Agricultural Pattern and Nutritional Status of People in the South Pacific Countries*

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Abstract Captain James Cook, in his prolonged voyages conquering the Pacific, successfully protected his crew from scurvy through a balanced diet and hygiene. However, his nutrition approach did not give much impact to the food habits and agricultural patterns of South Pacific countries. Food production and consumption and the nutritional status of people in Fiji, Western Samoa, and Papua New Guinea are reviewed. Also, some measures are suggested for the improvement through agriculture of the nutritional status of these people.

1. Introduction

1.1 Captain Cook, a great nutritionist

Scurvy was the most serious illness and cause of death among seamen in the old time long voyages because of the prolonged deficiency of vitamin C which is found only in fresh vegetables and fruits. Although a naval doctor, James Lind, discovered in 1754 that lemon juice, regularly served, could both prevent scurvy and cure the disease, Captain James Cook, who might have been unaware of this discovery, managed to bring back his crew, voyage after voyage, sailing thousands of miles without a single

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*A paper presented at The Third Annual Pacific Islands Studies Conference in commemorating Captain James Cook's landing of Hawaii 200 years ago.

casualty to scurvy. He used two revolutionary measures that in fact went against then naval tradition: fresh food and hygiene.

Of course, without present day cold storage facilities, fresh vegetables and fruits could hardly be kept long in ships, especially if the voyage lasted over a year or two. Among the foods Captain Cook selected to fight against the number one curse to seamen were: "portable" soup, concentrated slabs of thick, brown vegetable soup and broth; sauerkraut, finely cut cabbage fermented in brine; concentrated orange and lemon juice - possibly in extra heavy syrup; and as many fresh greens as were obtainable during the voyages.

A kind of green, called Scurvy grass (Cochlearia groenlandia) rich in vitamin C, which Cook found on the shorelines of the higher latitude, became a regular ingredient in the soup of his crew despite their objections.

After his second voyage (1772-75), Captain Cook presented a paper describing his experience in combating scurvy to members of the Royal Society in London. Because of his most valuable contribution to the health of all seamen, he was awarded in 1776 the Copley Gold Medal, Britain's highest honor for intellectual achievement. Never before or since has this medal been awarded to an achievement in the field of nutrition. Thus, in many respects, Captain Cook is rightfully considered the greatest nutritionist in history.

Unfortunately, Captain Cook's death at Kealakekua, Hawaii, on February 14, 1779, abruptly stopped his pioneer efforts in nutrition.

Throughout the three voyages, Captain Cook sailed from Arctic to Antarctic and added Alaska, the Hawiian Islands, Tahiti, New Caledonia, Australia, New Zealand, and many other islands and atolls to the maps of the known Pacific.

Has Captain Cook's nutrition emphasis and practice had any impact on food consumption and the agricultural patterns of people in the South Pacific? The answer unfortunately is negative. While we are gathered here to commemorate his great discovery, it is only natural that Captain Cook's nutrition emphasis and practice should be adopted in agricultural development and food policy for long range nutritional effects for the people of the Pacific Island countries.

1.2 The South Pacific

South Pacific Island jurisdiction can be divided into three ethnic groups:

Melanesia - Fiji, Papua New Guinea, New Caledonia, the New Hebrides and the Solomon Islands;

Polynesia - American Samoa, Western Samoa, Cook Islands, Niue, French Polynesia, Tokelau, Tuvalu and Tonga; and

Micronesia - Trust Territory of the Pacific Islands, the Gilbert Islands and Nauru.

The total land area is estimated at 378,029 square miles, with 4,575,900 people (1977 estimate). (See Attachment 1: Some Information on South Pacific Island Countries.)

Melanesia is by far the largest of these areas with 98.9 percent of the land area and 86.5 percent of the population of the whole region. Micronesia, the smallest, takes up less than 0.3 percent land area and 4 percent of the population. The people of this region speak different languages and dialects and enjoy varying forms of government, from independence to protectorate status.

The three major countries included in this presentation, Fiji, Western Samoa, and Papua New Guinea are all independent countries, occupying 93.7

percent of land area and 80.3 percent of population of the South Pacific total.

2. Agricultural Patterns

2.1 Export Crops

Beginning in the early years of colonization, major attention was placed on export and cash crops, namely, sugarcane, coconuts, oil palm, and cocoa and, depending on the country, some minor crops such as coffee, ginger, citrus fruits, and vanilla. Oftentimes, the best land, government resource allocations, including research, extension, and other inputs, are reserved for these crops.

