Fill the Nutrient Gap Timor-Leste

Final Report

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Acknowledgements

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Acronyms and abbreviations

AG	Adolescent girls
AM	Adolescent males
CotD	Cost of the Diet
CPI	Consumer Price Index
FAO	The Food and Agriculture Organisation of the United Nations
FNG	Fill the Nutrient Gap
GDS	The Timor-Leste General Directorate of Statistics
GLV	Green Leafy Vegetables
GoTL	Government of Timor-Leste
HH	Household
IFA	Iron and Folic Acid Supplement
IYC	Infants and Young Children
Kcal	Kilocalories
KOICA	Korean International Cooperation Agency
KONSSANTIL	The National Council for Food Security, Sovereignty and Nutrition in Timor-Leste
MAP	Ministry of Agriculture and Fisheries
MMT	Multiple Micronutrient Tablet
MNP	Multiple Micronutrient Powder
NFNSP	The National Food and Nutrition Security Policy
NNS	National Nutrition Strategy
NPR	National Parliamentary Resolution
OFSP	Orange-flesh sweet potato
PAN-HAM-TIL	The National Zero Hunger Action Plan
PLW	Pregnant and Lactating Women
PME	Programa Merenda Eskolar
RNI	Recommended Nutrient Intake
SAC	School-aged children
SBCC	Social and Behaviour Change Communication
SF	School Feeding
TAG	Technical Advisory Group of the FNG
TL-SLS	Timor Leste Living Standards Survey
UNICEF	The United Nations Children's Fund
UNTL	Universidade Nacional Timor Loros'ae
UNU	United Nations University
USAID	United States Agency for International Development
USD	United States Dollars (official currency of Timor-Leste)
WFP	The United Nations World Food Programme
WHO	The World Health Organisation
WRA	Women of Reproductive Age

Executive Summary

The ability of a population to access and consume nutritious, diverse foods in necessary quantities warrants particular attention as poor diets are a root cause of malnutrition in all its forms. A number of studies and surveys carried out in Timor-Leste over the past five years have sought to describe the nutrition situation in the country, identify challenges to ending hunger and improve nutrition and inform policy and programming both for multisectoral actions and for key target groups and sectors. One question that could not be answered through existing research was the extent to which availability of, access to and utilisation of nutritious foods impact food security and nutrition outcomes in Timor-Leste. As such, a Fill the Nutrient Gap (FNG) analysis was prioritised to investigate the following:

1. Determine the extent to which local food systems have sufficient diversity and quality to meet the nutritional needs of Timorese households.
2. Estimate how much it would cost to meet nutrient needs using local foods for individual population groups and households.
3. Estimate the extent to which households could afford nutritious diets.
4. Explore and compare the possible impact of multisectoral nutrition-specific and -sensitive programming on diet cost and affordability.
5. Equip KONSSANTIL and stakeholders to jointly prioritise recommendations for multisectoral programme and policy actions based on the key findings of the FNG analysis and the country's existing evidence base.

The FNG in Timor-Leste was led by KONSSANTIL, within the Government of Timor-Leste (GoTL), with financial and technical support from national and international partners. Importantly, the process brought together partners from across different sectors affected by/able to influence nutrition; health, social protection, agriculture, education and governance.

The FNG methodology is centred around diet modelling using the Cost of the Diet (CotD) analysis but goes beyond 'diagnosing' the problem by incorporating current programme and policy priorities, secondary data and technical support of the GoTL and partner organisations to model and estimate the impact of a range of multi-sectoral 'actions' to address malnutrition on the cost and affordability of nutritious diets. This FNG analysis aimed to provide further evidence on the possible effectiveness of already prioritised multi-sectoral nutrition actions in order to inform prioritisation of specific activities within these action areas in particular and, overall, contribute towards the review and reformulation of the next National Nutrition Strategy (NNS). The results will be important to help prioritise actions to guide programmes, policy and from advocacy. Key findings from the analysis are summarised in this section. These were considered by members of KONSSANTIL who prioritised a list of recommendations to take, also summarised below.

Nutrition has long been recognised as a fundamental human right in Timor-Leste and is incorporated throughout sector-specific and intersectoral policies. Evidence-based prioritisation of actions is now needed so feasible, affordable nutrition interventions are

implemented across sectors. Nutrition Is a government priority in Timor-Leste and there are strong multi-sector policies that focus on nutrition as well as sector-specific policies that are nutrition-specific, with significant crossover across sectors. However, these policies need to be translated into implementation and implementing all listed actions may not be feasible due to shortages in budget and capacity. Strong evidence is needed to support KONSSANTIL to prioritise the many actions included in these policies and implement those that will likely have the greatest impact on improving diets and nutrition. KONSSANTIL sector priority interventions that were modelled to estimate possible impact on diet cost and affordability included micronutrient supplementation, provision of supplementary foods (Health) improvement to school feeding menus and inclusion of fortified rice (Education), the Bolsa da Mae cash transfer programmes and food vouchers (Social Protection), reduced post-harvest losses, improved production diversity and availability of nutritious foods (agriculture) and general food fortification. These interventions modelled span across sectors and lifecycle stages.

Diets are poor and non-diverse across Timor-Leste; especially for vulnerable groups such as mothers and children. Including a variety of foods from diverse food groups is essential for meeting nutrient requirements for all target groups. An adequate intake of a number of nutrients are required by all age and sex groups for physical and cognitive growth and development and to prevent disease. These nutrient requirements can only be met if nutritious and diverse diets are consumed. Contrarily, poor diets are a root cause of all forms of malnutrition, micronutrient deficiencies as well as underweight and obesity. Both the diversity and quality of diets in Timor-Leste are poor, for all groups in the population. Diets are generally based on starchy staple foods with low inclusion of vegetables and animal-source foods. This is especially the case for nutritionally vulnerable population groups such as women and young children. The FNG was carried out to investigate the extent to which some of this poor dietary attainment could be explained by the availability, cost of and access to nutritious foods.

Almost all Timorese households can afford to meet their energy needs but a nutritious diet that met the requirements of energy, protein and 13 micronutrients, would be unaffordable for most households. The FNG assessment revealed that a diet modelled in the CotD to meet energy requirements only for a household of five people 1 in the assessment municipalities would cost between $32-60 per month in Baucau, Bobonaro, Dili, Ermera, Manufahi and Oecusse. However, meeting nutrient needs would cost a lot more; diets modelled to meet the needs of energy, protein and 13 micronutrients would cost 4 times as much or $158 to $211 per month for five people. This would be significantly higher than the minimum wage of $115 per month.

The costs of these diets are not just determined by food prices in each municipality but also by the number and types of foods found in each municipality during the market survey and the nutritional needs of the model household members. Data on 98-128 foods were collected in each of the six assessment municipalities. Prices of meat, fish and eggs were generally 2-4 times as expensive as those of grains, legumes and vegetables.

[1] The model household consisted of an adult man, a lactating adult woman, an adolescent girl, a primary school aged child and a breastfeeding infant aged 12-23 months.

The cost of meeting nutrient needs differed by age and sex groups; revealing the nutritional vulnerability of particular lifecycle stages. A nutritious diet would cost on average $2.58 for adolescent girls, $1.63 for lactating women, $0.78 for adult men, $0.41 for school children and $0.28 for infant children per day. Within this model household, meeting the nutrient needs of girls and women during adolescence and lactation would make up more than 70% of the total cost of meeting nutrient needs for the entire 5-person household. This is because there are particularly high micronutrient requirements for these groups during periods of growth and development. For example, while energy requirements for adult women and lactating women were similar, dietary iron requirements for lactating women are twice as high as those of adult men.

Modelled diet costs were compared to household food expenditure to estimate the extent to which they would be affordable to households across Timor-Leste. In general, all households (94%-100%) would be able to afford diets modelled to meet energy requirements only. However, only few households (15%-37%) could afford nutritious diets. This means that interventions addressing the availability of and access to nutrients and nutritious foods, as well as purchasing power are needed to address poor diet access.

A number of interventions from different sectors were modelled in the FNG analysis, those targeting individual groups (supplementation, targeted food distribution, school feeding) and those targeting an entire household (agriculture, social protection, fortification).

Pregnant and lactating women (PLW), adolescent girls and infants and young children (IYC) are at particular risk of malnutrition in Timor-Leste due to high nutrient needs and low nutrient intake. The impact of the provision of Iron and Folic Acid (IFA) supplements or multiple micronutrient tablets (MMT) on the cost of meeting nutrient requirements for PLW and adolescent girls was modelled. The provision of supplements could halve the cost of meeting nutrient needs for PLW however MMT had a greater impact, reducing cost by an average of 60% on average compared to 40% for IFA, as it provides more nutrients. The potential impact of providing MMT was even greater for adolescent girls, reducing the cost of meeting nutrient requirements by an average of 70% compared to 40% for IFA. For IYC, multiple micronutrient supplements in the form of sprinkles were modelled; providing sprinkles for IYC in the complementary feeding period could reduce diet costs for this group by 40%. In contrast, providing a fortified supplementary food, super cereal/super cereal plus could reduce diet costs by 12% on average for PLW and 18% on average for IYC.

Alternative school meal menus were modelled for primary school children. The results showed that a greater percentage of nutrient needs could be met by increasing the budget for the Merenda Eskolar, selecting the most nutritious foods from the School feeding manual and including fortified rice, reducing the cost to the household of meeting nutrient needs of 65%-70% on average.

There is an opportunity to improve both the production and consumption of nutritious foods in Timor-Leste. The FNG modelled the possible impact of improving the production of a variety of nutritious foods such as eggs, green vegetables, beans and orange-flesh sweet potato and encouraging households to consume some of these foods instead of just selling them. In

Baucau, for example, this could reduce the cost to households of meeting nutrient needs by 25%.

Current social protection transfers were also modelled. At present, the Bolsa da Mae transfer of $5 per child, per month (up to 3 children) would only cover a half of cost of providing a nutritious diet for an infant who is also breastfeeding, a third of the cost of a nutritious diet for a school child and one twentieth of the cost of meeting nutrient needs for an adolescent girl. This modelling showed that these transfers are too low to have an impact on nutrition at present and that increased transfer amounts and conditionalities could assist to make them more nutrition sensitive.

The CotD modelling was also used to examine the combined impact of interventions from different sectors on overall household diet access. The results showed that it was possible to increase the percentage of households that would be able to afford a nutritious diet by an average of 250% if a package of well-designed interventions from multiple sectors (education, health, social protection and agriculture) were implemented. Conversely, if single interventions from one sector only were implemented the impact on household-level diet access would be limited.

These findings highlight that the responsibility for improving nutrition does not lie with one government sector alone (e.g. health), nutrition is instead something that can only be improved if all sectors act together, in a coordinated and complementary fashion. Based on the FNG results and through a process of dissemination workshops, KONSSANTIL members developed a set of recommendations for interventions to be prioritised across five (?) key sectors, as summarised in the following table. Given its leadership role in nutrition policy for Timor-Leste and the upcoming review of the National Nutrition Strategy, it is expected that these findings and recommendations will contribute to decision-making over the prioritisation of actions within future programmes.

Sector	Prioritised Interventions
Health	• Multiple micronutrient supplementation for PLW, IYC and Adolescent Girls • Targeted supplementary feeding for PLW and IYC
Social Protection	• Vouchers for nutritious foods for vulnerable households • Increase Bolsa da Mae transfer • Targeted nutrition BCC with transfers
Education	• Increase budget for from 25c to 50c per child per day • Specify inclusion of the most nutritious food options from menu • Strengthen home grown school feeding • Include fortified rice in school feeding meals
Agriculture	• Support diverse homestead production • Include nutrition BCC with extension messages
Commerce and Industry	• Fortification of staple foods

Introduction

Background

The Government of Timor-Leste (GoTL), with support from international donors and agencies, has made significant progress in recent years in committing, via policy, legislation and programming, to addressing malnutrition, in all its forms. Nevertheless, the challenges to achieving this are numerous and evidence-based actions are required across multiple sectors. Under the leadership of the National Council for Food Security, Sovereignty and Nutrition in Timor-Leste (KONSSANTIL), a number of actions have already been recommended across national-level and sector-specific policy documents, prioritising investments in Education, Social Protection, Health, Agriculture and Fisheries and Commerce and Industry to improve nutrition outcomes (1). An important next step is the further refinement of these recommendations and strategic prioritisation of actions to inform the upcoming review of the National Nutrition Strategy (NNS).

Timor-Leste is fortunate in that recent research and analysis activities led by the GoTL and partners have explored and defined hunger and nutrition challenges in the country (2–4), sought to specifically investigate the situation of and inform programming for key target groups in the population (5) and have strategically explored the Policy and Programme Environment related to nutrition (1,4). One knowledge gap identified through these valuable exercises has been the extent to which availability of, access to and utilisation of nutritious foods impact food security and nutrition outcomes. As such, a Cost of the Diet (CotD) analysis was prioritised (1) to investigate the extent to which local food systems have sufficient diversity to meet the nutritional needs of Timorese households, how much it would cost to meet average needs for energy and recommended intakes of protein, fat and micronutrients using local foods and the extent to which households can afford nutritious diets.

