetable availability remains low at an average of 150 g/person/day, which is much less than what should be consumed for optimal health (Fiji Government, 2002).

There is limited quantitative data available about food consumption patterns in Fiji. One longitudinal dietary survey was carried out in Nadir Village, in the Western part of Fiji, starting in 1952 (Langley, 1952–83). It was then followed up every ten years to determine changes in the dietary pattern as a result of cash crop farming projects. These surveys based on food consumption at household level (sample size: 19 households in 1952, 20 households in 1963 and 29 households in 1983), noted an increase in the consumption of cereals and a decline in the consumption of root crops (Wilkins, 1963; NFNC, 1983).

A survey in Naduri in 1994 identified that the diet in that village mostly consisted of cereals, root crops, animal products, fruits and vegetables (Tuivaga and Seniloli, 1996). Root crops, mostly cassava, contributed about 33% of energy, while cereals contributed about 26%. More, than half of the available protein was derived from animal products, followed by cereals. It appeared that there was an increasing trend in the contribution of different carbohydrate foods to energy from both cereals and sugar, accompanied by a declining trend in root crops. The people living in Naduri village also seemed to depend heavily on purchased Foods (Tuivaga and Seniloli, 1996).

The current trend in food consumption patterns is to adopt the Western diet. These changes have resulted in increasing dependence on food imports. Wider exposure to foreign foods through mobility and marketing have led to changing preferences, such that more and more people prefer imported refined foods compared to indigenous foods. The Ministry is trying to increase public awareness of the nutritional quality of local foods, with the hope of changing current trends in food consumption patterns (Fiji Government, 2002).

4. Infant feeding practices

According to the 1993 National Nutrition Survey, nearly all mothers started to breast-feed after delivery, the majority of them within the first day. However, there was a sharp decline in the prevalence of breast-feeding within the first three months. This decline was more drastic among Indians leading to a higher prevalence of bottle feeding. The mean duration of breast-feeding was nine months among Fijians and four to five months for other ethnic groups. However, the problems identified in the Fijian population were the late introduction of solids and rapid weaning together with the poor quality of complementary foods. Breast-feeding was more common in rural areas than in urban ones (Saito, 1995).

In 2001, research was carried out in two sub-divisions in Labasa by UNICEF. The study looked at care-givers beliefs, attitudes and infant/child feeding practices. It found that infants at the time of weaning and beyond tend to be fed foods that are not energy dense, such as thin porridge made from cereals, which puts infants at risk of nutritional deficiencies (UNICEF, 2001).

The number of hospitals/maternities officially designated by UNICEF as "Baby Friendly" having fulfilled 10 criteria supportive of breast-feeding are 3 out of 27 in total. The length of maternity leave is 12 weeks and cash benefits for maternity leave are based on a percent of their wage, which is paid by the employer. Women represent 27% of the adult labour force (UNICEF, 1999).

5. Anthropometric data

The 1993 National Nutrition Survey, using WHO cut-off points (WHO, 1983), reported a prevalence of 7.9% of underweight, 2.7% of stunting and 8.2% of wasting in children less than five years old (**Table 5a**). Thus stunting is not a problem in Fiji while the prevalence of wasting is medium. In the age group five to ten years, the prevalence of underweight was 5.7%, stunting was 3.2% and wasting was 6.5%. Gender differences seemed to exist. The nutritional status of male children seemed to be worse than that of females. For example, the prevalence of wasting of male children under five years of age was 11.4% compared with 4.7% among their female counterparts (Saito, 1995).

Ethnical comparisons identified that the prevalence of wasting was very high in Indian children (**Table 5a**). Respectively, 15.5% and 14.8% of Indian children less than five years and five to nine years old were wasted compared with 2.7% and 0.0% in the same age groups of Fijian children.

Low birth weight was prevalent in 21% of Indian new-borns compared to 4% of Fijians in the 1993 National Nutrition Survey. Poor nutritional status of pregnant mothers seems to be one of the contributing factors to the high prevalence of low birth weight babies (Saito, 1995).

The National Nutritional Survey 1993 provides data on the height of adolescents which also indicated ethnical differences. In the age group 15 to 17 years Fijian adolescents were taller than their Indian counterparts. (**Table 5b**) (Saito, 1995). The survey also showed a higher mean body mass index (BMI) in Fijians adults compared with Indians (**Table 5c**).