There is no argument on the importance of these crops. For instance, sugar has often been called the backbone of Fiji's economy, providing employment and much needed foreign exchange. Copra, the cocoa bean, and bananas have been Western Samoa's principal exports for decades, with copra maintaining a dominant position. However, it seems that food crops for domestic consumption have not received appropriate attention.

2.2 Food Crops for domestic consumption

Root crops such as taro, cassava, kumala, and yam are traditionally grown as subsistence crops for home consumption and the urban market. They are the staple foods in the South Pacific. Vegetables and fruits, including breadfruit and bananas, mainly from backyard gardens, are most valuable to people's diet. However, the area used for such crops is small and gardens are usually not well managed. Available statistical information indicates that the total production of these crops appears to have increased in some countries. Their yields, however, have remained the same, or have been decreasing.

Attachment 2 shows the production of selected crops in some Pacific Island countries.

2.3 Import-substitute crops

Considerable effort has been expended in recent years by some governments to develop cereal and legume crops such as rice, corn, beans, and soybeans as substitutes for imports. Because of the change in dietary habits and increased feed requirements due to increased live stock development, the consumption of legumes and cereals has increased considerably.

2.4 Livestock production

Cattle for beef and for milk production, pigs and chickens are, by far, the most popular livestock in the South Pacific Countries. The rapid development of commercial farms in some countries, particularly Fiji and Papua New Guinea, increased the availability of protein from animal origins, though such foods are consumed mostly by high and middle-income groups.

Attachment 3 shows livestock numbers, by different years, in some Pacific Island countries.

2.5 Fish production

Traditionally, fish has been a protein source in the diet of South Pacific peoples. However, its catch has failed to expand in proportion to the population growth. It has been estimated that Western Samoa has an annual catch of some 1,000 tons, and Fiji, 1,800 tons, not including fish caught in coastal waters by foreign vessels.

2.6 The decline of per capita food production

In spite of the voluminous out-migration to New Zealand, Australia, Canada, and the United States, population in this region has increased in the past 11 years from 3,404,600 in 1965 to 4,466,900 in 1976 or an increase of 31.2 percent. (See Attachment 4: Population estimates for the South Pacific Region, 1964-77, a compilation based on information

released by the South Pacific Commission.

The Food Production Indices compiled by the Food and Agriculture Organization of the United Nations (FAO), showing aggregated output of all food crops, indicates that the total food production in past years was increased only moderately in most countries. Using 1961-65 as the base year, in the past 11 years, Fiji has increased 11 percent, Western Samoa, 16 percent, and Papua New Guinea has had the best performance, with a 33 percent increase.

Thus, if calculated at per capita food production, Papua New Guinea can barely keep pace with her population, while Fiji, declining 18 percent and Western Samoa, 19 percent, cannot. The latter had the quickest population growth among the three countries under study. Food production must be increased at least at 3-4 percent a year in order to support the population.

Details of food production indices, both total and per capita, in different years are shown in Attachment 5.

3. Food Supply and dietary practice

3.1 Calories, protein, and fat supply

Based on published statistical information, FAO has compiled food balance sheets for different countries, showing daily per capita supply of calories, protein, and fat of their people. Of course, these figures represent the amount of food available at a national level. Actual intake might be considerably different. Furthermore, a national average often conceals both these differences, and the real problems which may exist in different socio-economic, geographic, and age groups and in different seasons of a year. Nevertheless, a food balance sheet is valuable, and, in fact, is the only available instrument to assess food

adequacy, including the gap of food supply, at a national level.

Regarding calorie supply, in the past decade, Fiji increased 4.9 percent, from 2,527 calories in 1961-65 to 2,652 calories in 1974, while in the corresponding period, Western Samoa dropped 9.5 percent, from 2,340 to 2,217 calories, and Papua New Guinea increased 10.5 percent, from 2,019 to 2,232 calories.

Fiji's protein supply, from 1961-65 to 1974 increased 8.1 percent, from 53.3 to 57.6 grams daily per capita, while Western Samoa dropped 7.9 percent, from 55.7 to 51.3 grams. Papua New Guinea increased 18.3 percent, from 40.4 to 47.8 grams daily per capita. Even then, her protein supply was still far below the requirement.

Fat supply followed a similar pattern.

Details of daily per capita food supply in different countries are shown in Attachment 6.

