

# SAMOAN HOUSEHOLD NUTRITION IN BRIEF

Samoa is facing a health epidemic of rising disability and early death caused by escalating rates of Non-Communicable Disease (NCDs).<sup>1</sup> NCDs, including cardiovascular diseases and diabetes, are the leading causes of death and disability in Samoa, responsible for 75-80% of deaths.<sup>2</sup> Poor diet has been identified as a major risk factor contributing to rising NCD incidence rates in Samoa – yet the factors driving poor dietary outcomes are poorly understood. Using data from Samoa’s Household Income and Expenditure Survey (2013), this brief establishes the average intake of nutrients (Calories, fat, protein, vitamin A, iron and sodium) central to an adequate diet, and which households are most at risk. It identifies the food items contributing most to current nutrition outcomes and makes recommendations regarding which food items could assist Samoan households to satisfy their dietary requirements in the most cost effective way. This information is to design to help policy-makers design interventions most effective at improving dietary outcomes in Samoa.

## SUMMARY FINDINGS

This study found that, on average:

- Only 14% of households had access to a diet which satisfied all the recommended nutrient intake levels
- Samoan households generally have a lower intake of vitamin A than is recommended
- Samoan households have on average a higher intake of sodium (salt) than is recommended
- Samoan households consume a diet high in protein and fat
- Samoan households have access to more than the minimum required level of intake of iron
- Households at lower income levels, and headed by women, were less likely to access an adequate diet; whilst households with more highly educated household heads, were more likely to access an adequate diet

### CONSEQUENCES OF POOR DIET

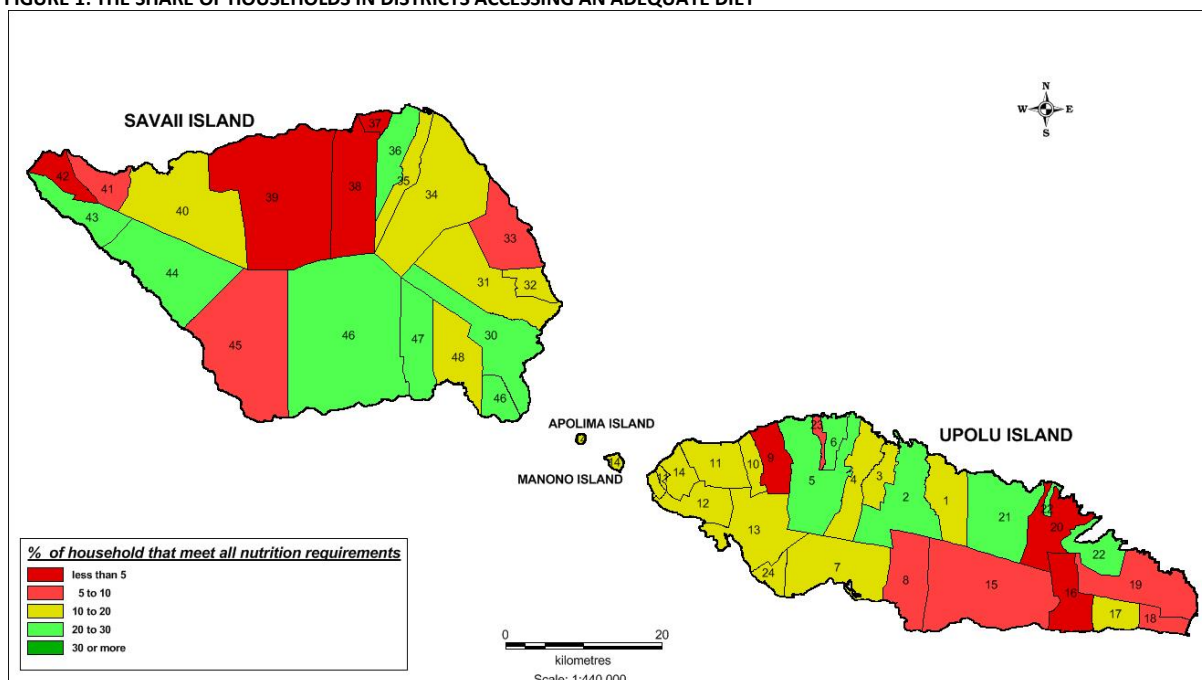
63% of the Samoan population suffers from obesity, and 89% are overweight.