The prevalence of overweight and obesity among the population in Fiji appears to be increasing. Sedentary lifestyles with subsequent reduction in physical activity along with changing dietary patterns are major contributing factors to the problem of overweight and obesity in the population (Saito, 1995). There are gender differences in the prevalence of overweight and obesity: 25.2% of the male and 29.9% of the female adult population were overweight, while 7.4% of the men and 20.6% of the women were obese. More than 40% of Fijians were overweight or obese. Among Indians, chronic energy deficiency (BMI <18.5) and overnutrition (overweight and obesity, BMI ≥25) were observed simultaneously (Saito, 1995). The proportion of overweight and obese adults was much lower in Indians compared with Fijians.

Table 5a: Anthropometric data on children

Source/ Year of survey		Sample Size Number	Sex	Age Years	Prevalence of malnutrition						
					Underweight % Weight/Age		Stunting % Height/Age		Wasting % Weight/Height		Overweight % Weight/Height
					< -3SD	< -2SD*	< -3SD	< -2SD*	< -3SD	< -2SD*	> +2SD
National	All	618	M/F	0-4.99	0.8	7.9	1.1	2.7	0.5	8.2	1.2
Nutrition	All	318	M	0-4.99	0.6	8.4	0.9	1.8	0.6	11.4	1.6
Survey 1993	All	295	F	0-4.99	1.0	7.4	1.3	3.6	0.3	4.7	0.7
(Saito, 1995)											
	Fijians	326	M/F	0-4.99	0.3	3.1	0.0	2.2	0.3	2.7	0.9
	Indians	250	M/F	0-4.99	1.6	15.0	2.8	4.0	0.4	15.5	1.6
	Others	37	M/F	0-4.99	0.0	2.7	0.0	0.0	2.7	5.4	0.0
	All	545	M/F	5-9.99	0.4	5.7	0.2	3.2	0.6	6.5	1.4
	All	-	M	5-9.99	0.4	8.4	0.4	4.8	0.7	7.0	1.5
	All	-	F	5-9.99	0.0	2.9	0.0	1.5	0.4	6.0	1.2
	Fijians	278	M/F	5-9.99	0.0	1.0	0.4	2.1	0.0	0.0	0.7
	Indians	242	M/F	5-9.99	0.5	12.1	0.0	4.7	1.3	14.8	1.3

Note: Each index is expressed in terms of the number of standard deviation (SD) units from the median of the WHO international reference population (WHO, 1983). * Includes children who are below -3 SD.

Table 5b: Anthropometric data on adolescents

Source/ Year of survey	Location	Sample Size Number	Sex	Age Years	Anthropometric status					
					Height (cm)			Body Mass Index (kg/m^2)		
					mean	SD	median	mean	SD	median
National	National	577	M/F	10-14	148.7	-	-	-	-	-
Nutrition		278	M/F	15-17	164.2	-	-	-	-	-
Survey										
1993	Fijians	280	M/F	10-14	149.0	-	-	-	-	-
(Saito, 1995)		134	M/F	15-17	167.1	-	-	-	-	-
	Indians	282	M/F	10-14	148.5	-	-	-	-	-
		136	M/F	15-17	161.4	-	-	-	-	-

Note:- Data not available

Table 5c: Anthropometric data on adults

Source/ Year of survey	Location	Sample Size Number	Sex	Age Years	Anthropometric status and Prevalence of malnutrition							
					Body Mass Index (kg/m^2)			Chronic Energy Deficiency % BMI			Overweight % BMI	Obesity % BMI
					mean	SD	median	<16.0	16.0-16.9	17.0-<18.5	25.0 - 29.9	>30.0
National	All	1242	M	18-65	23.9	-	-	1.5	2.7	6.5	25.2	7.4
Nutrition		1331	F	18-65	25.7	-	-	2.5	2.2	4.9	29.9	20.6
Survey												
1993	Fijians	553	M	18-65	25.4	-	-	0.0	0.0	0.2	32.0	11.2
(Saito, 1995)		637	F	18-65	27.6	-	-	0.3	0.6	1.4	35.0	29.4
	Indians	605	M	18-65	22.3	-	-	3.1	5.5	13.1	15.4	2.6
		621	F	18-65	23.4	-	-	5.0	4.0	8.9	23.7	10.0
	Others	84	M	18-65	26.0	-	-	0.0	0.0	1.0	50.0	15.0
		73	F	18-65	28.9	-	-	0.0	0.0	1.0	38.0	33.0