3.2 Dependency on imported foods

Food imports to the South Pacific have increased year by year to fill the gap between local food production and the steady demand for food that has been created by population growth and, to a lesser degree, the increase in people's purchasing power.

The daily per capita food intake calculated by the Fiji Government[1] for the year 1973-74 showed 2,275 calories and 62 grams of protein, of which 14 grams were from food of animal origin. Attention may be drawn to the source of food supply. From the total calorie supply, almost half (47.7 percent) came from imported food. Almost three quarters (73.2 percent) of the protein consumed in Fiji was imported. This pattern

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[1]Page 63, Fiji's Seventh Development Plan 1976-1980.

of import-dependency in food supply was similar, of course, with varied degrees, in other countries in the region and the trend was upward. Much precious foreign exchange was drained off which could be otherwise used for development programs.

3.3 Dietary pattern

The dietary pattern of people differed considerably between urban and rural and between different socio-economic and ethnic groups. For instance, roots and tubers are staple food for Fijians, while Indians in the same country use these and cereals as staple food.

Although the high-income urban people were gradually adapting to European food patterns, the majority of rural people, as reported by the South Pacific Health Service, have the following meal combination:

Morning meal	Cassava or bread Tea and sugar
Mid-day meal	Cassava or rice Green leaves Fish or meat (occasionally)
Evening meal	Cassava/taro or bread Tea and sugar

Few had fish, meat, or eggs. Very few people had any milk. Fruits like papaya or pineapple were not common in villagers' gardens which were the major source of family food supply. The food eaten contained very little protein and health-giving vitamins and minerals.

Food intake depends much on purchasing power of the household and the food availability on market. If purchasing power is limited, the only resort is to produce more food from home gardens and fields.

4. Nutritional status of people

Many food consumption and nutritional surveys have been conducted in the region, including three recent studies: one conducted in 1973 in

the Trust Territory of the Pacific Islands by the Trust Territory Health Council; one in 1975 in Aitutaki, Cook Islands; and one in 1976 in Vila, New Hebrides, by the South Pacific Commission.

Protein-calorie malnutrition among infants and toddlers in rural areas was frequently reported. Iron-deficiency anaemia among children and women of child-bearing age was also a public health problem. Vitamin A deficiency was occasionally reported. On the other hand, obesity of adults, particularly women of high income groups, with associated diabetes mellitus and cardiovascular disorders became increasingly noticed.

The nutritional status of people in Fiji was described in Fiji's Seventh Development Plan as follows:

"Increasing numbers of malnutrition cases have been reported at health centers and hospitals in recent years .... Low birth-weight is a growing problem amongst infants. Malnutrition amongst children and cases of maternal anaemia are becoming more common. Such developments indicate that the food consumed does not contain sufficient nutrients to maintain good health and growth of the body. More alarmingly, protein malnutrition at an early age may permanently impair mental development."

Incidentally, the low birth-weight of infants is an indicator of the nutritional status of pregnant women.

The Nutrition Section of the Department of Health, Papua New Guinea reported,[2] "malnutrition constitutes a serious problem in Papua New Guinea .... The main underlying cause is considered to be the unavailability of

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[2]Quoted from "Food and Nutrition in Papua New Guinea", a mimeographed report by Dr. Rolf Korte, Specialist Medical Officer, Nutrition Section, Department of Public Health, Papua New Guinea.

sufficient high quality food.... Increased food production would not only alleviate nutritional problems but also create useful employment for a growing population."

5. Fighting against malnutrition

5.1 Government actions

Among the three countries under study, Papua New Guinea suffered most from malnutrition. The problem in Western Samoa could become increasingly serious because of agricultural performance and rapid population growth. On the other hand, the Government of Papua New Guinea has demonstrated its determination to improve food and the nutritional status of people. The increase, in recent years, of food production and supply, as aforementioned, was in concrete evidence. The Department of Health has a Nutrition Section, with a professional staff to introduce nutrition activities through health channels, including the assessment of nutritional status of people and the strengthening of training and education in nutrition.

With the cooperation of the Foundation for the Peoples of South Pacific, a Nutrition Planning Conference was held in 1976 at Port Moresby. Fiji, Cook Islands, New Hebrides, and New Caledonia also sent their delegates to participate in the event. The approach of intersectoral planning, among others, was introduced.