In response to the GoTL's prioritisation of actions to improve nutrition outcomes and this recognised knowledge gap, KONSSANTIL and the World Food Programme (WFP), with the United Nations Children's Fund (UNICEF) and the Food and Agriculture Organization of the United Nations (FAO), The World Health Organisation (WHO), KOICA and USAID/Avansa Agrikultura collaborated to conduct a Fill the Nutrient Gap (FNG) analysis in Timor-Leste 2019. The FNG process brought together government and non-government stakeholders from a variety of sectors including health, agriculture, social protection, education, and commerce & industry. The FNG methodology is centred around CotD analysis but extends beyond 'diagnosis' of the problem, incorporating current programme and policy priorities, secondary data and technical support of the GoTL and partner organisations to model and estimate the impact of a range of multi-sectoral 'actions' to address malnutrition on the cost and affordability of nutritious diets. This FNG analysis aimed to provide further evidence on the possible effectiveness of already prioritised multi-sectoral nutrition actions in order to inform prioritisation of specific activities within these action areas in particular and, overall, contribute towards the review and reformulation of the next NNS.

FNG in Timor-Leste: Process

The FNG process took place across 2019, with inception meetings in January, collection of market price data in June and validation of preliminary results and development of recommendations in national technical and political meetings in October. The dissemination of final results with technical staff and policy influencers will follow.

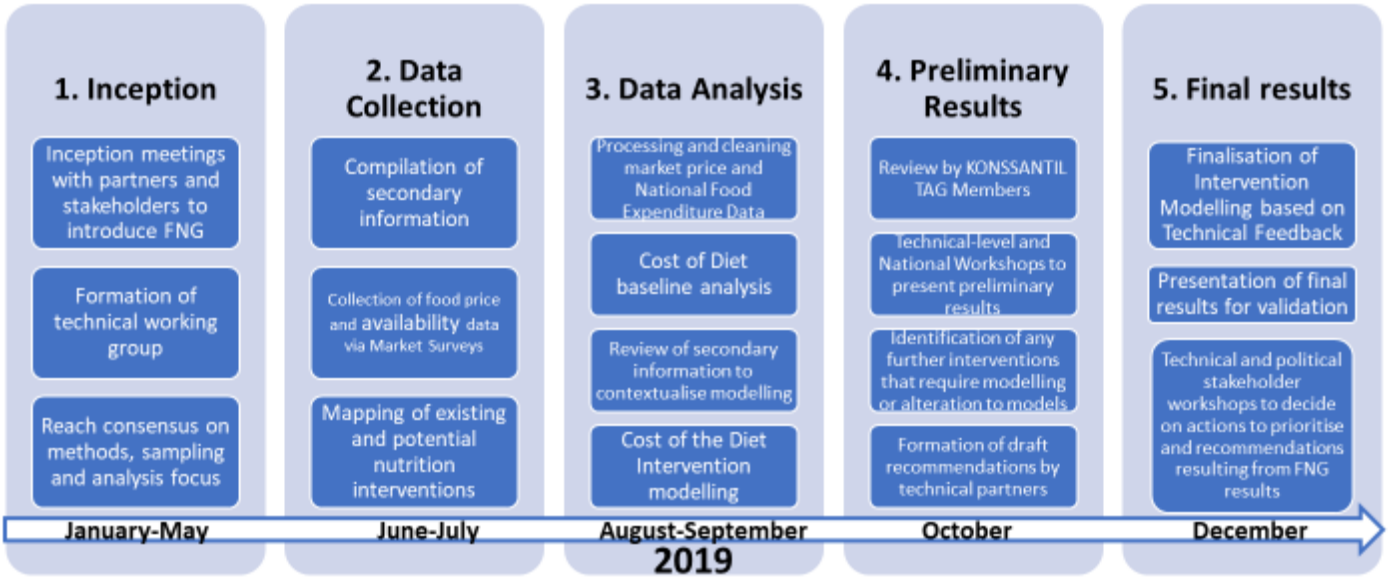
The analysis comprised a review of existing studies and policy documents in combination with linear programming (LP) using the CotD software. The aim of the FNG analysis was to identify policies and intervention packages best suited to improving access to nutritious foods to meet the specific nutrient needs of vulnerable target groups in Timor-Leste. It analysed the context-specific barriers to achieving adequate nutritious diets and modelled alternative nutrition-sensitive and nutrition-specific interventions defined by stakeholders and prioritised in existing policy.

The FNG assessment was led by KONSSANTIL with technical support from WFP country office, regional bureau and headquarters in partnership with UNICEF, FAO and WHO (see figure 5). At the start of the process the Timor-Leste FNG team met with government, non-government, United Nations (UN), and other development partners to introduce the planned methodology, plan for the market data collection, collate key secondary data sources and identify interventions and entry points for CotD analysis and modelling. Stakeholders identified the key analysis target groups as individuals within the first 1,000 days from conception to a child's second birthday, preschool and school-age children, pregnant and breastfeeding women, and adolescent girls.

During the analysis phase over 70 secondary data sources were reviewed, and stakeholders were consulted in order to identify specific interventions that had been prioritised by KONSSANTIL and partner organisations within the sectors of Education, Social Protection, Health, Agriculture & Fisheries, and Commerce & Industry. Data on the price and availability of foods at local markets was collected in six different municipalities (Dili, Baucau, Bobonaro, Ermera, Manufahi and Oecusse SAR).

Linear programming analysis was then conducted to calculate the cost of a nutritious diet and to estimate the percentage of households that would be unable to afford this diet in each of the six municipalities. The CotD was then used to model possible interventions, such as alternate school feeding menus, food distribution, improvement of agricultural production and micronutrient supplementation. To validate the results, preliminary findings were presented to partners and stakeholders via bilateral meetings and a national workshop in October 2019. During this validation phase, stakeholders participated in technical workshops to develop recommendations based on the FNG findings. Findings and recommendations were and will continue to be presented in a high-level meeting with policy makers. The detailed FNG process for Timor-Leste is illustrated in Figure 1.

Figure 1: Overview of the FNG process and Timeline in Timor-Leste



Fill the Nutrient Gap: Situation Analysis for Multi-Sectoral Decision-Making on the Prevention of Malnutrition: **Overview of FNG Methods**[2]

Malnutrition has two direct causes: inadequate nutrient intake and disease. As its name specifies, the Fill the Nutrient Gap (FNG) analysis focuses on gaps in nutrient intake to inform a country's national policies on actions that can be taken to improve nutrition among their population, with a focus on the most vulnerable.

The FNG assesses the extent to which people have choices. It considers the availability, physical access and affordability of nutritious foods required for adequate nutrient intake. It seeks to understand why people make the food choices they do. Finally, it identifies context-appropriate interventions that can be implemented by different sectors to fill nutrient gaps.

The assessment comprises two components:

1. A country-specific review of secondary data and information on factors that reflect or affect dietary intake. This includes malnutrition trends over time, characteristics of the food system and food environment, and population behaviour related to food and feeding.

2. An assessment of the extent to which economic barriers prevent adequate nutrient intake. This uses the Cost of the Diet linear programming software developed by Save the Children (UK), and includes modelling of the economic impact of possible interventions to increase nutrient intake.

Malnutrition cannot be addressed by one sector alone. FNG is designed to inform multisectoral decision-making and therefore engages stakeholders from all sectors including food, health, agriculture, education, and social protection systems throughout the assessment.

It is the stakeholders who define the scope and focus of the assessment. They contribute data and sources of information for identification of context-specific barriers and entry points and develop a shared understanding of the issues and possible solutions. They then identify appropriate nutrition-specific and nutrition-sensitive interventions that can be implemented by different sectors using their existing delivery platforms. These could be social safety nets, food processing and markets, antenatal care, school feeding programmes and others.

The FNG assessment has been developed by the WFP with technical support from: The University of California Davis; the International Food Policy Research Institute (IFPRs of October 2019, the FNG had been conducted in 20 countries and started in another 10.

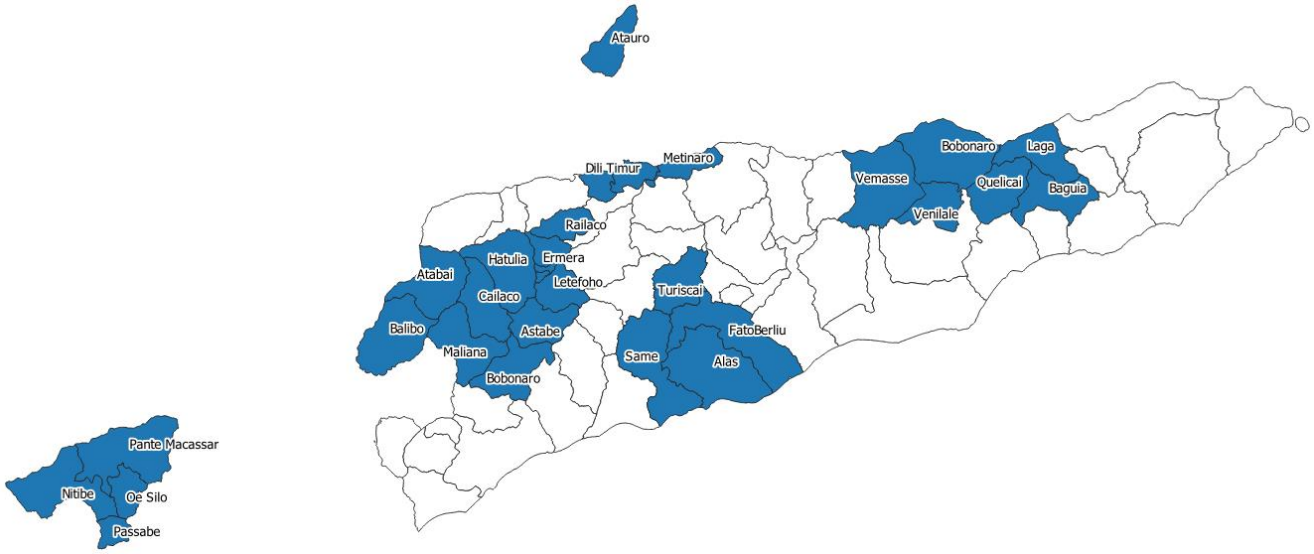
[2] For more information on the concept and the method of the analysis, see Bose I, Baldi G, Kiess L, de Pee S. The 'Fill the Nutrient Gap' Analysis: An approach to strengthen nutrition situation analysis and decision-making toward multisectoral policies and systems change. Matern Child Nutr 2019: DOI: 10.1111/mcn.12793

Collection of Primary Food Price and Availability Data

A CotD market survey[3] was conducted in 37 markets of six of Timor-Leste's Municipalities in June 2019 (see Appendix Table 1 for complete list of markets). The data collection was carried out by six field teams composed of KONSSANTIL member representatives, WFP Country-Office and Field Staff and Nutrition Students from the National University of Timor-Leste (UNTL). The six municipalities; Dili, Baucau, Bobonaro, Ermera, Manufahi and Oecusse SAR, were selected by KONSSANTIL members to represent distinct geographic and livelihood zones of the country, chronic food insecurity experience, malnutrition characteristics and KONSSANTIL/GoTL priorities, in order to develop an understanding of the diversity of the national situation in respect to access to and availability of nutritious foods. In each Municipality, the markets selected to visit for data collection included municipal-level markets, sub-municipal markets and suco markets. Figure 2 shows the location of Data Collection by Administrative Posts.

Prior to the collection of market data, all individuals involved in the data collection attended a 3-day[4] training in CotD data collection methods. The training covered basic nutrition information, objectives of the assessment, use of market survey instruments and equipment, including measurement scales, logistics planning, proper conduct with vendors, troubleshooting and risk management. During the training a comprehensive list of all food items expected to be available in the municipalities was also developed. This was followed by two field trials (data not included) where the enumerators practiced data collection methods in different locations around Dili. Following each trial, the food list was reviewed, and missing items were added.

Figure 2: The Administrative Posts in which Market Data was collected



[3] Using the methods described in the Save the Children UK Cost of the Diet Practitioner's Guidelines (66)
[4] The recommended length for a CotD data collection training in the Practitioners Guide is three days (66)

The resulting comprehensive food list was then used to collect data on price and weight in the remaining markets and included 206 foods. To collect the information needed to estimate the cost of the diet, market traders were asked the price of the smallest unit of each food item that they sold (such an individual pineapple, a kilo of rice, a bottle of oil, a pile of tomatoes or a bag containing two blocks of tofu, see figure 3), assuming that poorer people typically buy foods in small amounts as they cannot afford bulk purchases, which could be cheaper in the long-run. Three samples of each food were weighed using electronic scales that had a precision of 1 g. This information was entered into a food-list questionnaire. At each market, the data collection team was provided with four questionnaires and asked to fill in weight and price information for every food they could find from up to four different vendors, if possible.

In each municipality, approval to visit markets and collect data was obtained from the Municipal Food Security Authority, facilitated by KONSSANTIL. Further, each data collection team was accompanied by a local food security officer during all market visits. Vendors were informed of the data collection by the local Food Security Officer and the decision to participate by sharing food prices and allowing the team to weigh food items was voluntary.

All market price data was entered directly into the CotD software by a trained data entry team under the supervision of WFP-TL. Data entered from each data collection form was then double-checked for quality and any outliers. For a final list of the foods included in the food list for each municipality and their prices, please see appendix table 2.

Figure 3: Images from the market price survey data collection

Cost of the Diet (CotD) analysis methods

The CotD software uses Linear Programming (LP) to understand the extent to which poverty, food availability and food prices may affect the ability of people to meet their nutrient needs. Using price data collected from markets, the software calculates the amount, combination and cost of local food that is required to provide individuals or households with their average needs for energy and their recommended intakes of protein, fat and micronutrients[5]. These diets are calculated within defined constraints to prevent the inclusion of unrealistic types or amounts of food and the provision of excessive amounts of nutrients.

The FNG approach defines the Staple Adjusted Nutritious Diet: the lowest cost nutritious diet that includes the typical staple food and excludes prohibited foods[6]. This diet is referred to as the 'nutritious' diet throughout this summary. Population expenditure data is compared to the cost of the nutritious diet and is used to estimate the proportion of the population that would be able to afford it. This affordability can be estimated and compared across different geographical areas, seasons or countries.