The adult (25-64 years of age) diabetes rate rose from 22% in 2002, to 46% in 2013.

Among the under-5 population, malnutrition-related wasting (4%) and stunting (5%) were identified at relatively low levels

*Source: WHO (2014) Samoa: STEPwise approach to NCD risk factor surveillance report, Manila:*

FIGURE 1: THE SHARE OF HOUSEHOLDS IN DISTRICTS ACCESSING AN ADEQUATE DIET



<sup>1</sup> Op. Cit WHO (2014)

<sup>2</sup> Ibid

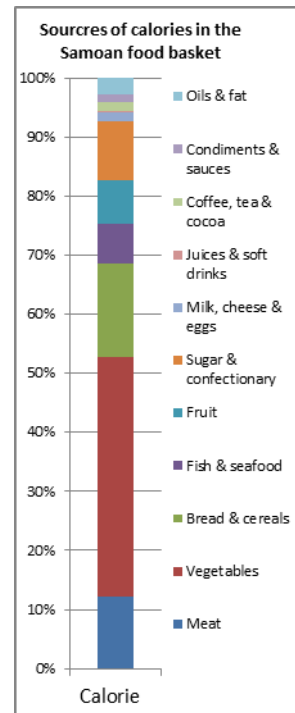
# NUTRITION NEEDS

## CALORIES

Calories are the food energy we need to survive. The three main sources of calories in our diet come from protein, fat, and carbohydrates. Given there are more calories in a gram of fat than in proteins or carbohydrates, we gain weight more quickly from diets high in fat – particularly saturated fats. On average, individuals should consume 50-65% of their calories from carbohydrates, 10-20% of their calories from protein, and 15-30% of their calories from fat.

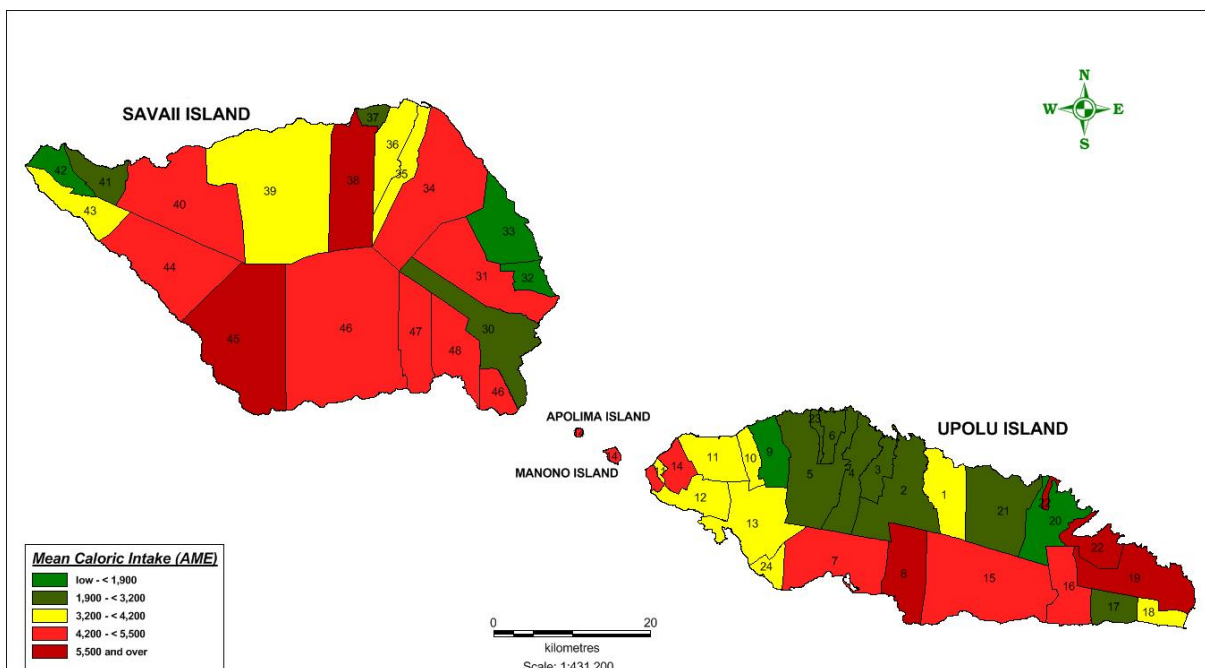
Root vegetables (e.g. taro), as well as breads and cereals were found to contribute the majority of energy in the Samoan average diet; while meat products were found to be the main sources of protein and fat, and secondary sources of food energy. In particular, taro was the most important source of calories, with chicken pieces/quarters and bread making major contributions to Calorie intake. Added sugar and coconuts (popo) also made significant contributions to Calorie intake.