The Government of Fiji may be among only a few countries in the world with nutrition goals built in its economic development plan. A Food and Nutrition Advisory Committee was created in 1977, bringing together expertise of all related disciplines including agriculture, education, health and social welfare, and economic planning to advise the government on policies necessary to achieve nutrition objectives of the

country. The Committee, under the leadership of the Ministry of Health, held meetings periodically.

Public awareness of nutrition problems of people appeared not fully developed in Western Samoa. However, some voluntary agencies, particularly the women's groups, were active in promoting home gardens to increase the supply of nutritious vegetables and fruits and in educating housewives in the best use of available food resources.

5.2 Interested organizations and agencies

The South Pacific Commission has made much effort, in past years, to assess the nutritional status of people and to initiate training and education in nutrition for the benefit of its member countries. Although a health approach was its major emphasis, its agricultural arm, through a regional horticulturist, has started to introduce nutritional dimensions in crop production.

Food and nutrition training has occupied a dominant position in the Home Economics Course offered annually in Suva by the Community Education Training Center of the South Pacific Commission.

Among the United Nations family, the World Health Organization has been far more active in the South Pacific. In addition to the regular visit of a Nutrition Adviser from its Western Pacific Regional Office, there is a full time nutrition consultant assigned in this region. The United Nations Children Fund, through its Manila office, is keeping a watchful eye on the need of this region for the nutritional improvement of children and mothers. FAO, through its senior agricultural adviser stationed in the South Pacific Regional Office of the United Nations Development Program in Suva, has paid much attention to food production, which has direct bearing on meeting nutritional need of people.

The Asian Development Bank recently extended a loan to support Papua New Guinea in an agricultural development project with community nutrition improvement as a major objective.

Australia and New Zealand are among the Commonwealth countries with traditional linkage and support to the South Pacific. Many nutrition-related programs have been implemented with their assistance and cooperation.

The United States Agency for International Development has also showed increasing interest in nutrition programs of this region. In fact, the Nutrition Planning Conference hald in Papua New Guinea was financed by that agency.

As the South Pacific is within the region of East-West Center (EWC), the countries have participated in EWC activities of mutual interest. Fiji, Western Samoa, and Papua New Guinea all sent their senior professionals to attend a planning Seminar on Agriculture for Nutritional Improvement and an International Workshop on Improving Nutrition and Nutrition Education through School Food Service, both held in 1976 in EWC, Honolulu. The latter activity was financed by USAID through the American School Food Service Association. There is a possible further involvement in a joint study on food need and resource allocation, a planned activity of Food Systems Project of EW Resource Systems Institute.

Governments concerned are now paying increased attention to food and to the nutritional problems of people and the resources required from our environment. It is the time to formulate policy and implement programs to fight against malnutrition.

6. Some recommendations for action

6.1 Awareness of Nutrition problems

At this moment, only a small group of conscientious health people

are aware of the seriousness of people's nutrition problems. Other government officials including those with agriculture and education responsibilities do not, sometimes intentionally, recognize the existence of such problems. It is essential that an atmosphere be created, through an organized education campaign for the public -- from policy-makers down to housewives -- to understand the magnitude of the nutrition problem and its effect on people and the economy. This should be done through both mass media and through different channels reaching individual households, with special emphasis on the village chiefs, as they have far-reaching influence in people's food production and consumption.

6.2 Assessing food needs and resource allocation

While nutrition intervention programs such as food distribution to malnourished children have their merits to meet special and/or urgent needs, the solution of a country's nutrition problems would depend on the availability of food in quantity and quality at the household level and the efficient management of food resources. This means food production, purchasing power, and nutrition education.

It would be most desirable for each country to assess systematically food needs of the people, to determine their gap, and to review the policy and programs in resource allocation that affect, directly or indirectly, the nutritional status of people. Two approaches must be undertaken simultaneously: the creation of demand and increase of supply. The former approach means employment and income generation and equitable distribution. The latter refers to domestic food production and preservation, if necessary, supplemented with food imports.

A surveillance system should gradually be developed so that the policy and measures on the allocation of resources could be adjusted to meet the

changing need and major disasters could be predicted and avoided.

6.3 Promotion of home garden

Because the staple foods and vegetables consumed by rural people are from their home gardens, the improvement and expansion of such gardens should be a priority measure to increase food resources to improve the nutritional status of people. Selection of crops high in nutritional value, maximum use of locally available inputs, and better garden management including crop rotation, soil conservation, and improved culture practice should be introduced and encouraged. The simple preservation of garden produce also should be demonstrated so that seasonal surplus could be used off-season. Through organized effort, home gardening could also be practiced in urban areas. Many community gardens are now in Honolulu and other big cities of the United States.