As part of the FNG process, CotD analysis was undertaken for the six priority municipalities of Timor Leste, as illustrated in figure 4. Datasets from the 2014-15 Timor-Leste Living Standards Survey (TSLS-SLS)(6) provided data on the percentiles of per-capita food expenditure for each municipality. Estimated food expenditures from the 2014-2015 TSLS-SLS were adjusted using the 2019 Consumer Price Index (CPI) (7) prepared by the Timor-Leste General Directorate of Statistics (GDS) to account for inflation in food prices and hence expenditure between 2014 and 2019.

The lowest cost of a nutritious diet was estimated for a **model household of five members**[7] **selected to represent nutritionally vulnerable target groups in the population.** The model household includes a breastfeeding child of 12–23 months, a child of 6–7 years, an adolescent girl of 14–15 years, a breastfeeding adult woman and an adult man. Two portions of rice per day were included to account for 50 percent of dietary energy from the preferred staple food. This was done for all household members except the child aged 12–23 months, who received one rice portion per day.

CotD software was used to model interventions proposed by stakeholders with the objective of improving the affordability of a nutritious diet for individuals and/or households.

The selection of interventions for modelling was informed by the KONSSANTIL priorities for nutrition outcomes(1), secondary data review and consultations with the TAG and stakeholders. It included:

• Increased local production and availability of nutritious foods, inc. animal source foumers.

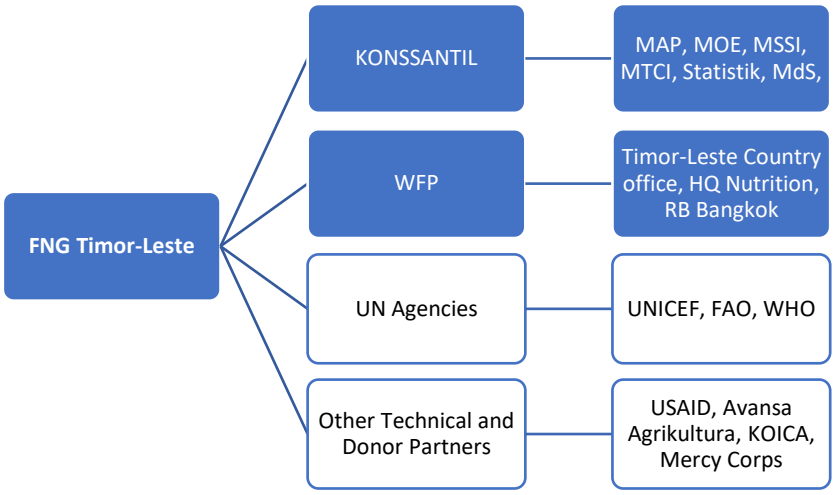
[5] As defined by the Food and Agriculture Organization (FAO) and the World Health Organization (WHO). The need for 9 vitamins and 4 minerals is included.

[6] This diet is not intended to reflect what individuals or households are currently eating, nor should it be used to develop food-based recommendations or dietary guidelines.

[7] This model household composition is used to represent a household's a time of particular nutritional vulnerability, including life stages where nutrient requirements are at their highest. This composition is used as a benchmark across all FNG analyses globally for household ability to access nutritious diets.

Figure 4: Municipalities selected for the CotD analysis for the Timor-Leste FNG

Figure 5: FNG Leadership and technical partners



A note on the Findings of the FNG Analysis

The results from the CotD baseline analysis, intervention modelling and review of relevant secondary data have been grouped into 10 key findings for this report. This is done with the intention of linking each finding with existing policy and priority areas to streamline decisions about resulting recommendations and action points.

In recognition of the fact that there is a rich collection of recent policy and situation analyses available in Timor-Leste, **this report will not provide the background description of malnutrition characteristics and trends typical in FNG reports from other countries.** Instead the document will focus on linking modelling results directly to actions that have already been prioritised for nutrition outcomes. For readers interested in a summary of malnutrition and food security status and trends, please refer to the recently published FAO-EU FIRST Partnership's Review (1).

Lastly, the calculations and details behind every CotD diet and intervention model are numerous. For the full details and model inputs, please see the annexes in this report.

Key Finding 1: Nutrition has long been recognised as a fundamental human right in Timor-Leste and is incorporated throughout sector-specific and intersectoral policies. Evidence-based prioritisation of actions is now needed so that feasible, affordable nutrition interventions can be implemented across sectors.

Nutrition is well-represented across the policy environment in Timor-Leste and the GoTL is increasingly working to translate this policy into tangible actions. This is especially notable given the relative newness of different government systems in the country, fiscal constraints and workforce capacity challenges(1). As explained in detail in the FIRST report, Timor-Leste has done significant work on developing policy to address and support food security and nutrition. The three principal multi-sectoral nutrition policies for the country are:

- The National Nutrition Strategy, 2014-2019 (NNS)(8);
- The National Zero Hunger Action Plan, 2014 (PAN-HAM-TIL) (9);
- The 2016 National Parliamentary Resolution (NPR) to prioritize nutrition (10)
- The National Food and Nutrition Security Policy, 2017 (NFNSP) (11).

Additionally, a number of sector-specific policies are 'nutrition-sensitive', meaning they seek to recognise and address, or do no harm to, underlying elements that can cause malnutrition(12). Some of these sector-specific policies include:

Table 1: Nutrition-sensitive national policy documents

Sector	Document
Health	National Health Sector Strategic Plan (2011-2030)(13)
Youth	National Youth Policy (2016)(14)
Education	National Education Strategic Plan 2011-2040(15)
Agriculture and Fisheries	National Aquaculture Development Strategy (2012-2030) (16) Agriculture Policy and Strategic Framework (DRAFT) 2017(17)
Social Protection	Draft (December 2018) National Social Protection Strategy 2019-2030(18)
Multi-sectoral	Timor-Leste Strategic Development Plan 2011-2030(19)

The principal multi-sectoral nutrition policy documents collectively recommend over 200 actions to improve nutrition and food security. There is significant overlap between actions across these three documents and with the sector-specific policies listed in table 1. It has been recognised, given the challenges listed previously, that implementing all recommended actions would be beyond the capacity of the country's workforce and budget. As such there is a need to prioritise those that have the most potential to impact nutrition outcomes.

Table 2, adapted from the table developed by Heather Grieve in the 2019 FIRST report (1) broadly outlines the main KONSSANTIL priorities across these policy documents. These priority actions were taken as the 'base modelling plan' for this FNG analysis. This means that

alternative nutrition-specific and -sensitive interventions that could fall within these priority areas were modelled, with significant input from technical partners, in CotD to estimate their possible impact on the cost and affordability of nutritious diets. The modelling results are intended to be used to contribute to discussions about this prioritisation and ultimately inform the review of the NNS for future planning. A summary of modelling by sector and life stage/target group is also provided in figure 6.

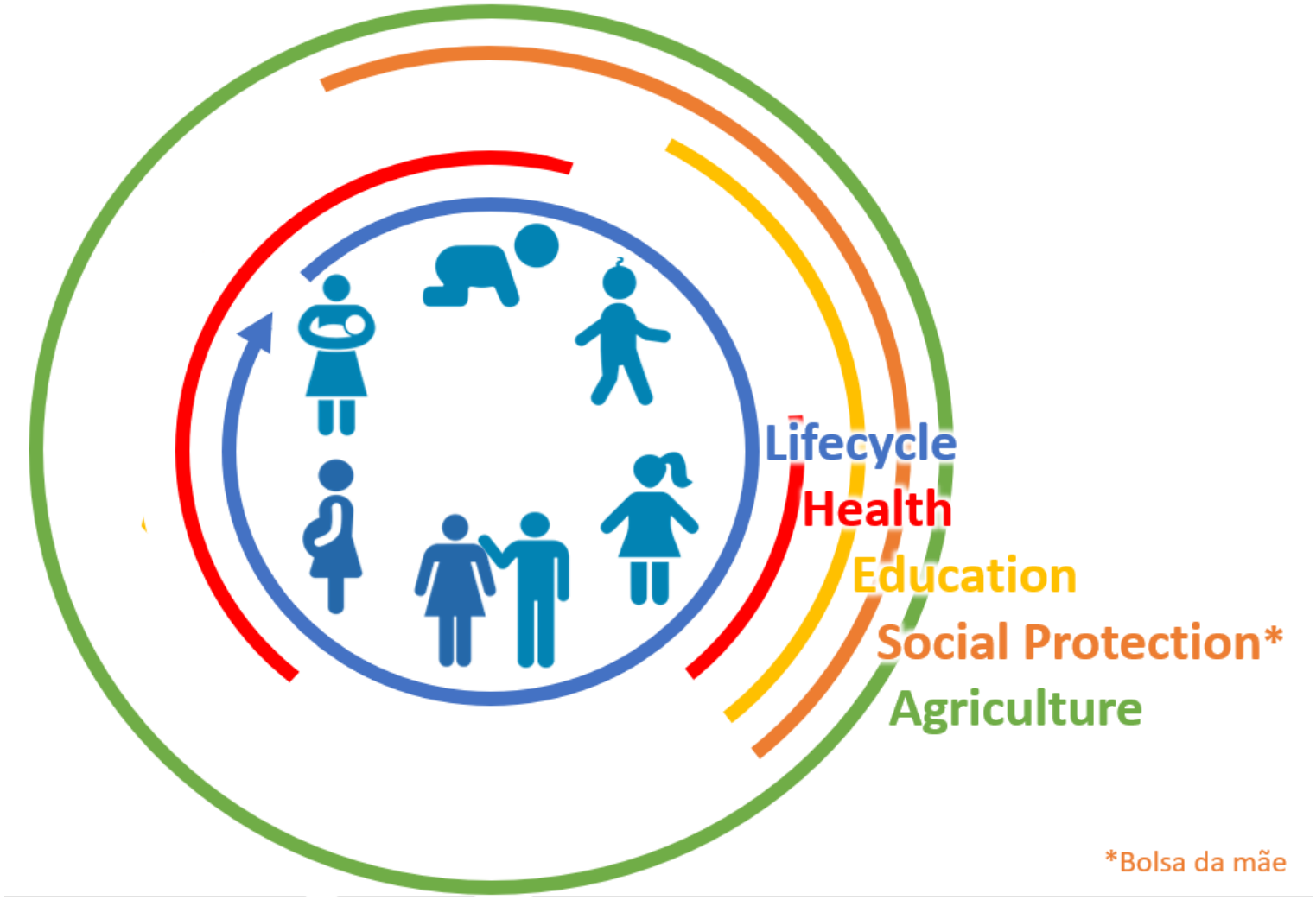
Table 2: KONSSANTIL sector priorities for nutrition outcomes and link with FNG-CotD Intervention Modelling (round 1), adapted from the table prepared by Heather Grieve for the FIRST Policy Effectiveness Review (1)

Sector	Prioritised Action/s	Intervention/s modelled in CotD*	Target Group/s†	Policy Alignment				
				NFNSP	NNS	PAN-HAM-TIL	NPR	Other
Health	Protect, support and promote appropriate maternal and IYC nutrition practices, including (among others): • Micronutrient Supplementation	• Multiple Micronutrient Powders (MNP) and Vitamin A supplementation • Iron and Folic Acid supplements • Promotion of nutritious diets • Multiple Micronutrient tablets (experimental modelling) • Fortified supplementary foods (experimental modelling)	IYC PLW, AG PLW, AG PLW, AG, IYC	✔	✔	✔	✔	
Social Protection	•Strengthen Bolsa da Mae (transfer amount & targeting) •Strengthen specialised and general food distribution	• Alternative cash transfer amounts for eligible households • Nutritionally improved food vouchers	HH	✔	✔	✔		
Education and Youth	Improve the School Feeding (SF) Programme	• Increase to daily per child budget for SF meals • Inclusion of locally-sourced nutritious foods in SF meals • Inclusion of animal-source foods, including fish in SF • Inclusion of fortified rice in SF meals	All groups (SAC, AG,AM)	✔	✔	✔		•MOE Strategic Plan •Aquaculture Policy
Agriculture and Fisheries	•Promote diversification of homestead food production for home consumption and income •Support small livestock production and consumption •Promote fish production for home consumption & income	• Improved market availability of nutritious foods • Improved household access to nutritious foods from own production (horticulture, biofortified products, fish, eggs and other animal-source foods)	HH	✔	✔	✔		•Nat. Health Sector Plan •Agriculture Policy and Strategic Framework •Aquaculture Policy
Commerce and Industry	Support mass food fortification (inc. regulatory framework, production, quality control, marketing etc.) to promote the availability of appropriate, diverse, nutrient-dense foods Promote economic opportunities for women and youth	• Improve access to fortified rice for each analysis area • Assume household access to other fortified products such as fortified oil • Inclusion of fortified rice in SF meals • Model possible impact of expected income generation on household access to nutritious diets	HH HH SAC, AG, AM HH	✔	✔	✔	✔	

*Not all nutrition-sensitive and -specific interventions listed in these policy documents are able to be modelled in CotD. The analysis can only be carried out with interventions that either focus on improving economic access to nutritious foods (changes to food prices or purchasing power/household food budget) or the availability of nutritious foods themselves (either introducing nutritious foods to the food system or assuming alterations to nutrient composition via fortification, biofortification). As such, Behaviour Change Communication (BCC) and interventions to improve WASH and health environment that do not directly impact food access or availability, whilst very important for nutrition, cannot be modelled using CotD.