The average per capita daily intake of Calories in Samoa was identified to be 3509 kcal (per adult male equivalent). However, this average hides some big differences across the country.



### MAP OF PER CAPITA (AME) DAILY CALORIE (KCAL) INTAKE BY DISTRICT

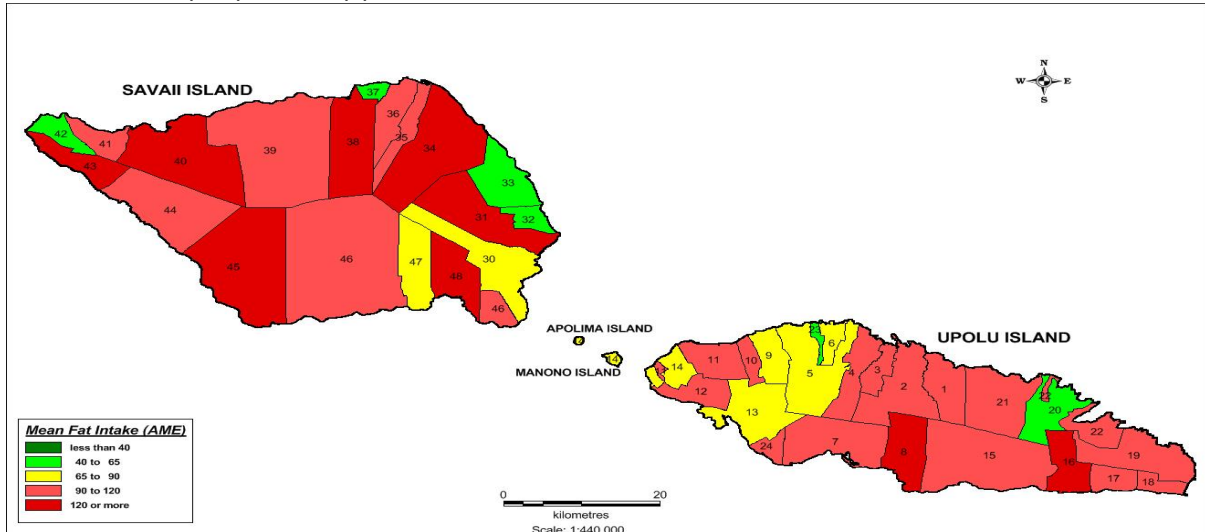
Five districts were found to have access to, on average, less than 50% (<1900 kcal per day, coloured green) of the recommended calorie requirements. On the other hand, four districts were found to have access to, on average, more than 150% (>5500 kcal per day, coloured red) of the recommended Calorie intake. Calorie intake is lower in urban (Apia) and per-urban (NW Upolu) regions than in rural regions (Savaii and 'Rest of Upolu').



## FAT

Adequate amounts of dietary fat are essential to a healthy diet; yet a diet rich in saturated fats (cooking oil and fatty cuts of meat, such as corned beef and lamb flaps) raises cholesterol levels and risk for NCDs such as cancer, diabetes, and heart disease.