Note:- Data not available

6. Micronutrient deficiencies

Iodine Deficiency Disorders (IDD)

A number of small-scale surveys on IDD have been carried out in Fiji but no national representative surveys. They show high prevalence of goitre in certain areas (**Table 6a**). Studies undertaken in the 1980s among 929 men and women over 20 years of age indicated a high prevalence of palpation detectable goitre in the Sigatoka Valley (King et al., 1983). These goitre rates might have been even higher before the 1980s, when iodised salt was not widely available in these areas (Gutekunst, 1994; Jansen, 1991). In the 1990s, it was noted that goitre was still present in Fiji. In 1994, 45.1% of the population had goitre detected by ultrasound method using WHO classification. This survey indicated a goitre prevalence of 25% in Suva and 29% in Sigatoka among pregnant women.

IDD is especially prevalent in some parts of the country where there is less consumption of sea foods in the diet. The Ministry of Health and UNICEF are planning to evaluate the impact of the legislation on exclusive import of iodized salt introduced in 1996. According to UNICEF, 31% of households in Fiji consume iodized salt (UNICEF, 2001).

Table 6a: Surveys on micronutrient deficiencies

Source/ Year of survey	Deficiency	Location	Sample Size Number	Sample Sex	Sample Age Years	Percentage
	Iodine					
King, 1983	Palpable Goitre	Sigatoka	929	M/F		
(1980)				M/F-Fijians	All	60.0
				M/F-Indians	"	75.0
Gutekunst,	Goitre detected	National	785	M/F	All	45.1
1994 (1994)	by ultrasound	Suva	67	F*	15-49	25.0
		Sigatoka	44	F*	"	29.0
		Schools:				
		Ba	-	M/F	6-12	56-73
		Sigatoka Valley	-	"	"	37-69
		Sigatoka Town	79	"	"	11
		outside Sigatoka Town	47	"	"	28

Note: - Data not available.

Iron Deficiency Anaemia (IDA)

Iron deficiency anaemia is a major public health problem in Fiji mainly affecting children less than five years old and women of childbearing age (**Table 6b**). Thirty-four percent of adolescent girls between 13 and 16 years of age are anaemic (Hb<12 g/dL). There are ethnic differences: Fijian women having a lower prevalence than Indian and other women.

A later study conducted in 1995 among pregnant women in the Central and Western Division showed a very high prevalence of anaemia (approximately 80% with haemoglobin concentrations below 11g/dL) (Chand, 1995).

Regarding the causes of IDA, parasitic infestations did not appear to be serious contributing factors. Socio-economic factors play an important role; the poor and underprivileged were not able to eat iron-rich foods regularly, particularly those containing haeme iron. In addition, the consumption of iron inhibitors found in tea and curries was very high, especially among the Indian population (Chand, 1995).

The National Food & Nutrition Centre carried out a pilot survey in December 1998 on the prevalence of anaemia and productivity among 77 female garment factory workers. It found that there was an 11% difference in the production efficiency between anaemic (with WHO cut-off points) and non-anaemic workers (Schulz et al., 1999). A second-phase of this study was carried out in year 2000 in the same garment factory to assess the effect of weekly iron/folic acid supplementation in terms of improved haemoglobin status and productivity. The study found that once weekly supplementation of anaemic subjects resulted in significantly improved haemoglobin concentration and production efficiency despite relatively low compliance. This indicates that this treatment approach can be effective even under real life industrial conditions. Weekly iron supplementation can therefore be considered an operationally feasible strategy to enhance productivity in blue-collar workplace settings (where anaemia is prevalent) if capacities to determine haemoglobin status are accessible (Schulz and Vatucawaqa, 2000).

Vitamin A Deficiency

Vitamin A deficiency is generally considered not to be a public health problem in Fiji, although cases of xeropthalmia due to vitamin A deficiency were reported in 1984. The Ministry of Health and UNICEF are currently planning a study on vitamin A deficiency.