†IYC= Infants and Young Children (in this case aged 6-23mo), SAC= School aged children, AG=Adolescent Girls, AM=Adolescent Males, PLW = Pregnant and lactating women and HH=Household

Figure 6: Overview of interventions modelled per group across the life cycle and by sector



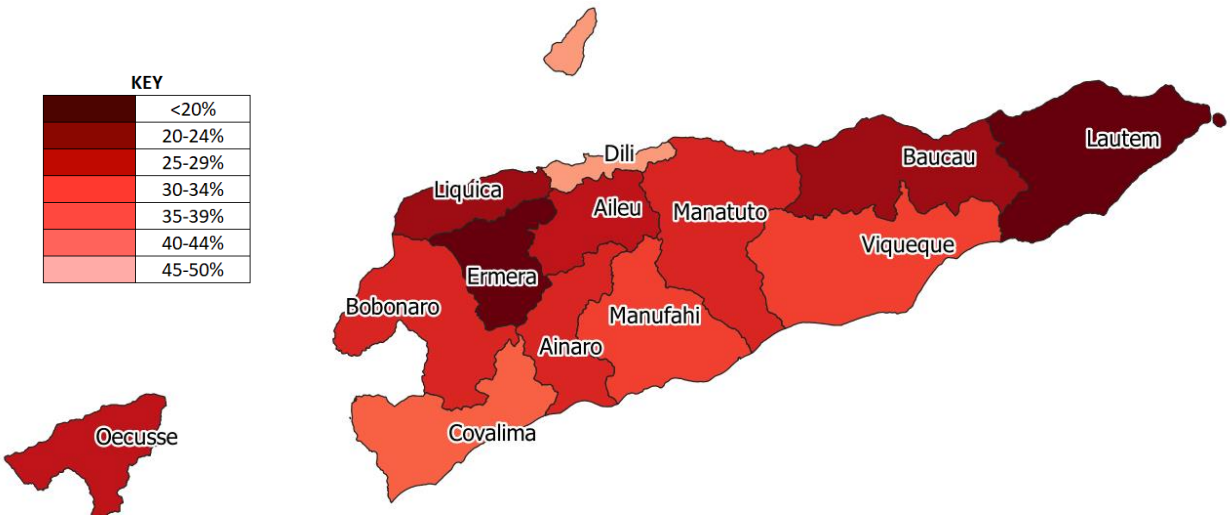
Key Finding 2: Diets are poor and lack diversity; especially for vulnerable groups such as mothers and children. Including a variety of foods from diverse food groups is essential to meet nutrient requirements.

The diversity and quality of diets in Timor-Leste, especially those of vulnerable target groups such as mothers and children, have been found to be poor across a number of qualitative and quantitative surveys and studies at national and sub-national levels(20–25). Diets are overly dependent on starchy staples such as rice and tubers, vegetables are only eaten in small quantities and consumption of animal source foods and foods is limited(4,20,21,23). Poor diets, in particular poor dietary diversity and low calorie intake, have been associated with malnutrition indicators, such as childhood stunting(4,21,26).

Diets of Infants and Young Children

Adequately diverse, nutritious diets are needed to meet requirements for energy, protein, fat and multiple micronutrients in young children during the complementary feeding period where breastmilk alone is no longer sufficient. Despite this, it has been reported that the proportion of IYC aged 6-23 months who consumed diets that met the minimum requirements for dietary diversity (MDD) (received foods from at least four of a possible seven food groups) was estimated as 28% in the 2013 TLFNS (21) and 34% in the 2019 IPC analysis report (3). Figure 7 displays the geographic variance in MDD as per the 2019 IPC; the percentage of IYC meeting MDD ranged from only 12% in Lautem to 50% in Dili (3).

Figure 7: Percentage of IYC aged 6-23 months per municipality achieving minimum dietary diversity as per the 2019 IPC report (3)



For this 6-23 month age group, breastfeeding is not always practiced for the recommended duration of up to two years (21,27,28). Further, it is reported that when complementary feeding begins, many IYC are fed diets based heavily on rice *sosoro* (porridge), with the occasional addition of green leafy vegetables such as papaya or cassava leaves (2,4,20,21,27,29). Consumption of animal-source foods by this group is low; less than half (41%) of IYC consumed eggs, a quarter (27%) ate flesh foods such

as meat and less than a quarter (23%) reportedly ate dairy foods in the previous day in the TLFNS(21). These figures match those found in other surveys and smaller studies(22–25,29).

Figure 8 presents the percentage of energy requirements met by two weekly diets for 6-23mo children in Timor-Leste; the first a hypothetical diet based on reported(29) usual intake of this target group, and the second, the nutritious diet modelled for this target group in the CotD analysis, using Oecusse as an example. Both diets meet 100% of estimated energy requirements but only the diet on the right meets the requirements for energy, fat and micronutrients. This comparison shows that a *nutritious* diet, modelled to meet the requirements of protein, fat and 13 micronutrients in addition to energy, would be much more diverse than diets that are currently fed to the complementary feeding aged target group. Additionally, a diet modelled to meet micronutrient needs would have less reliance on staple grains/roots such as rice and cassava and a greater proportion of local nutritious foods such as legumes, animal source foods and vegetables.

Still focusing on the CotD nutritious diet modelled for children in the complementary feeding age group (diet B), figure 9 displays the percentage of the nutrient targets[7] for 6-23mo children (based on recommended nutrient intake or RNI) in Oecusse that were met by each food group when diet B (the lowest-cost nutritious diet, adjusted for local staple consumption) was modelled in the CotD analysis. This figure clearly shows that a variety of foods from diverse food groups are required in order to meet nutrient requirements for this target group. For example, if only the first two food groups are counted, representing a diet similar to that reported as being the norm for IYC according to local practices; breastmilk and rice porridge, it is not possible to meet the requirements of any of the modelled micronutrients. The addition of Vitamin A-rich fruits and vegetables to the diet could mean that requirements of some micronutrients (vitamins A, C, B6, Pantothenic Acid and Folic Acid) could be met however the requirements of remaining nutrients would not be able to be met without the addition of a combination of legumes, animal-source foods (flesh foods) and other fruit and vegetables in this model.

Figure 8: Percentage of energy provided by food group in diets of 6-23mo: Diet A (left) a hypothetical diet for this target group based on reported dietary patterns (estimate based on qualitative results) and Diet B (right) the lowest cost, nutritious diet modelled for this target group in the CotD Analysis (example from Oecusse).

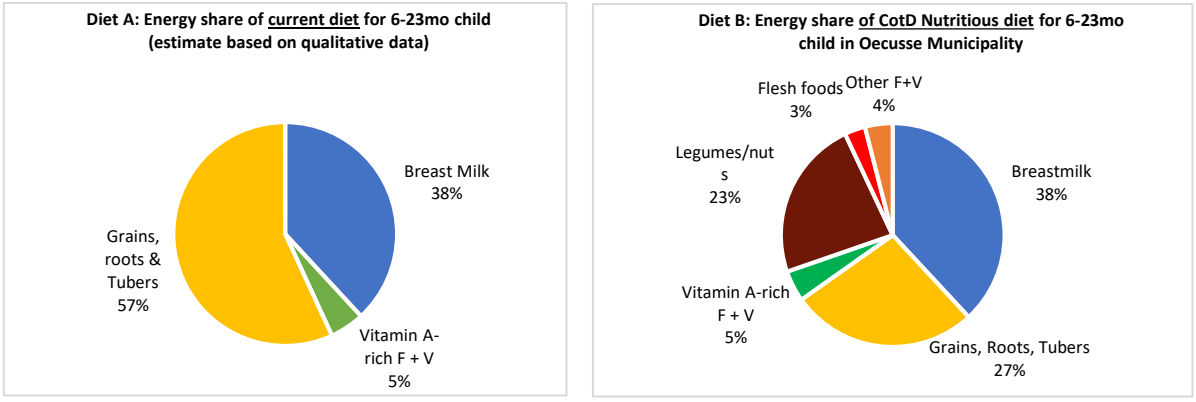
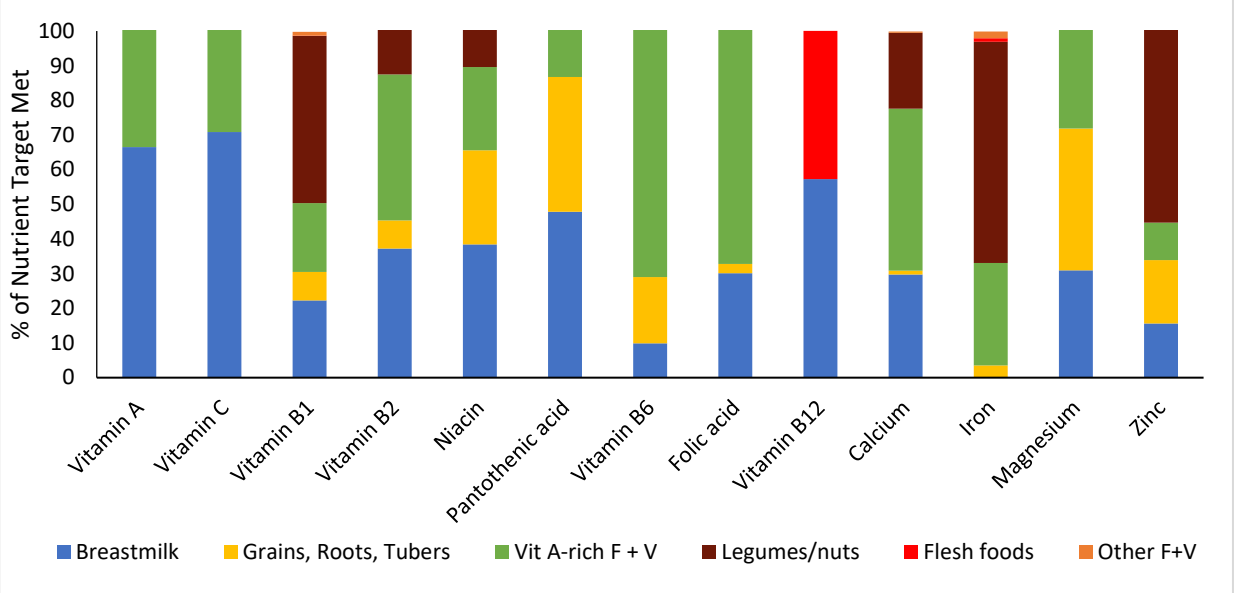


*Figure 9: **Cumulative** percentage of micronutrient requirements[8] met (capped at 100% RNI) by each additional food group **for Breastfed IYC (6-23mo)** (Oecusse) using the **modelled** lowest-cost Nutritious Diet (CotD Analysis), in order of food group added (based on modelling and not observed or current diets)*



Diets of women and adolescent girls

Recent research has indicated that in many areas of Timor-Leste, women's diets are even poorer than the already very poor diets of their children (24,25). Dietary intake for women in Timor-Leste has also been shown to be inadequate in terms of both micro- and macronutrient content across numerous analyses of both qualitative and quantitative survey data (21,24,25,28,30,31). Diets for mothers in Timor-Leste are generally dependent on starchy grains and tubers with some inclusion of green leaves but little consumption of animal-source foods and only occasional inclusion of other nutritious foods such as legumes (4,29). One national food frequency survey found that, on average, mothers of IYC <2 years consumed flesh foods less than one time per week, eggs 1.1 time per week and legumes 1.5 times per week (4,29). Additionally, while quantitative surveys have not yet been used to assess women's calorie intake, there is significant concern about not only the micronutrient content of women's diet but also whether they meet energy needs, especially during the later stages of pregnancy (4).

The dietary quality of adolescent girls in Timor-Leste is also concerning, given the particularly high requirements for micronutrients (5). A recent qualitative study found that adolescents generally consume the same food as the rest of their households and that diets are often monotonous and mostly based on rice and green vegetables(5). The reported divergences from household diets are that adolescents may also skip breakfast and consume snacks purchased at or near their school (5). The same study also found that adolescents generally have an understanding of which foods are nutritious and would like to eat more fish, fruit and meat but the barriers to doing so are similar to

[8] CotD uses estimated average requirements for energy and recommended intakes for protein and micronutrients based on the FAO-WHO estimates (36,37).

those of the wider community; infrastructure, economic access and use of animals for cultural exchange/sale(5).

In the same style as figure 9, the graphs in figures 10 and 11 present the percentage of nutrient targets[7] that were met by each food group when diet B (the lowest-cost nutritious diet, adjusted for local staple consumption) was modelled in the CotD analysis for Lactating Women in Dili and Adolescent Girls in Ermera. These examples again show that a diversity of nutritious foods would be required to meet nutrient needs for these target groups. If only the micronutrients provided by the rice and green vegetables in the modelled lowest cost nutritious diet are considered, requirements of vitamin B1 (thiamin), vitamin B3 (niacin), pantothenic acid (B5), vitamin B12, iron and zinc are not met. It is not until the nutrient contributions from legumes, animal-source foods and other vegetables are considered that at least 100% of the requirement of the modelled micronutrients is achieved. These model results are included to highlight the importance of dietary diversity and quality for these nutritionally vulnerable target groups and to encourage interventions focussing on improving access to and demand for diverse, nutritious foods.