Governments might make baseline surveys and provide necessary input and incentives to promote the cultivating of home gardens.

6.4 Nutrition-oriented agricultural planning and food policy

The emphasis on export/cash crops in agriculture of the South Pacific may provide income and employment generation if the market demands for such crops is high and stable. Unfortunately, this is not always the case. For the security as well as nutritional need of people, crop diversification is imperative. Crops deserving special considerations are orange-flesh sweet potatoes, beans and peas (peanuts, soybeans, wing beans, and pigeon peas), dark greens (amaranth, water convolvulus, edible hibiscus, and horseradish), cereals (corn, sorghum, and rice) and traditional root crops. When planning for agriculture and food policy, government leaders should give due consideration to food needs and the nutritional requirement of people. Food balance sheet and household food consumption could

provide general direction for policy-decision. Food importation should have nutrition justification. The cost of nutrients from such imports should be considered and consumers should neither be taxed nor the production of local foods discouraged.

6.5 Fisheries development and small animal raising

In addition to the development of a marine fisheries industry with catch mainly for domestic consumption, the feasibility of inland fish raising, particularly grass and silver carp and tilapia, should be studied, because, aside from its nutritional contribution, it is linked closely in the production cycle with home garden and small animal raising.

Raising small animals, particularly milk goats, chicken, and pigs, if well managed, could provide a valuable contribution to protein supply. Otherwise, the small animals would damage vegetable garden and pose the problem of environmental sanitation.

Adequate research, field trial, and demonstration should be undertaken before any large scale extension is implemented.

6.6 Training, education and community participation

People generally think of food just to fill up their stomachs. The notion of nutritional requirements is remote to them. Adequate nutrition training should be given to all related professionals. Human nutrition should be a required course for all agriculture students. Of course, the curriculum should be designed for relevance to both their careers and their everyday lives.

Nutrition education should be simple, relevant, and practical, with target groups and objectives well-defined. Preferably such education programs would be linked with other local action programs such as home gardening.

Community participation in the identification of problems and in the planning and evaluation of programs is most essential to the success of any community-focused activity. The role of women in food production and family nutritional improvement should be strengthened and appreciated. The existing and potential resources of the community should be maximally developed and utilized.

6.7 Coordination at all levels

Nutritional improvement of people is a multi-disciplinary endeavor. Professionals in nutrition-related fields must work together for effective programs. For instance, without a sanitary environment, calories and nutrients consumed will be substantially lost in diarrhea and parasite infestation. When people's purchasing power is extremely limited, food crops that are produced cannot find adequate markets. Hence their further production will be discouraged.

A food and nutrition program aimed at improving the nutritional status of a people must have the cooperation and coordination of all concerned ministries and agencies so that all available resources can be efficiently utilized to meet the goal of attaining improved health standards through nutrition. Such effort requires coordination at all levels from national to grassroots.

At the current stage of development in the South Pacific, the agricultural sector has the major responsibility for improving the nutritional status of people, for producing food in quantity and quality and for ensuring that the food produced is properly conserved, marketed, and consumed. A concommitant goal is the generation of income and rural employment.

Necessary inputs -- land, water, technology, capital, and human resource -- are now available. While we are now in a much better position to fight scurvy successfully than was Captain Cook 200 years ago, it is important to note that he succeeded.

I wish to conclude this presentation with a Samoan proverb "Fa le Taeao e le Afiafi," meaning "He who sits at home in the morning will not have food in the evening."

Acknowledgements: The author wishes to gratefully acknowledge the assistance in data collection by Ms. Renée Heyum, Pacific Curator, Pacific Collection, Hamilton Library, University of Hawaii, and by Ms. Rita Hong, Resource Materials Specialist, Resource Systems Institute, East-West Center.