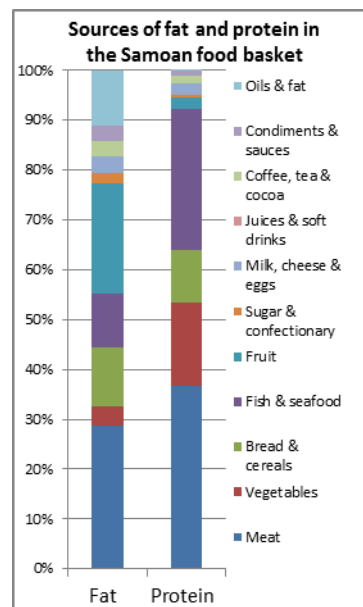
**MAP OF PER CAPITA (AME) DAILY FAT (G) INTAKE BY DISTRICT**



This study found that, while average fat intake was below the recommended maximum, average intake was at the higher end of the recommended range (24% of dietary energy came from fat).

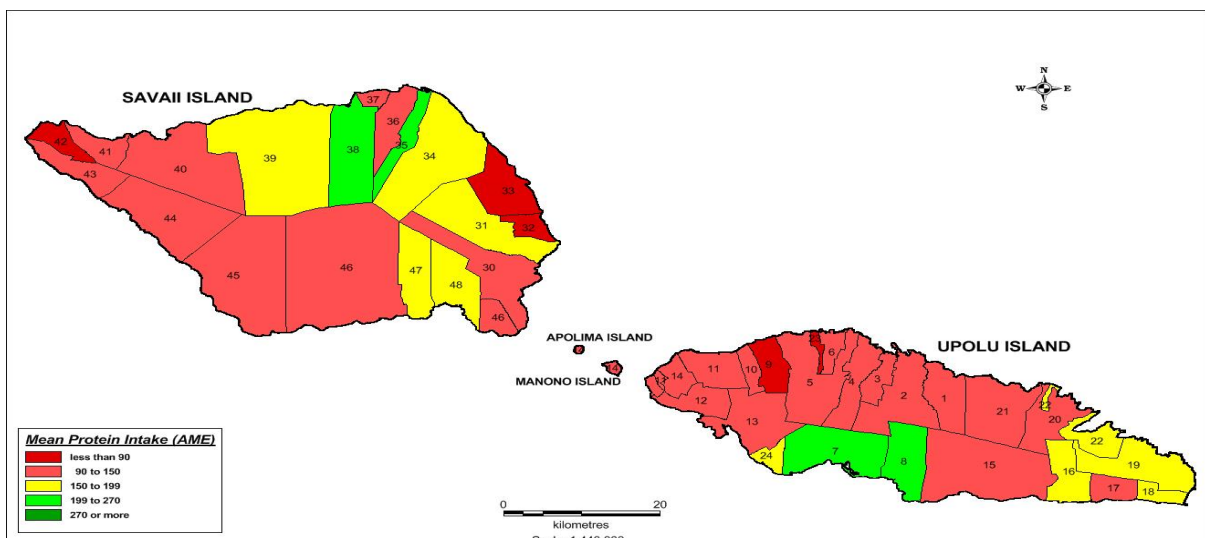
5 districts were found to have a high average intake of per capita fat intake (>120 grams per day, coloured red) and that no districts were found to have a low intake of fat, on average (<40 grams per day, coloured green).

The top sources of fat in the Samoan food basket are meat (chicken and canned beef), fruit (coconuts (popo)), fish and seafood (canned mackerel), cereals (instant noodles), and cooking oil and butter, as illustrated in the bar chart. This study found that households in the bottom third of income had access to 17 grams of fat less (per capita per day) than households in the top third by income.



**PROTEIN**

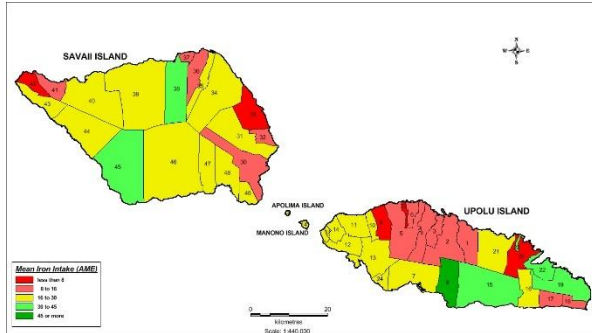
This study found that average protein intake in Samoa satisfies the recommended minimums. The map below illustrates that only 5 districts had an average protein intake that was considered low (<90 grams, coloured red). However this study found that income had a significant effect on household protein intake, with households in the bottom third of income accessing 38 grams less of protein than members of households in the top third by income.