*Figure 10: **Cumulative** Percentage of micronutrient requirements[7] met (capped at 100%) by each additional food group for **Lactating Adult Women** (Dili) using the lowest-cost Nutritious Diet (CotD Analysis), in order of food group added*

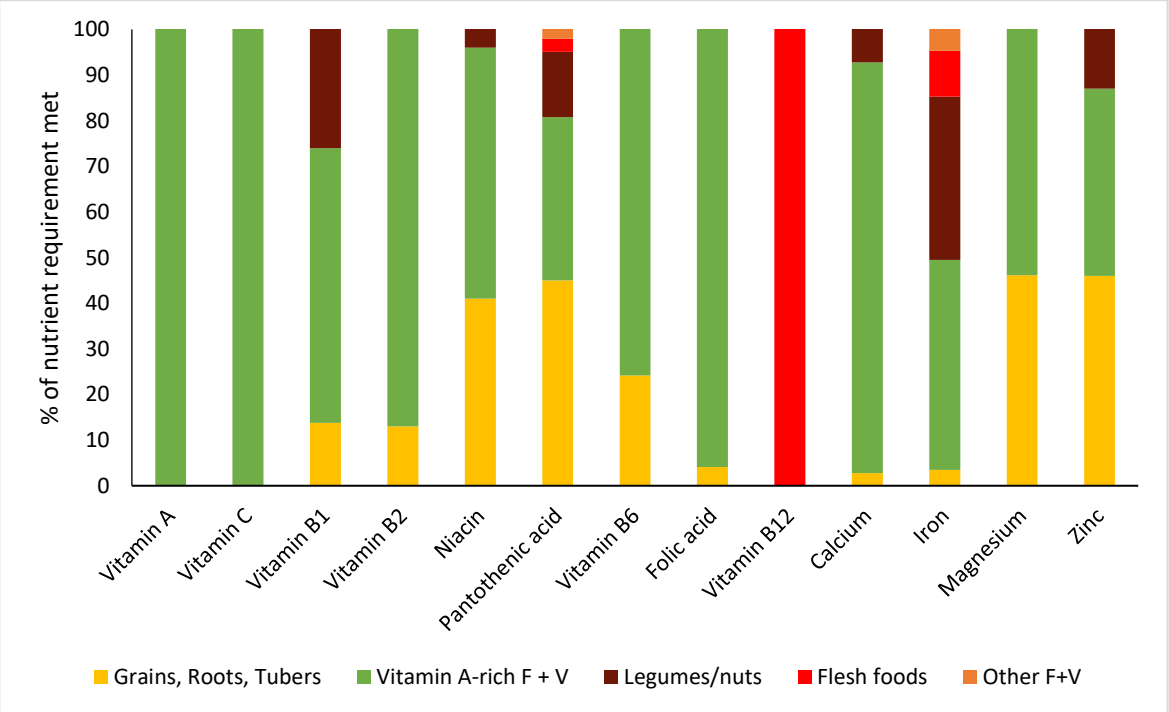
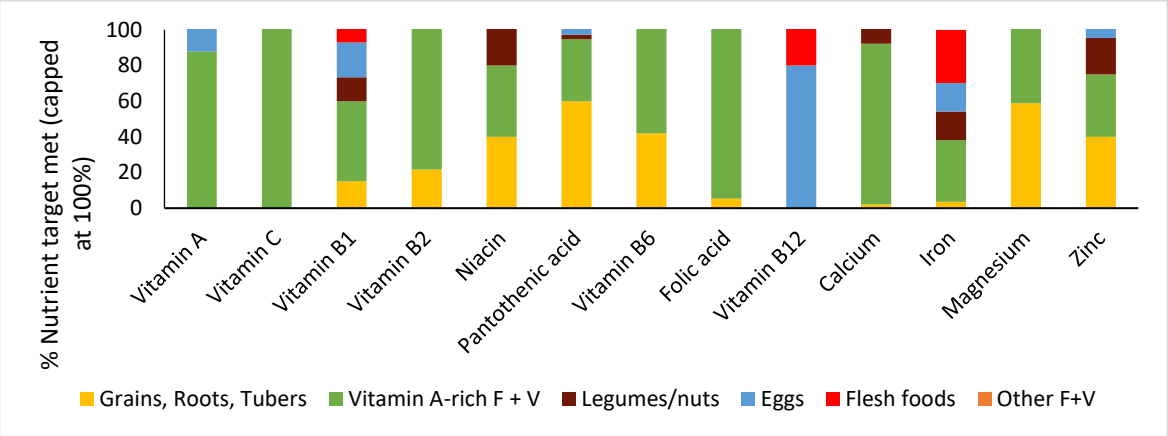


Figure 11: Cumulative percentage of micronutrient requirements7 met (capped at 100% RNI) by each additional food group for Adolescent Girls (Ermera) using the lowest-cost Nutritious Diet (CotD Analysis), in order of food group added



Determinants and challenges to dietary improvement

Much of the rich collection of research that has already been carried out in Timor-Leste has sought to identify factors that contribute to poor dietary attainment for IYC, women and girls. Reported determinants have included economic access to nutritious, diverse foods; physical access to markets and infrastructure and production and availability of nutritious foods; knowledge, preferences and behaviour (3–5,9,29,32).

This FNG analysis focuses on the extent to which the availability, prices of and economic access to, and use of foods determine the extent to which nutritious diets can be achieved. These factors are compounded by traditional gender roles and beliefs, which can in turn determine the level of priority given to nutrition and women's relative agency in making decisions about food purchases, production or use of foods purchased/from own production(4). While women are normally responsible for decision-making about family meals and household budgets, qualitative research findings suggest they would need to consult with male partners on decisions regarding the use of more valuable foods, such as animal-source foods(4,24). Further, while there are reports that many such decisions are 'shared', in practice women have limited agency and have been found to report that they would agree with their partner's views, giving the husband the final word, in order to avoid conflict or violence(4,24). It has also been reported that men or other male household members are often given preference during the distribution of more expensive nutritious foods such as eggs or meat within the household (4,5). These insights suggest that the solution to poor diets will extend beyond interventions targeting nutritious food access and demand and will need to acknowledge, do no harm to and address underlying gender and cultural factors.

Key Finding 3: Almost all Timorese households could afford to meet their energy needs. For most households, a nutritious diet that meets energy, protein and micronutrient needs would be unaffordable.

Cost and content of a nutritious diet

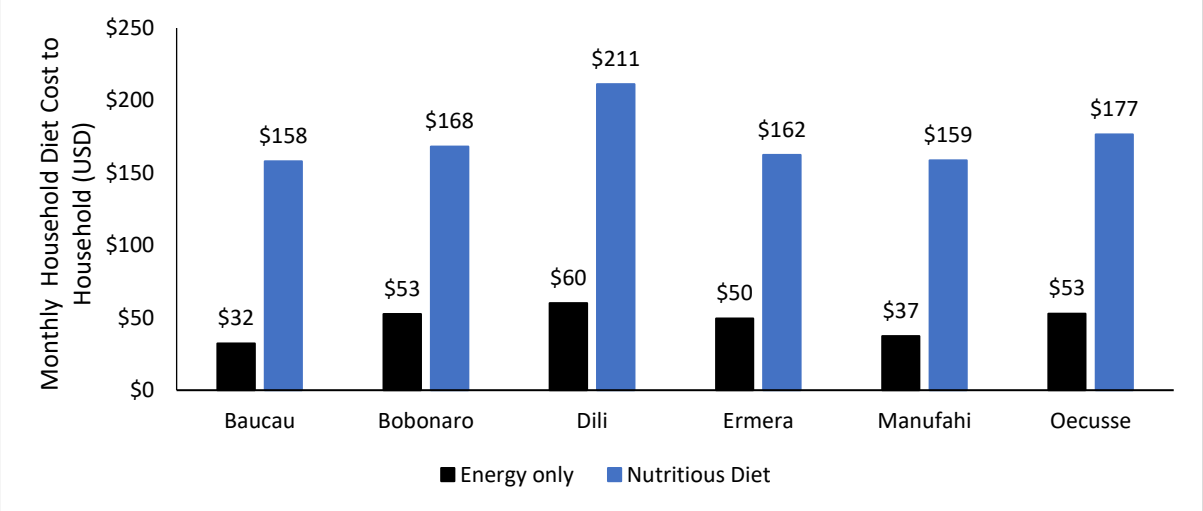
The market survey food price and availability data were used in the CotD software to identify the lowest cost food combinations that would meet nutrient needs for the model household in each of the six assessment municipalities.

Diets modelled to meet only energy requirements for a 5-person household[9] would cost from $32 per month in Baucau to $60 in Dili (figure 12). To meet these energy requirements, the CotD software selected the lowest-cost, energy-dense foods, such as starchy staples (rice, cassava, etc.) and oil. In contrast, providing a nutritious diet, that is, a diet meeting the requirements of energy, protein and 13 micronutrients, would cost an average of three times as much as energy only diets. A nutritious diet would cost between $158 per month in Baucau to $211 per month in Dili (figure 12).

The CotD nutritious diets are composed of foods found to be available from local markets in each municipality and include a minimum quantity of the local staple food/s. These diets are based on the lowest cost to meet the nutrient requirements of all five model household members(33). The nutritious diets however, do not necessarily represent what households are actually eating or would choose to eat. As such, the cost of a nutritious diet could be higher in reality, if dietary habits and preferences were considered. However, these diets are not designed to be used to develop food-based recommendations or dietary guidelines but are intended to act as an economic marker of nutrition access. For a complete description of the foods selected by the linear programming models to optimise nutrient content and cost in the nutritious diets in each municipality, as well as costs associated with including the food in each diet and nutrient provision from foods selected, see appendix tables 3-20.

For comparative purposes, market data was re-allocated to model diets according to broader geographic categorisation (Coastal - rural, Mountains -rural, Dili-urban, Urban-other). The results of this re-analysis are provided in Appendix tables 22-23.

*Figure 12: Cost of the lowest-cost diets that would meet requirements for 1) energy only and 2) energy, protein and 13 micronutrients (nutritious diet) for the model **5-person household**[8] in the six assessment municipalities*



[9] The model five-person household consists of a breastfeeding infant, a primary school-aged child, an adolescent girl, a lactating adult woman and an adult man.

Table 3: Limiting Nutrients[10] (average) by target group

Target Group	Vitamin B1	Vitamin B12	Calcium	Iron	Zinc
Infant 12-23 months	x	x	x	x	x
Adolescent Girl	x		x	x	
Lactating Adult Woman	x	x		x	

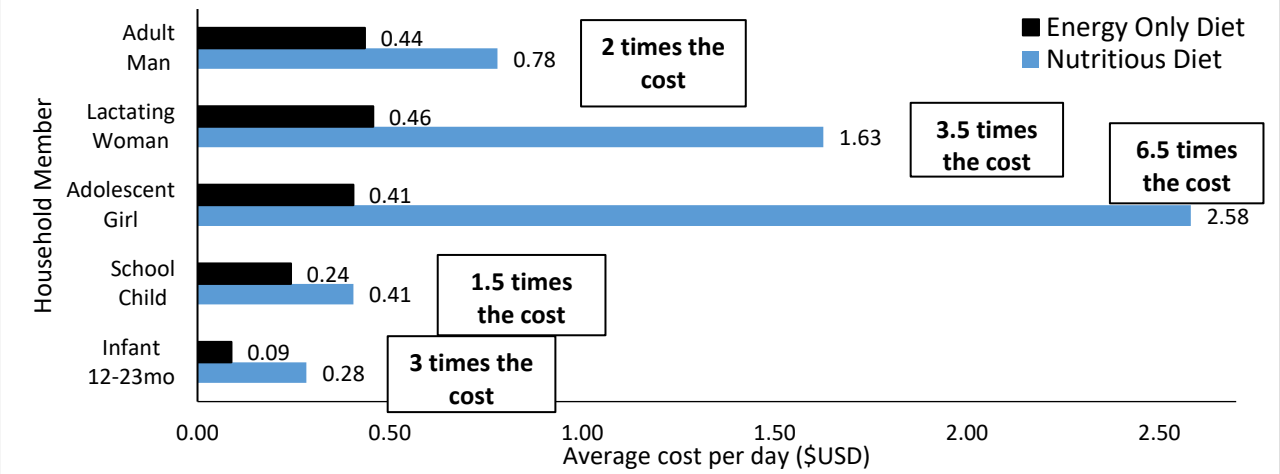
Limiting nutrients[10] were identified in the CotD analysis for each household member (Table 3 and appendix table 21). These results for key nutritionally-vulnerable target groups indicate that it may be difficult to meet requirements of Vitamins B1 and B12, calcium, iron and zinc using local foods in accessible quantities and that there may be a higher likelihood for IYC, adolescent girls and women to be deficient in these micronutrients. These limiting nutrients are all nutrients that are generally found in animal source foods, which are likely to be more expensive and less consumed than vegetable origin foods.

How diet costs are determined

The cost of a nutritious diet is determined by the nutrient requirements for each household member, the number and diversity of foods available in each municipality and food costs. Figure 13 shows the average costs per household member of the energy only and nutritious diets across the six assessment municipalities. While meeting the macro- and micronutrient requirements cost twice as much as an energy-only diet for an adult man, this cost was 3 times as much for the infant, 3.5 times as much for the lactating mother and 6.5 times as much for the adolescent girl. These large increases in diet cost represent not only the difference in the costs of foods that provide calories only (such as staple foods and oil) and foods that provide a range of nutrients (such as animal-source foods, legumes and vegetables) but the significant nutrient requirements of particular target groups during special periods of growth and development.

[10] Limiting nutrients in the CotD analysis are defined as nutrients for which requirements would be difficult to meet for all or some household members using locally available foods without exceeding the energy threshold.