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ATTACHMENT 1 : SOME INFORMATION ON SOUTH PACIFIC ISLAND COUNTRIES

Groups/Countries	Land Area Sq. Miles	Population (1977 EST)	Languages	Major Agricultural Products	Status	Capital/ Principal City
Melanesia						
Fiji	7,071	592,000	English, Bau, Hindustani	Sugar, copra, ginger, banana, pineapple, fish	Independent State under British Commonwealth	Suva
Papua New Guinea	342,149	2,928,000	Pidgin, Matu, English	Copra, oil palm, cocoa, coffee rubber, tea, cattle, fish	Independent State under British Commonwealth	Port Moresby
New Caledonia	7,335	134,000	French	Copra, coffee, vegetables, cattle, fish	French overseas territory	Noumea
New Hebrides	5,700	99,500	English, French	Copra, cocoa, coffee, beef poultry, pigs, fish	Governed under Anglo-French Condominium Protocol	Vila
Solomon Islands	11,500	206,000	English, Pidgin	Cocoa, rice, oil palm, cattle, fish	Self-governing British Protectorate	Honiara on Guadalcanal
	373,755 (98.87%)	3,959,500 (86.53%)				
Polynesia						
American Samoa	76	30,500	Samoan, English	Taro, banana, breadfruit, coconut, yam, poultry, pigs, fish	U.S. Territory	Pago-Pago
Western Samoa	1,133	152,000	Samoan, English	Copra, cocoa, banana, taro, poultry, pigs, fish	Independent State under British Commonwealth	Apia
Cook Islands	93	18,500	Polynesian, English	Copra, citrus fruits, banana, fish	Internally self-governing country in free association with New Zealand	Avarua on Rarotanga Island
Niue	100	3,800	English	Copra, fruits, honey, poultry, pigs, fish	- ditto -	Alofi
French Polynesia	1,530	130,000	French, Tahitian	Copra, vanilla, vegetables, fruit, cattle, pigs, poultry, fish	French Overseas Territory	Papeete on Tahiti
Tokelau	4	1,600	Tokelanan, English	Copra, breadfruit, pandanus, banana, pigs, poultry, fish	New Zealand dependency	Nukunono
Tuvalu (Ellice Islands)	10	7,500	Polynesian, English	Copra, coconut, pigs, poultry, fish	Dependency colony of Britain	Funa Futi
Tonga	269	90,000	Tongan, English	Copra, banana, yam, taro vegetables, fish	Independent Kingdom under British Commonwealth	Nuku'alofa
	3,215 (.85%)	433,900 (9.48%)				
Micronesia						
Trust Territory of the Pacific Islands	700	129,000	Malayo-Polynesia, English	Copra, coconut, breadfruit, taro banana, pigs, poultry, fish	UN trust, administered by U.S.	Capital Hill on Saipan Island
Gilbert Islands	359	53,500	Gilbertese, English	Copra, banana, pandanus, breadfruit, pawpaw, fish	Self-governing colony of Britain	Tarawa
	1,059 (.28%)	182,500 (3.99%)				
Total:	378,029 (100.00%	4,575,900				

Sources of Information: Pacific Islands Year Book, 12th Edition, 1977
A Descriptive Atlas of the Pacific Islands, 1968
South Pacific Commission

ATTACHMENT 2: PRODUCTION OF SELECTED CROPS IN SOME PACIFIC ISLAND COUNTRIES

	Production, 1000 Metric Tons				Yield, Kg/Hectare			
	1961-65	1974	1975	1976	1961-65	1974	1975	1976
ROOT CROPS, TOTAL								
Cook Islands	11	11	11	11	31,739	24,823	39,630	38,710
Fiji	129	144	141	142	8,755	9,510	9,307	9,306
French Polynesia	13	16	16	16	11,503	12,701	12,734	12,713
Gilbert Islands	6	9	10	10	8,398	8,440	8,496	8,547
New Caledonia	21	17	14	14	6,686	6,589	6,365	6,320
New Hebrides	11	14	14	14	14,463	14,316	14,286	14,300
Papua New Guinea	799	1003	1019	1034	6,800	6,851	6,879	6,879
Western Samoa	24	30	30	31	7,480	7,252	7,263	7,230
Solomon Islands	64	73	74	75	11,511	12,414	12,564	12,479
Tonga	78	88	89	90	12,006	11,139	10,824	10,831
COCONUTS								
Cook Islands	12	11	11	11				
Fiji	309	253	260	265				
French Polynesia	179	104	164	165				
Gilbert Islands	58	95	74	74				
New Caledonia	24	20	18	19				
New Hebrides	238	281	260	264				
Papua New Guinea	647	765	783	744				
Western Samoa	177	205	208	210				
Solomon Islands	179	204	183	183				
Tonga	92	105	125	125				
COPRA								
Cook Islands	1	1	1	1				
Fiji	39	27	22	29				
French Polynesia	24	13	22	23				
Gilbert Islands	7	9	10	10				
New Caledonia	2	2	1	1				
New Hebrides	34	40	37	40				
Papua New Guinea	117	137	165	132				
Western Samoa	15	17	24	24				
Solomon Islands	25	29	25	25				
Tonga	11	12	16	17				
SUGAR CANE								
Fiji	1991	2151	2160	2327	52,145	47,884	48,087	50,155
French Polynesia	1	2	2	2	75,625	76,923	77,778	78,571
Papua New Guinea	323	360	365	368	60,691	57,143	57,031	56,602
Western Samoa					10,000	15,000	15,000	15,000