Table 6b: Surveys on micronutrient deficiencies

Source/ Year of survey	Deficiency	Location	Sample			Percentage
			Size Number	Sex	Age Years	
	Iron					
MOH, 1998	Hb <12g/dL	Sub-national	421	F	13-16	34.0
1998		Ba-Subdivision	-	F, Indian	13-16	35.0
				F, Fijian	13-16	22.0
National	Males Hb <13g/dL	National	512	M/F	< 5	40.0
Nutrition	Females Hb <12g/dL		1380	M	> 15	16.0
Survey, 1993	Children Hb <11g/dL		1415	F	> 15	32.0
(Saito, 1995)						
			283	M/F, Fijian	< 5	37.0
			627	M, Fijian	> 15	19.0
			674	F, Fijian	> 15	23.0
			197	M/F, Indian	< 5	39.0
			668	M, Indian	> 15	13.0
			665	F, Indian	> 15	42.0
			32	M/F, others	< 5	47
			85	M, others	> 15	15
			76	F, others	>15	27
Chand, 1995	Males Hb<13g/dL	National	500	M/F, Indian	< 5	36.0
	Females Hb<12g/dL			M/F, Fijian	< 5	29.0

Note: - Data not available.

REFERENCES

BOS. 1995. *Current Economic Statistics*. January issue, 1995. Bureau of Statistics, Suva, Fiji.

BOS. 1997. *Current Economic Statistics*. January issue, 1997. Bureau of Statistics, Suva, Fiji.

BOS. 1998a. *Fiji Facts and Figures*. 1997 Edition. Bureau of Statistics. Suva, Fiji.

BOS. 1998b. *Census96 Results: Population Size, Growth and Structure*. *Statistical News No. 18, 1998*. Bureau of Statistics. Suva, Fiji.

BOS. 1999. *Statistical News, No. 02*. 1999. Bureau of Statistics. Suva, Fiji.

BOS. 2000.*Current Economic Statistics*. June issue, 2000. Bureau of Statistics. Suva, Fiji.

BOS. 2001a. *Gross Domestic Product At Constant Price, 2000.* Statistical News, No. 22. 2001. Bureau of Statistics. Suva, Fiji.

BOS. 2001b. *Consumer Price Index – October 2001*. Statistical News No.42. 2001. Bureau of Statistics. Suva, Fiji.

Chand, M.J. 1995. *A Study of Factors Contributing to Anaemia in Pregnant Women and Pre-schoolers in Fiji.* Ministry of Health. Suva, Fiji.

EIU. 1999. *EIU Country Profile 1999 to 2000.* The Economist Intelligence Unit. New York, USA.

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

FAO/WFS (World Food Summit). 2002. *Mapping Undernutrition – 5 years later*. Poster for the World Food Summit 10 to 13 June, 2002. FAO, Rome

Fiji Government. 2002. *Republic of Fiji. Country Profile Implementation of Agenda 21: Review of progress made sine the United Nations Conference on Environment and Development, 2002.* Central Planning Office/Department of Environment. Suva, Fiji. (available at: http://www.un.org/esa/earthsummit/fiji-cp.htm).

Gutekunst, R. 1994. *Iodine Deficiency Disorders in Fiji.* UNICEF, Pacific Office. Suva, Fiji.

James, W.P.T & Schofield, E.C. *Human energy requirements. A manual for planners and nutritionist*. New York. Oxford University Press, 1990.

Jansen, A.A.J. 1991. *Mineral Deficiencies.* Food and Nutrition in Fiji. Volume 2. Suva, Fiji.

Johnson, J.S. & Lambert, J.N. 1982. *The National Food and Nutrition Survey of Fiji.* Suva, Fiji.

King, H., Taylor, R., Zimmet, P., Collins, V., Ram, P., Maberly, G., Eastman, C. & Hetzel, B. 1983. *Endemic goitre in the Sigatoka Valley, Fiji.* Fiji Med. 13:170.

Langley, D. 1952–83. *Dietary Surveys and Growth Records in a Fijian Village, Naduri*, South Pacific Health Service, Suva, Files MD66/15. National Archives of Fiji, Suva. 1966.

Lands Dept. 1999. *Official Correspondence from Land Use Section.* Ministry of Lands. Suva, Fiji.