## IRON

Iron has several vital functions in the body, including the transportation of oxygen to the tissues from the lungs by red blood cell.

With the high level of average taro consumption in Samoa, access to iron intake was found by this study to be above the minimum required. Canned mackerel, chicken and coconuts also contribute to the meeting household iron intake requirements.



Members of households in any of the three 'rural' Regions of Savaii, NW Upolu and Rest of Upolu have access to a higher iron intake level than members of households in the Apia Urban Area, which is may to reflect the lower costs and higher availability of home produced taro in those areas. Whilst households in urban areas were not found to have, on average, an intake of iron below the

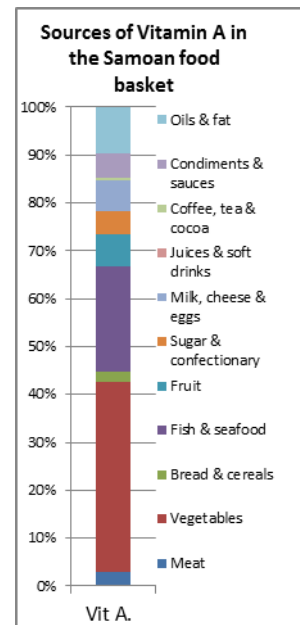
recommended level, this finding indicates that urbanisation does contribute to changing dietary preferences for or access to traditional staples, like taro, which are critical to an adequate diet.

## VITAMIN A

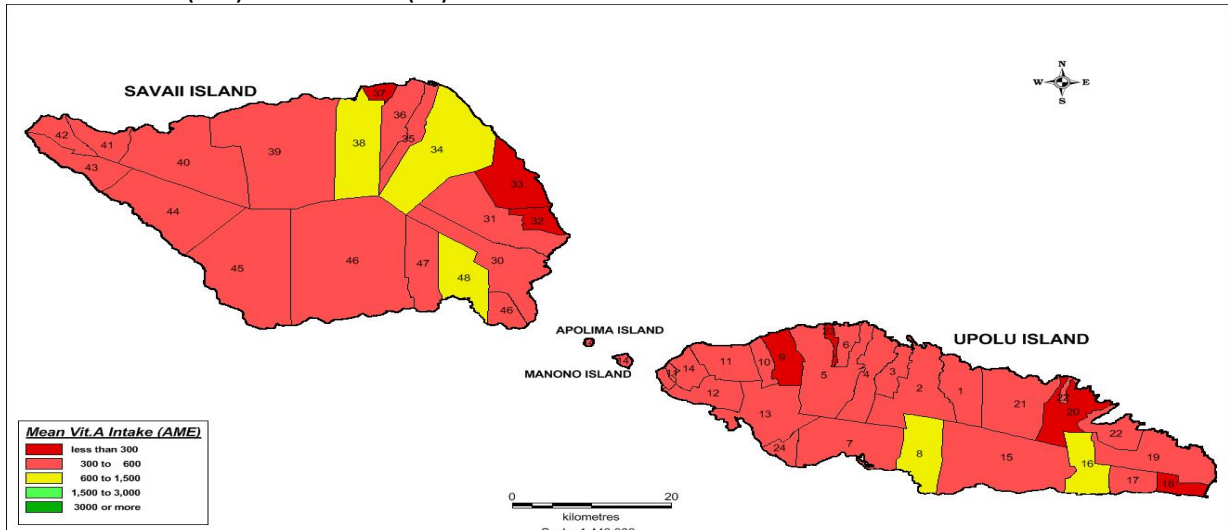
Vitamin A is an essential nutrient needed in small amounts by humans for the normal functioning of vision, growth and development, healthy cells, immune system functioning and reproduction. Avoiding Vitamin A deficiency is critical to avoiding health problems such as physical and cognitive impairment, and blindness.