SOURCE OF INFORMATION: 1976 FAO PRODUCTION YEARBOOK

ATTACHMENT 3: LIVESTOCK NUMBERS IN SOME PACIFIC ISLAND COUNTRIES
(1,000 HEADS)

	1961-65	1974	1975	1976
CATTLE				
Fiji	114	165	170	156
French Polynesia	13	13	13	13
New Caledonia	99	110	88	92
New Hebrides	44	100	105	110
Papua New Guinea	30	144	150	155
Western Samoa	17	20	20	20
Solomon Islands	6	19	21	23
Tonga	2	4	4	4
PIGS				
Cook Islands	11	10	10	10
Fiji	22	30	31	31
French Polynesia	9	15	16	16
Gilbert Islands	10	10	10	10
New Caledonia	19	30	30	30
New Hebrides	53	62	63	64
Papua New Guinea	977	1,150	1,161	1,173
Western Samoa	34	37	33	30
Solomon Islands	21	32	33	34
Tonga	25	45	46	48
CHICKENS				
Cook Islands	50	62	62	63
Fiji	182	700	750	785
French Polynesia	131	172	173	175
Gilbert Islands	105	148	151	154
New Caledonia	144	160	162	166
New Hebrides	85	124	128	131
Papua New Guinea	758	1,040	1,062	1,085
Western Samoa	460	485	485	490
Solomon Islands	97	129	130	133
Tonga	60	132	139	147

SOURCE OF INFORMATION: 1976 FAO PRODUCTION YEARBOOK

ATTACHMENT 4: Population estimates for the South Pacific region, 1964-1977

Country	Estimated mid-year population													
	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977[1]
American Samoa	22,000	23,000	24,000	25,000	26,000	26,500	27,000	27,500	28,000	28,500	29,000	29,500	30,000	30,500
Cook Islands	18,800	19,000	19,200	19,500	19,900	20,300	20,700	21,100	21,300	20,500	19,200	18,100	18,400	18,500
Fiji	449,000	462,000	474,000	485,000	495,000	506,000	520,000	531,000	541,000	551,000	560,000	569,000[2]	583,000	592,000
Gilbert Islands	44,000	45,000	46,000	46,500	47,500	48,000	49,000	50,000	50,300	51,500	52,500	53,000	52,500	53,500
New Hebrides	72,500	74,000	76,000	78,000	80,000	81,500	82,500	83,500	87,000	90,500	92,500	95,500	97,500	99,500
Niue Island	5,000	5,100	5,200	5,200	5,300	5,300	5,300	5,100	4,800	4,400	4,000	4,000	3,900	3,800
New Caledonia	89,000	92,000	94,000	96,000	99,000	102,000	110,000	120,000	124,000	127,000	131,000	132,000	133,000	134,000
Papua New Guinea	2,101,000	2,150,000	2,185,000	2,247,000	2,310,000	2,357,000	2,451,000	2,490,000	2,556,000	2,624,000	2,693,000	2,769,000	2,844,000	2,928,000
French Polynesia	89,000	92,000	95,000	98,000	102,000	105,000	108,000[2]	119,000	122,000	125,000	128,000	130,000	130,000	130,000
Solomon Islands	140,000	143,000	147,000	151,000	154,000	158,000	163,000	168,500	174,500	180,500	186,500	193,000	199,500	206,000
Tokelau	1,800	1,900	1,900	1,900	1,800	1,700	1,700	1,700	1,600	1,600	1,600	1,600	1,600	1,600
Tonga	72,000	74,000	76,000	79,000	81,000	84,000	86,000	87,000	88,000	89,000	89,500	90,000	90,000	90,000
Trust Territory of the Pacific Islands	88,000	91,000	92,000	92,500	95,500	99,000	103,000	106,500	110,500	114,500	119,000	121,500	125,000	129,000
Tuvalu	5,500	5,600	5,600	5,700	5,800	5,800	5,800	5,800	5,900	5,900	5,900	6,000	7,500	7,500
Western Samoa	123,000	127,000	131,000	133,000	136,000	139,000	142,000	145,000	148,000	150,000	151,000	151,000	151,000	152,000
South Pacific region	3,320,600	3,404,600	3,471,900	3,563,300	3,658,800	3,739,100	3,875,000	3,961,700	4,063,100	4,163,900	4,261,700	4,363,200	4,466,900	4,575,900

FOOTNOTES

(1) Preliminary figures which have not been reconciled with official estimates prepared by individual countries.