Figure 13: Daily cost of the energy-only and nutritious diets per household member (average across municipalities)



During the complementary feeding period (6-23 months), infants and young children have significant requirements for particular micronutrients but, given their limited gastric capacity, must achieve these nutrient targets using small quantities of nutrient-dense foods(34,35). As shown in table 4, even though in terms of total amount per day, the iron requirements of an adult man are higher than for IYC, the required nutrient density, (micronutrient requirement per 1000kcal) is more than twice as high as an adult man for 12-23-month-old and 7.4 times as high for 6-11 month-old. Similarly, required iron nutrient densities for lactating women and adolescent girls are almost three times as high as those of an adult man.

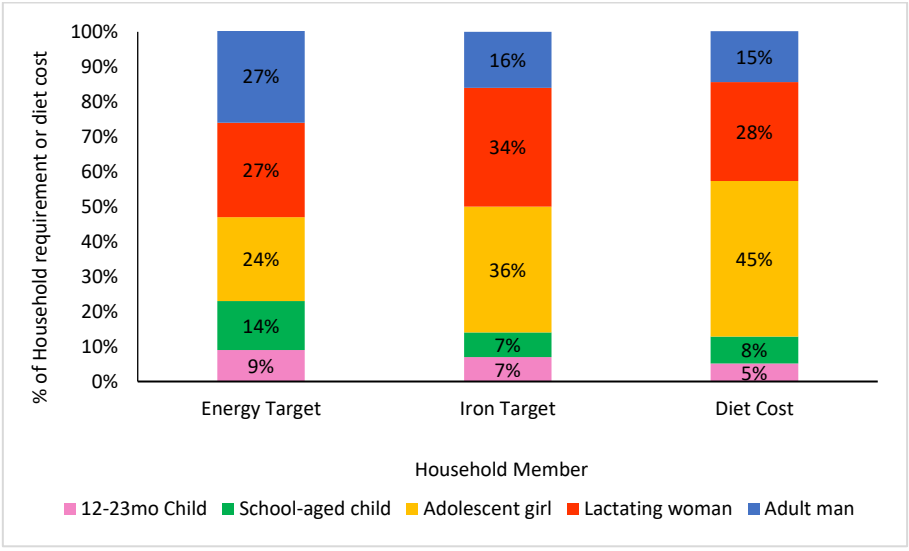
Table 4: Required nutrient density per target group as per FAO/WHO/UNU estimations (36,37)

Target Group	Daily Kcal Requirement	Daily *absorbed* iron Requirement	*Absorbed* iron requirement per 1000 kcal
Adult man	2,420 kcal	1.2mg	0.5mg
Lactating woman	2,370 kcal	3.0mg	1.3mg
Adolescent girl	2,170 kcal	2.8mg	1.3mg
School-aged child	1,500 kcal	0.6mg	0.4mg
12-23mo Child	555 kcal	0.6mg	1.1mg
6-11 mo Child	242 kcal	0.9mg	3.7mg

The disparity between energy and micronutrient requirements are again illustrated in the CotD results shown in figure 14. The first column shows the percentage of the household energy target (10366Kcal/day) required to meet the estimated energy needs of each household member. When looking at energy needs only, the energy needs of an adult man make up more than a quarter of the total household energy target (27%). However, micronutrient requirements differ greatly from energy needs and when distributed across the household; using iron requirements as an example, the adult man's target makes up only 16% of the household total compared to 34% for the lactating woman and 36% for the adolescent girl. The last column of figure 14 shows the proportion of total household nutritious diet cost made up by the cost of meeting the nutrient requirements of each household

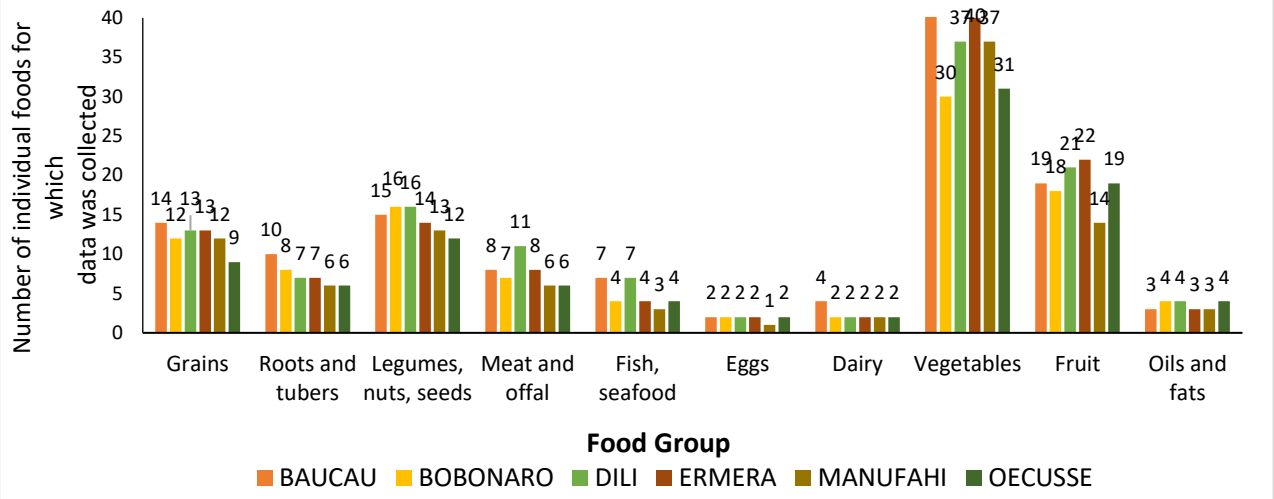
member. It becomes apparent considering this graph that the distribution of diet costs is much more closely aligned with micronutrient requirements than energy needs.

Figure 14: Percentage of household energy target and iron target formed by individual household-member requirements and nutritious diet cost per household member



In addition to household nutrient requirements, the cost of a nutritious diet is also determined by the availability of nutritious foods in each assessment area. In total, data was collected for 130 discrete foods in Baucau, 105 in Bobonaro, 124 in Dili, 118 in Ermera, 100 in Manufahi and 98 in Oecusse. These figures are disaggregated by food group in figure 15. The foods groups for which most different foods were found in markets were staple foods (grains, roots and tubers), legumes, nuts and seeds, vegetables and fruit. Data was collected for an average of 19 staple foods, 14 legumes, nuts or seeds and 14 animal source foods, not including dairy. Much of the meat, fish and seafood available was dried and only live chickens or pigs were available in many markets as opposed to fresh meat. The only dairy products observed were canned, powdered milk or condensed milk, except in Baucau. An average of 36 different vegetables were found in markets, many of which were green leaves such as spinach, cassava leaves, kangkong and papaya leaves. Likewise, a diversity of different fruits, on average 19 types, were observed.

Figure 15: Number of individual foods per food CotD group found to be available in each assessment municipality for which food price data was collected



The final factor determining the cost of a nutritious diet is the price of nutritious foods available at local markets. Figure 16 displays the average cost per 100g of foods from each food group per municipality. This graph clearly shows that the most expensive foods in all municipalities were those from the different animal-source food groups. Figure 16 also highlights key differences in food prices between municipalities. Of particular note is the higher prices for foods from almost all food groups in Dili as well as Baucau and Oecusse for many food groups.

A helpful way of understanding food prices and how they influence the cost of modelled diets is to compare quantity price with kilocalorie price. Figure 17 contrasts the average price per 100g of each food group across the 6 municipalities with the average price per 100 kilocalories. This comparison reveals that the cheapest foods per calorie are energy-dense and micronutrient poor foods such as staple grains, roots and tubers and fats and oils. For these examples, the price reduces when kilocalories, not weight, are considered. In sharp contrast are the prices of micronutrient-rich vegetables and fruit where prices increase when kilocalories are considered. While these foods are good sources of many essential vitamins and minerals, they are much less energy-dense than other plant-based foods. This to some extent may explain diet choices made by some households who select cheaper foods that the know will 'fill' their family's stomachs, even though they are not rich in micronutrients.

Figure 16: Average cost per 100g of foods from each food group for which price data was collected per municipality

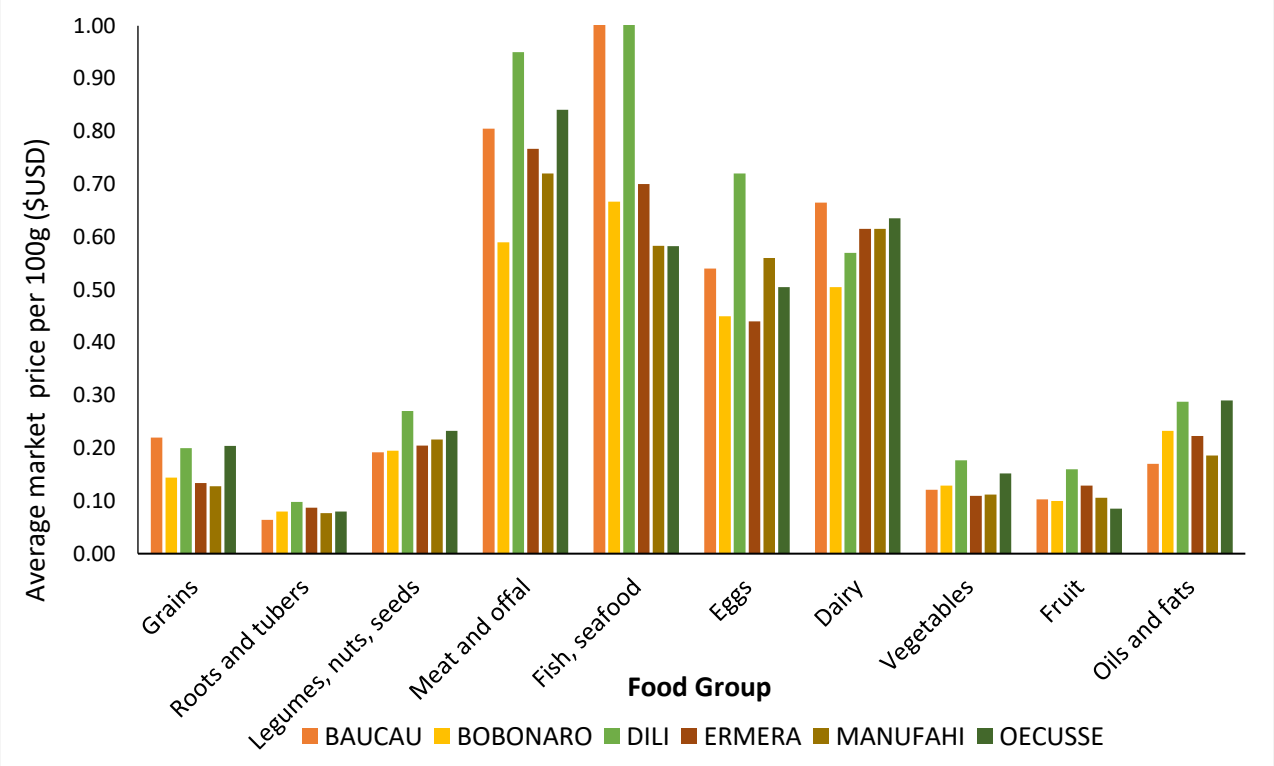
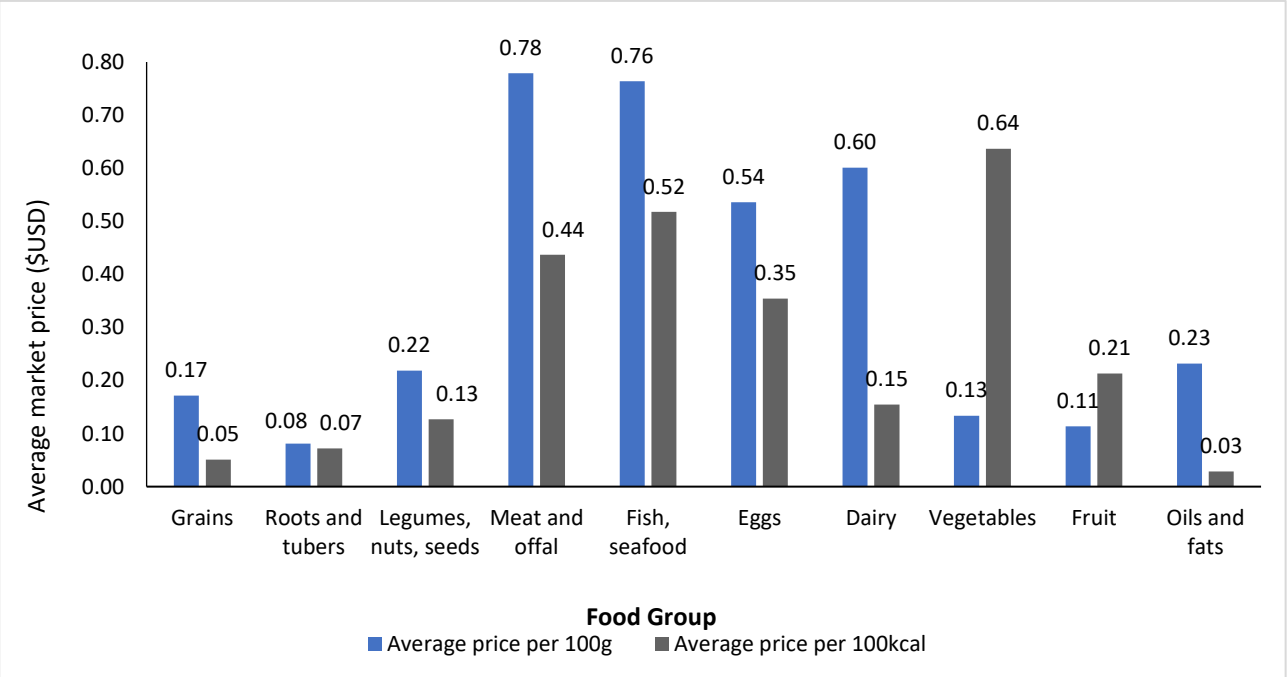


Figure 17: Average price per 100g per food group and per 100kcal per food group (all 6 municipalities)



The consideration of these three elements that determine the cost of a nutritious diet; nutrient requirements, food availability and diversity and food prices, help to explain the diet costs presented in figure 12. For example, in the municipality of Baucau, average prices per food group were higher than in other municipalities (figure 16) yet the cost of a nutritious diet was the lowest out of all

municipalities at $158 per month for a household of five people. This is likely due to the diversity of foods that were available in this municipality, especially in nutrient-rich food groups such as vegetables and fish and seafood. This increased diversity means that the linear programming models in CotD have a greater selection of foods to choose from when optimising the nutritious diet at the lowest cost. In contrast, food prices were lower on average in Bobonaro compared to Baucau, however poorer availability of nutritious foods at local markets visited is most likely the reason for a more expensive nutritious diet ($168 per month). Dili municipality also had a high diversity of available foods, yet the food prices were significantly higher than other municipalities, leading to the most expensive nutritious diet at $211 per month. Lastly, the market survey in Oecusse SAR resulted in the lowest number of foods but high prices for some food groups, leading to the second-highest nutritious diet at $177 per month per household. The next step in the FNG methodology is to compare these household diet prices to estimated household food budgets (expenditure data), to determine whether they would be affordable.