MAFF. 1995. *Agricultural Statistics [Part 1]*. 1990–1994. Ministry of Agriculture, Fisheries and Forests, Economic Planning and Statistics Division.

MNP. 1997. *Development Strategy for Fiji. Policies and Programmes for Sustainable Growth.* Ministry of National Planning. Suva, Fiji.

MNP. 1998. *Government Achievements 1992 – 1998. Report to the Nation.* Ministry of National Planning and Information, Suva, Fiji.

MNP. 2001. *Draft Report: 20 –Year Development Plan (2001–2020) For The Enhancement Of Participation Of Indigenous Fijians And Rotumans In The Socio-Economic Development Of Fiji.* Ministry of National Planning, Suva, Fiji.

MOH. 1998. *Ba Sub-division: Anaemia Report.* Unpublished Report.

NFNC. 1983. *Dietary Intake Survey at Nadir Village.* National Food and Nutrition Committee. Suva, Fiji.

Saito, S. 1995. *National Nutrition Survey, 1993.* Main Report. National Food and Nutrition Committee. Suva, Fiji.

Schulz, D., Vatucawaqa, P. & Devi, S. 1999. *Anaemia-Productivity Research Project.* Report on Main Findings – Phase 1. National Food and Nutrition Centre. Suva, Fiji.

Schulz, D. & Vatucawaqa, P. 2000. *Anaemia-Productivity Research Project*. Results of a weekly iron supplementation programme in an industrial setting. National Food and Nutrition Centre. Suva, Fiji.

Schultz, J.T & Seniloli, S. 1995. *Fiji's Nutrition Situation.* National Food and Nutrition Committee. Suva, Fiji.

Thaman, R. 1990. *The Evolution of the Fiji Food System.* Food and Nutrition in Fiji. Volume One. Suva, Fiji.

Tuivaga, J. & Seniloli, S. 1996. *Report for the Fifth Decennial Naduri Nutrition and Health Survey*, June 24th – July 2nd, NFNC. Suva, Fiji.

UN. 2000. *World Urbanisation Prospects. 1999 Revision.* United Nations Population Division. New York, USA.

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

UNAIDS/WHO. 2002. Fiji: *Epidemiological Facts Sheets on HIV/AIDS and Sexually Transmitted Infections, 2002 update.* New York. (available at: http://www.unaids.org/hivaidsinfo/statistics/fact_sheets/pdfs/Fiji_en.pdf).

UNDP. 1997. *Fiji Poverty Report.* United Nations Development Programme. New York, USA.

UNDP (United Nations Development Programme). 1999. *Human Development Report.* Oxford University Press. New York, USA.

UNICEF. 1999. Country Profile for Fiji (BFHI analysis report, Nutrition Section–Unicef, February, 1999. New York, USA.

UNICEF. 2001. *Formative Research in Labasa, Fiji. A Qualitative Study To Identify Caregivers' Beliefs, Attitudes and Infant/Child Feeding Practices.* UNICEF. Suva, Fiji.

UNICEF. 2002. *The State of the World's Children 2002.* United Nations Children's Fund. Oxford University Press. New York, USA.

Vatucawaqa, P. 1997. *Fiji Food Balance Sheet 1992.* National Food and Nutrition Committee, Suva, Fiji.

Vatucawaqa, P. 2001. *Fiji Food Balance Sheet, 1997.* National Food and Nutrition Centre, Suva, Fiji.

Wilkins, R. 1963. *Dietary Survey in a Fijian Village, Naduri, Nadroga.* South Pacific Health Service. Suva, Fiji.

World Bank. 2001. *The World Development Indicators 2001 CD-ROM. Win*STARS System Version 5.0.* World Bank, Washington, D.C.

WHO. 1983. *Measuring change in nutritional status.* World Health Organization, Geneva.