(2) Estimates for this and earlier years have not been adjusted in the light of Census results.

SOURCE OF INFORMATION: SOUTH PACIFIC COMMISSION

ATTACHMENT 5: FOOD PRODUCTION INDICES IN SOME PACIFIC ISLAND COUNTRIES

A. Food Production indices

	1961-65	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
Fiji	100	107	103	133	110	125	115	110	110	103	101	111
French Polynesia	100	87	83	79	103	96	90	82	68	60	91	81
New Hebrides	100	107	124	110	118	107	113	83	97	130	125	132
Papua New Guinea	100	108	109	112	115	117	120	123	125	129	134	133
Samoa	100	77	77	84	93	85	99	94	88	92	102	116
Solomon Islands	100	103	105	100	107	107	111	104	94	121	117	118
Tonga	100	121	135	125	116	103	108	121	115	120	130	132

B. PER CAPITA Food Production indices

Fiji	100	98	93	117	95	105	94	88	87	79	76	82
French Polynesia	100	81	73	66	83	75	68	61	49	42	61	62
New Hebrides	100	100	113	98	102	89	92	65	75	96	91	93
Papua New Guinea	100	101	101	101	102	102	102	102	102	103	104	101
Samoa	100	71	70	75	80	71	81	74	68	69	74	81
Solomon Islands	100	95	94	87	91	89	89	81	74	90	84	83
Tonga	100	110	118	105	93	80	82	88	81	82	86	85

SOURCE OF INFORMATION: 1976 FAO PRODUCTION YEAR BOOK

ATTACHMENT 6: FOOD SUPPLY PER CAPITA PER DAY IN SOME PACIFIC ISLAND COUNTRIES

	Fiji	French Polynesia	New Caledonia	New Hebrides	Papua New Guinea	Samoa	Solomon Islands	Tonga
ENERGY, Cal.								
1961-65	2,527	2,464	2,730	2,089	2,019	2,340	2,144	2,447
1972	2,614	2,750	2,988	2,328	2,245	2,358	2,052	2,530
1973	2,675	2,718	2,930	2,309	2,257	2,251	2,054	2,571
1974	2,652	2,733	2,783	2,385	2,232	2,217	2,063	2,622
TOTAL PROTEIN, grams								
1961-65	53.3	64.9	65.3	51.9	40.4	55.7	39.8	38.1
1972	56.1	70.7	74.3	60.7	47.4	55.5	40.5	42.7
1973	57.8	71.6	71.8	60.3	49.2	51.5	40.0	45.1
1974	57.6	71.5	68.8	65.9	47.8	51.3	40.1	48.4
ANIMAL PROTEIN, grams								
1961-65	17.2	29.9	30.6	28.4	13.0	24.6	8.8	9.1
1972	18.9	32.9	36.6	33.4	17.5	24.2	12.2	11.3
1973	20.8	34.7	34.8	33.2	19.5	21.0	11.7	12.7
1974	19.9	34.7	33.4	39.6	18.8	21.5	11.7	15.2
TOTAL FAT, grams								
1961-65	57.9	68.7	80.7	87.4	30.6	95.3	45.4	50.4
1972	64.0	79.5	95.9	92.0	36.9	90.0	50.2	56.1
1973	65.1	80.5	92.5	90.9	37.7	85.3	51.4	57.5
1974	62.9	83.0	88.7	100.2	38.8	85.4	52.3	61.9
ANIMAL FAT, grams								
1961-65	23.7	32.5	38.8	41.6	13.7	32.1	9.1	15.3
1972	27.2	40.0	49.5	44.1	19.0	32.4	12.4	21.0
1973	29.1	41.5	47.2	43.1	19.6	28.5	11.7	22.1
1974	28.1	43.7	45.2	52.2	20.2	29.0	12.6	24.5

SOURCE OF INFORMATION: 1976 FAO PRODUCTION YEAR BOOK