Comparison with the TL-SLS food poverty line

It is important to note that the estimation of the cost of a nutritious diet estimated by the CotD analysis for the FNG uses different methods to those used to estimate food poverty within the TL-SLS (6). As shown in the following table, the food poverty line considers a 'typical local food basket' that is modelled to meet 2,100 kcal per person – for a standard household. The CotD methods differ. For the energy-only diet, the typical local food basket is not considered, and the energy needs of five unique groups are used rather than a standard goal of 2,100kcal, as such, this diet is cheaper than the poverty line. For the Nutritious Diet, the typical local food basket is only considered to the extent that local staple foods are included in the diet, otherwise the diet is modelled to meet the energy, as well as protein and micronutrient requirements of five household members that are nutritionally vulnerable, meaning they may have higher micronutrient requirements than the national average. As such, this diet is more expensive. In both cases, diets are more expensive in Dili, reflecting the higher on average food prices in the nation's capital and urban areas(6).

Table 5: Comparison of the energy-only diet (CotD), Food Poverty Basket (TL-SLS) and Nutritious Diet (CotD) methods and costs

	FNG/CotD Energy-Only Diet	TL-SLS Food Poverty Basket	FNG/CotD Nutritious Diet
Methods for estimating cost	The cost of a food basket modelled to meet estimated energy needs, not based on consumption habits, for each of the five model household members, selected to represent nutritionally vulnerable population members (for whom requirements differ greatly)	The cost of the typical local food basket, based on local consumption habits, that yields a nutrient value of 2,100 calories per person(6)	The cost of a food basket modelled to meet estimated energy needs and requirements for protein and 13 micronutrients for each of the five model household members, considering local staple food consumption, selected to represent nutritionally vulnerable population members (for whom requirements differ greatly)

Monthly per Capita Cost	N/A Instead estimated for individual nutritionally vulnerable household members (national average) Infant 12-23mo: **$2.68** Primary School Child: **$7.40** Adolescent Girl: **$12.31** Lactating woman: **$13.88** Adult Man: **$13.22**	**$25.00**	N/A Instead estimated for individual nutritionally vulnerable household members (national average) Infant 12-23mo: **$8.613** Primary School Child: **$12.31** Adolescent Girl: **$78.48** Lactating woman: **$49.45** Adult Man: **$23.71**
Monthly Household Cost (5 person Household)	**$49.45**	**$125.00[11] (adjusted for a five-person household)**	**$172.60**
Monthly DILI Only Household Cost (5 person Household)	**$60.19 (Dili only)**	**$166.00[12] (Dili Only)**	**$211.30 (Dili Only)**

Affordability of a **nutritious** diet

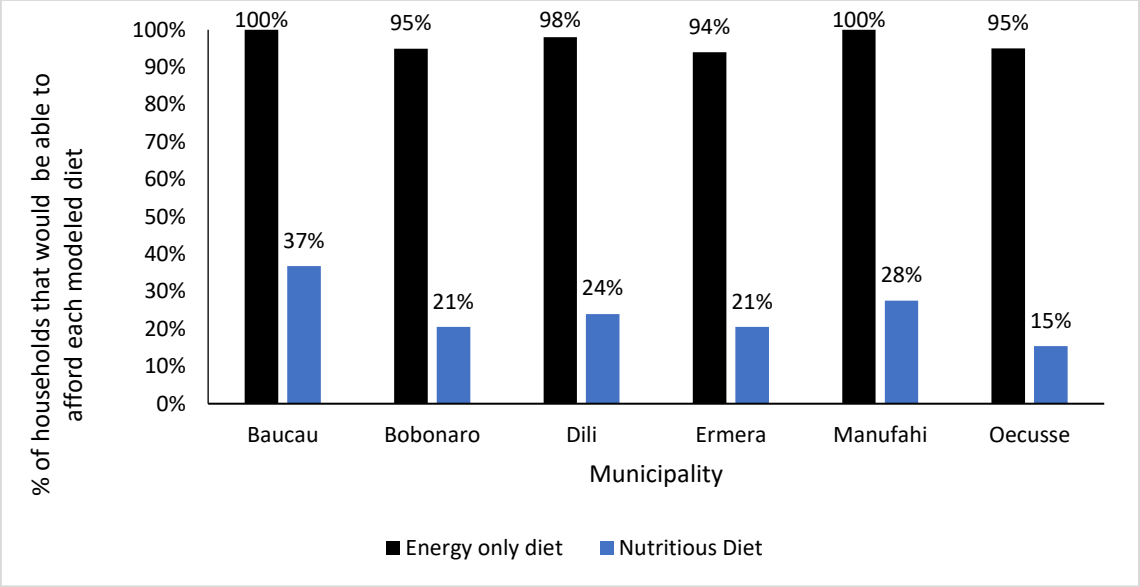
The energy-only diet would be affordable for the majority of households in the assessment municipalities. The costs of the energy-only diets were compared to inflation-adjusted food expenditure percentiles from the 2014-15 TL-SLS, as shown in the Oecusse example in figure 19 (please see appendix tables 24-29 for figures from other municipalities). This energy-only diet would cost less than the estimated food expenditure of (and thus be affordable for) 98% of households in Dili, 95% in Bobonaro, 94% in Ermera and 95% in Oecusse (figure 18). In Baucau and Manufahi, the energy-only diet did not cost more than the food expenditure of any households in the TSLS-SLS, indicating that it would be affordable to meet energy requirements for all households in these municipalities.

In contrast to the energy-only diet, the nutritious diet would be unaffordable for the majority of households across the six assessment municipalities. The nutritious diet, modelled to meet the energy needs and requirements for protein and 13 micronutrients for a five-person household, would cost more than estimated food expenditure of most households and thus only be affordable for 37% of households in Baucau, 24% in Dili, 28% in Manufahi, 21% in Bobonaro and Ermera, and 15% in Oecusse.

[11] If adjusted for average 2019 inflation for Food and Non-Alcoholic Beverages, this cost would increase to approximately $126 per month

[12] If adjusted for average 2019 inflation for Food and Non-Alcoholic Beverages, this cost would increase to approximately $167.2 per month

Figure 18: Percentage of households that would be able to afford the energy-only or nutritious diet, estimated by comparing diet cost to adjusted household food expenditure from the TSLS-SLS



The affordability of the CotD diets in the FNG is dependent on two different factors; the estimated cost of a nutritious diet and the purchasing power of households within a geographic area. As shown in figure 12, a nutritious household diet in Dili cost almost 1.5 times as much as a nutritious diet in Oecusse. Nonetheless, the estimated percentage of households that would be able to afford a nutritious diet was lower in Oecusse than in Dili. This is due to difference in the distribution of household food expenditure data for each municipality and indicates that while food may be more expensive in Dili, local households have higher purchasing power and thus a greater proportion would be able to afford the nutritious diet. Figures 20 and 21 display the distribution of estimated monthly household food expenditures by municipality. As shown in both graphs, more households in Dili were estimated to be spending >$150 per month on food using the 2014-2015 TL-SLS data(6). Also, as shown in figure 20, given the relatively flat expenditure curve for the 6 assessment curves, small changes to diet costs could have significant implications for diet affordability. Figure 22 also compares the mean and median estimated household food expenditure with the energy-only and nutritious diet costs per month, showing again that the energy-only diet would be affordable for most in the population, but the nutritious diet would cost more than what most households currently spend on food.

A consideration not documented here is the level of access that households have to markets in each municipality. The CotD analysis assumes that households would be able to access local markets in order to purchase nutritious diets. Further factors that not able to be considered in the CotD are any costs associated with transport to markets and fuel for cooking foods. Given that market access, transport and fuel costs/needs will likely differ within municipalities, the true cost of and level of access to nutritious diets may be worse than the estimates presented here in reality.

*Figure 19: Comparison of the distribution of monthly food expenditure for a five-person household in **Oecusse** with the estimated costs of an **energy-only diet** and a **nutritious diet** and use of intersecting points to determine proportion of households that could afford either diet*

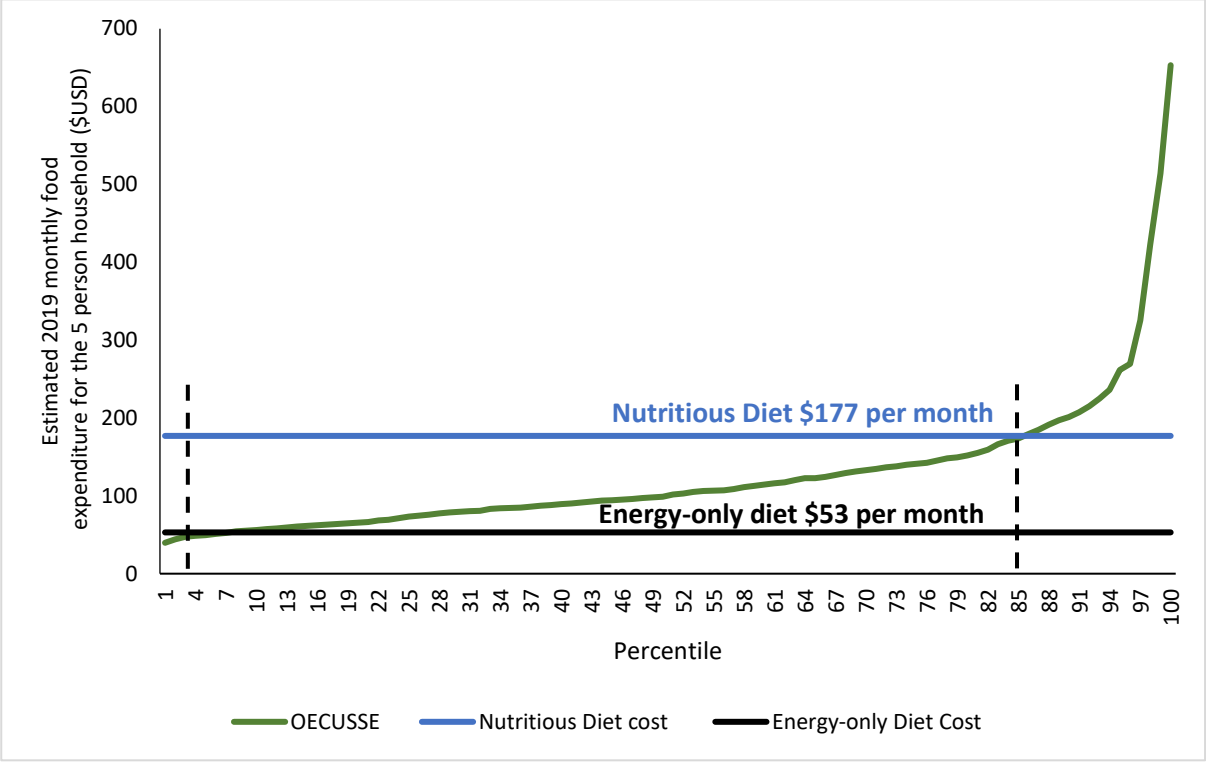


Figure 20: Percentiles of monthly food expenditure for a five-person household from the 2014-2015 TL-SLS, adjusted to reflect inflation from 2014-2019(6,7)