WHO. 2003. *WHO global database on child growth and malnutrition.* Department of Nutrition for Health and Development. Website at: http://www.who.int/nutgrowthdb/

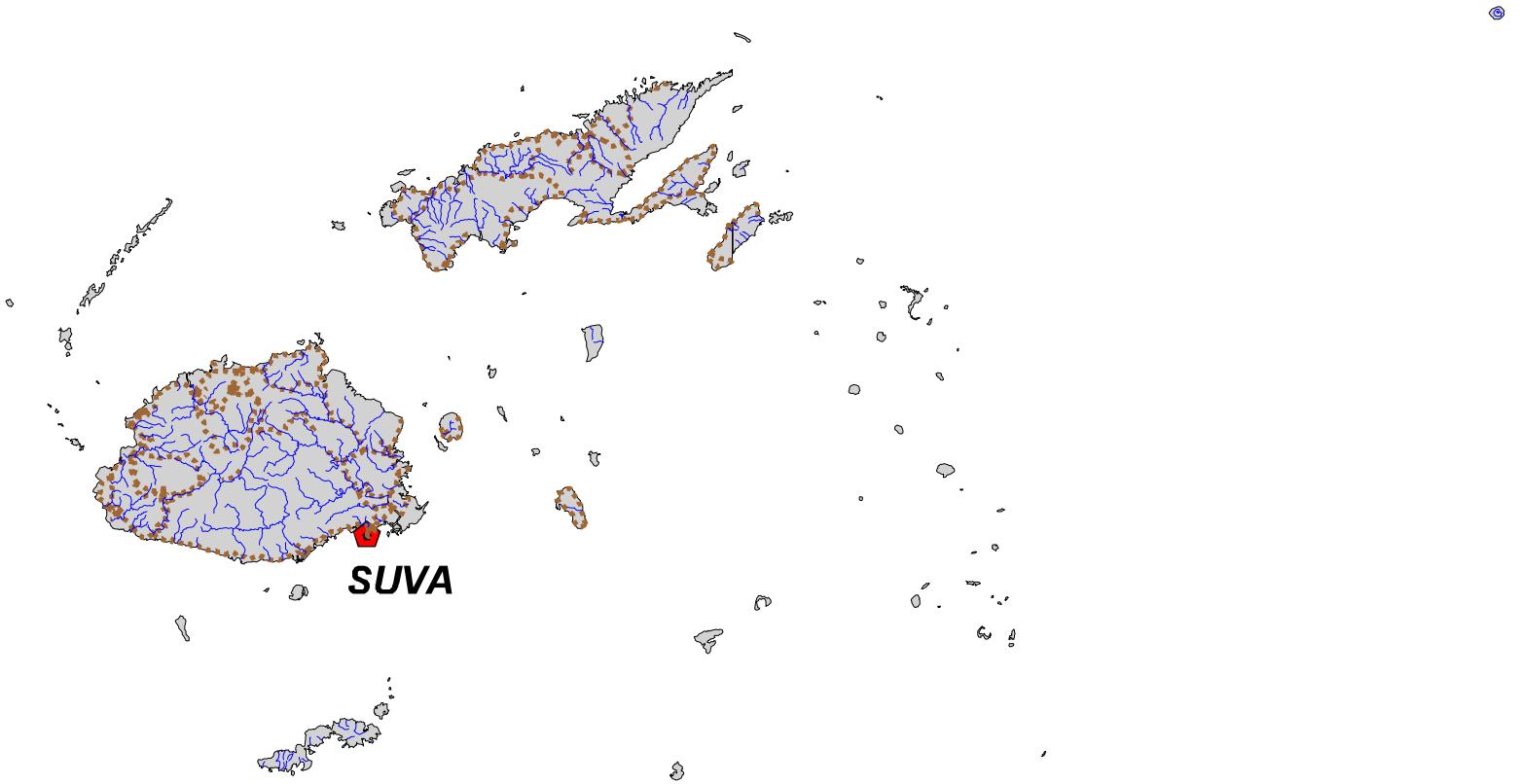
References of data presented in Table 1, unless otherwise stated:

Source:	*Indicator:*
FAOSTAT. 2002	*A.1-2, B, C.10-11, E.1-3, F, G*
UN. 1999/2000 rev.	*C.1-9, D.5*
World Bank. 2001.	*D.1*
UNDP. 1999.	*D.2*
UNDP. 1997.	*D.3-4*
UNICEF. 2002.	*D.6*
FAO/WFS. 2002.	*H*

NCP of FIJI
MAPS

- **General map of Fiji**

General Map Fiji islands



Main Rivers
Main Roads
Capital
SUVA
Boundaries

Geographic Projection (Lat/Lon)

N
W E
S

FAO-GIS/ESNA, April 2002

Fiji