This survey found that, on average, Samoan households consume only around 70% of the recommended vitamin A intake. Increased consumption of a range of food items, from pumpkin and papaya to fish and seafood and dairy products such as milk and butter, would help Samoan households lift their vitamin A intake levels.

The map below that households in nearly every district have an average vitamin A intake below the recommended level - indeed only 5 districts have a vitamin A intake that is above the recommended level (coloured yellow). Districts where average vitamin A consumption is extremely low (<300 micrograms or less than half the recommended daily intake) are coloured red, whilst households with low average per capita consumption (<600 micrograms per day) are coloured pink.



MAP OF PER CAPITA (AME) DAILY VITAMIN A (UG) INTAKE BY DISTRICT

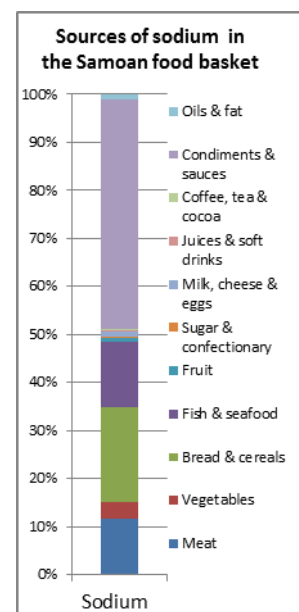


## SODIUM

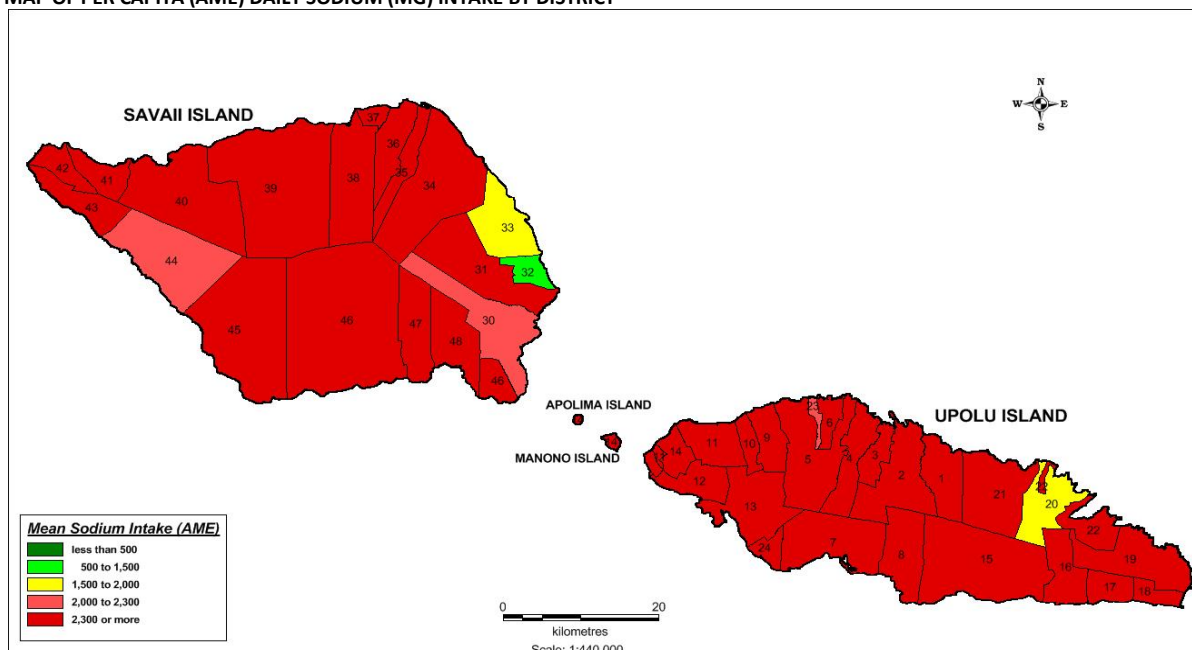
Sodium comes from salt and salty foods. While a small amount of sodium is essential for cell function, too much sodium intake leads to elevated blood pressure and increased risk of NCDs such as cardiovascular and kidney diseases, and diabetes.

This study found that average sodium consumption (2903mg per capita, per day) is well above the safe recommended maximum (2300mg). On average, household sodium intake in Apia (3082mg) is well above the recommended maximum. The map below indicates that average household sodium is above the recommended maximum (coloured red) in all but 5 Districts. No District was found to have a 'low' rate of average sodium intake. This study identified that households in the bottom income tercile and headed by older adults, had a lower rate of sodium consumption than richer households and households headed by younger adults.

The most common source of sodium in Samoan household diets identified by this study was table salt added to meals. Table salt contributes two-thirds of total sodium consumption. About a third of salt consumption in Samoa comes from processed food – in particular from canned mackerel, instant noodles, bread and sausages.



MAP OF PER CAPITA (AME) DAILY SODIUM (MG) INTAKE BY DISTRICT



## WHAT IS THE COST OF A NUTRITIOUS DIET?

MINIMUM COST OF NUTRITIOUS FOOD BASKET		
Food item	Consumption quantity (g)	Expenditure (USD)
Taro	908	0.54
Chicken pieces	271	1.47
Pumpkin	129	0.24
Bread	186	0.57
Coconuts (popo)	25	0.57
Canned mackerel	83	0.38

What does it mean to be in food poverty? This study identified that it would cost US\$3.23 per day to provide an adult male with all the nutrients required by an adequate diet. Local foods – particularly taro – are integral to assisting households to meet the recommended minimum nutrient intake levels at a low cost.

In total, a food basket containing just 6 food items - taro, chicken pieces, bread, pumpkin, canned mackerel (eleni), coconuts (popo) - could assist Samoan households to obtain all their nutrition needs, at lowest cost. Local food items (taro,



pumpkin, and coconut) able to be produced by the household contribute US\$1.35 of the cost of the optimum food basket.

Among the locally produced goods, a decrease in the price of paw paw by 17.1% and by 33.9% for ta'amu, would see these food items substituted into the optimum basket. Breadfruit, onions, cucumber and Chinese cabbage would all have to undergo price reductions greater than 50% of their present price before these would be substituted into the optimum food basket, based on their nutrient composition. This could be achieved through policy interventions that prove production and market efficiency to bring prices down.

This food basket may not satisfy all the dietary requirements, nor easy to procure in these specific measurements; or preferential in the eyes of many consumers. Further improvements will be made. Yet this approach identified that a nutritious diet is affordable, and should be accessible to the majority of Samoans.

## WHAT CAN BE DONE TO IMPROVE NUTRITION?

### POLICY IMPLICATIONS AND POTENTIAL INTERVENTIONS

FAO promotes three main categories of country level actions in order to improve access to low-cost nutritious foods:

- (1) Trade and market related measures:
  - Reduce the price of local fruit, vegetable and animal products by investment in improving the efficiency of local food production and distribution systems and reducing post-harvest losses
  - Reduce incentives to consume food and beverage products high in sodium, sugar or fat through targeted excises and use the revenue used to invest in improving access to healthier substitute products.
- (2) Measures to increase access to affordable and nutritious food by households:
  - Targeted food voucher schemes for at risk households
  - Nutritious school feeding programmes.
  - Working with manufacturers to reduce the sodium content of bread
  - Aiming to source canned food with a lower sodium content - with a focus on mackerel - to reduce household sodium intake.
  - Encouraging households to reduce the addition of table salt and sugar to meals and beverages to reduce calorie, fat and sodium intake levels through education and community programmes.
  - Fortifying flour, rice and milk products with micronutrients such as Vitamin A
- (3) Measures to increase food production:
  - Investments in improving the efficiency of production of local foods,
  - Facilitate investment in improving the efficiency of local food production and distribution systems, e.g. by easier access to finance.

*To reduce the dietary related health risks among the Samoan population, policies and interventions must be targeted at reducing sodium intake, increasing vitamin A, and balancing fat intake.*

More detailed information is available in the full report available at <http://www.sbs.gov.ws>

For more information, contact:

Food and Agriculture Organisation (FAO) email or phone <http://www.fao.org/asiapacific/pacific-islands/en/>

Samoa Bureau of Statistics (SBS) email or phone via <http://www.sbs.gov.ws/index.php/contact-sbs>