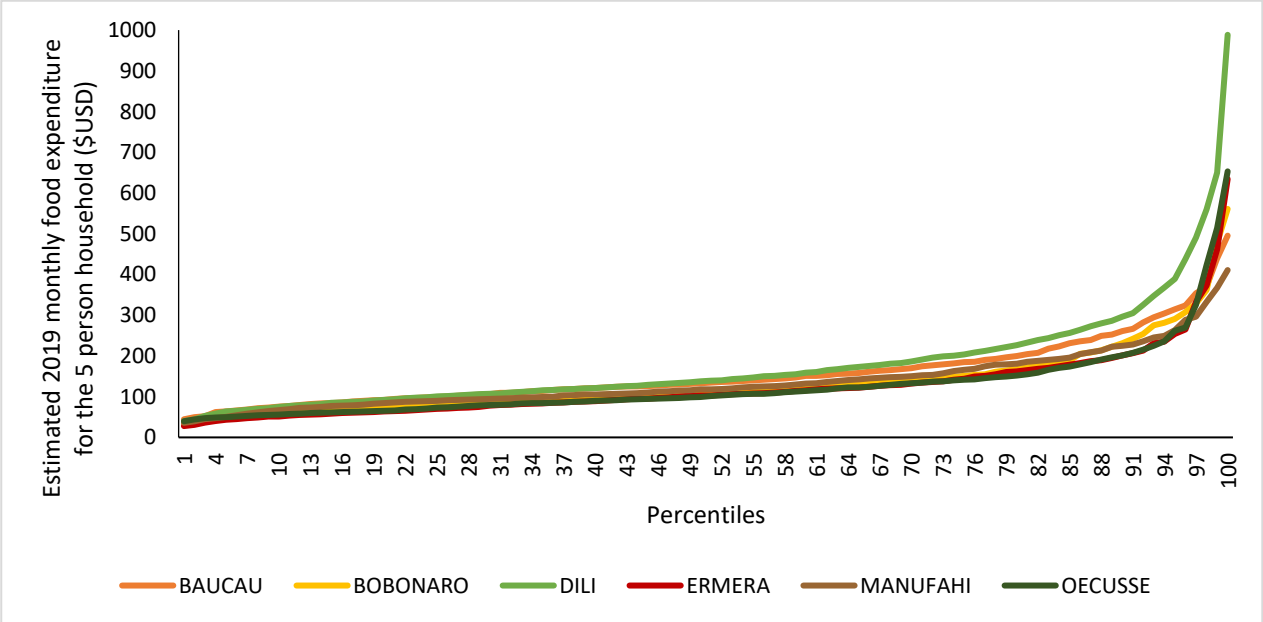


Figure 21: Distribution of estimated monthly food expenditure for five-person households from the 2014-2015 TL-SLS, adjusted to reflect inflation from 2014-2019(6,7)

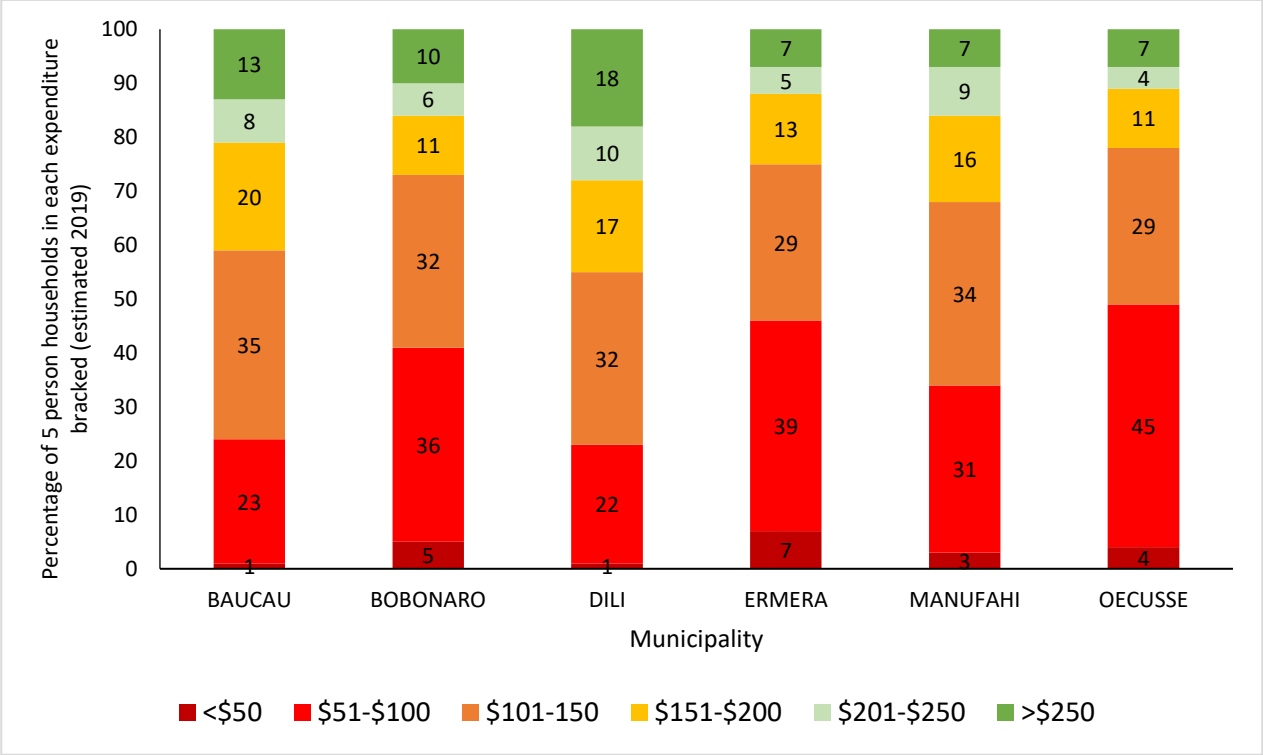
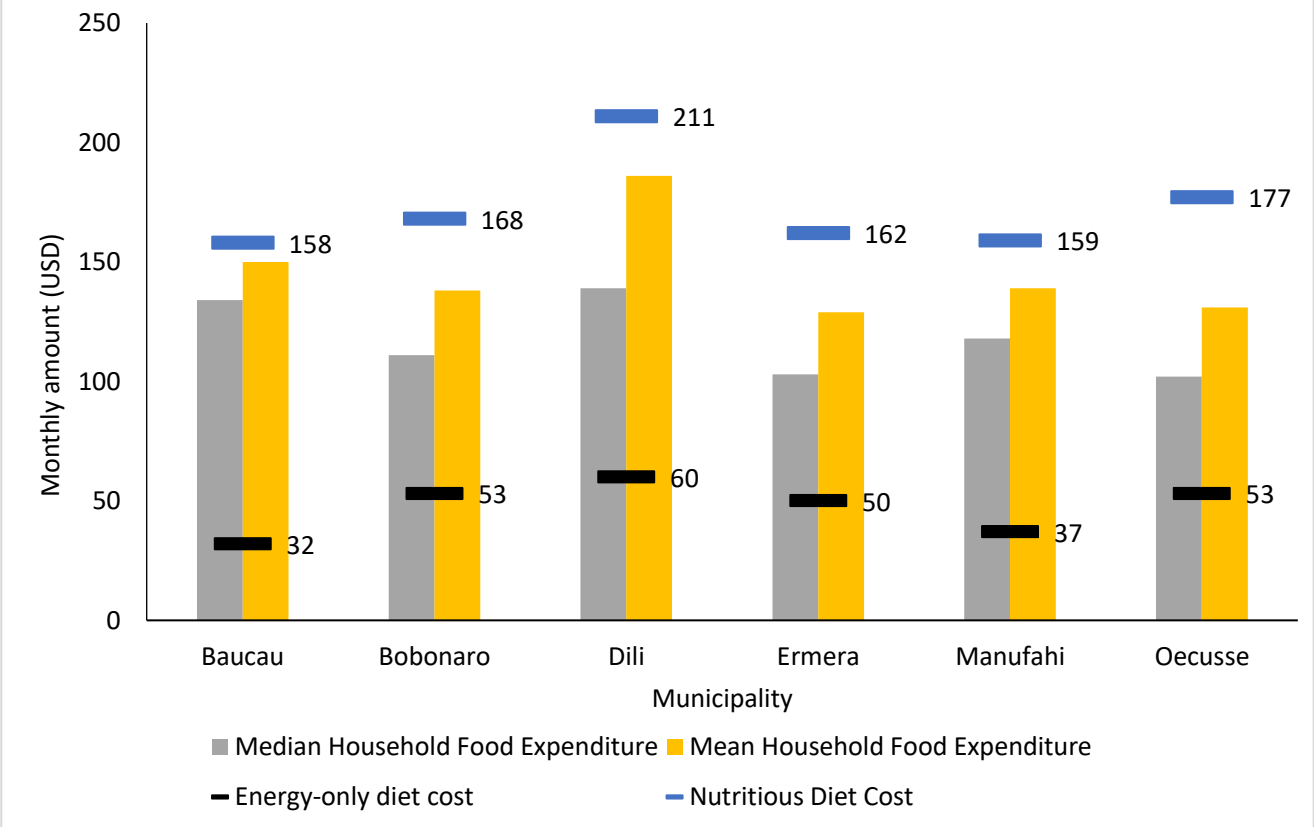


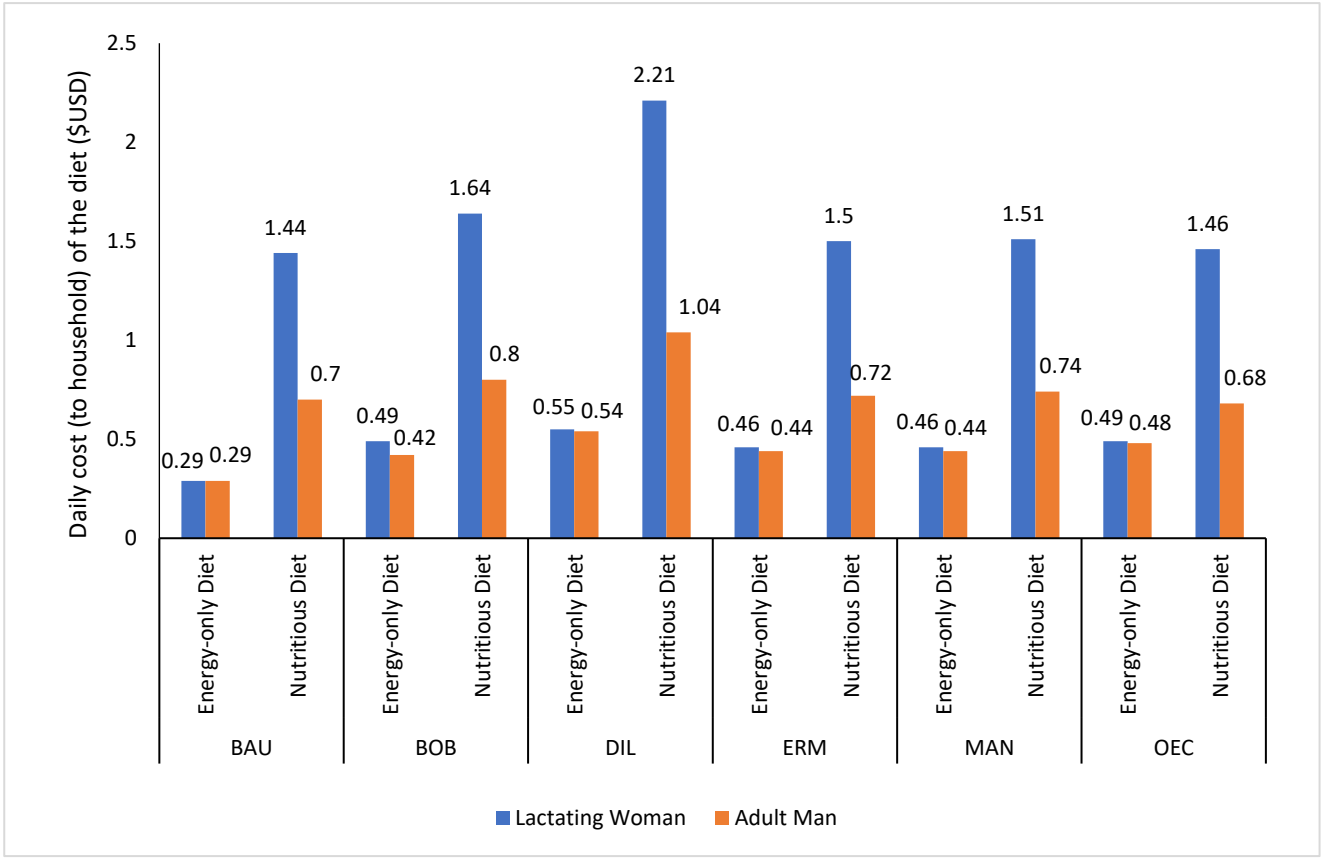
Figure 22: Comparison of the mean and median estimated monthly household food expenditure for 2019 using TL-SLS data and the cost of the energy-only and nutritious diets in each municipality



Key Finding 4: Women are particularly impacted by poor nutrition. This both negatively affects their and their families' health, wellbeing and future potential.

Women, especially pregnant and lactating women, have exceptionally poor diets and are at particular risk of malnutrition in Timor-Leste. Figure 23 shows that while the cost of meeting energy needs for lactating women is similar if not the same as that of an adult man across all municipalities, the cost of a nutritious diet is more than twice as much for the woman in most assessment locations. These differentials in diet costs represent the significant nutrient needs of women, in comparison to other household members. Given these high nutrient requirements, women are at much greater risk of malnutrition than men and other household members.

Figure 23: Comparison of the daily cost (to households) of a modelled energy-only diet and a modelled nutritious diet for Lactating Women and Adult Men by municipality



Data on nutritional status of men and women are suggestive of a serious gender gap in the experience of malnutrition in Timor-Leste. Women across the country are more likely than men to suffer from micronutrient deficiencies(38). In 2016, women of reproductive age (WRA) were almost twice as likely to be anaemic as adult men (figure 24) (30). Even though the prevalence was is still low when compared to that of other countries in the region, it was also particularly of note that women were almost twice as likely as men to be obese or overweight (figure 25)(30). Whilst different in manifestation and consequences, both of these conditions are indicators of malnutrition in all its forms and their direct causes include poor diets. As such, improving access to nutritious diets,

especially for the nutritionally vulnerable women target groups, would help in preventing both over- and under-nutrition and micronutrient deficiencies.

*Figure 24: Prevalence of **Anaemia** for **adult men and women** (non-pregnant, non-lactating) by municipality as per the 2016 DHS[13]* (30)

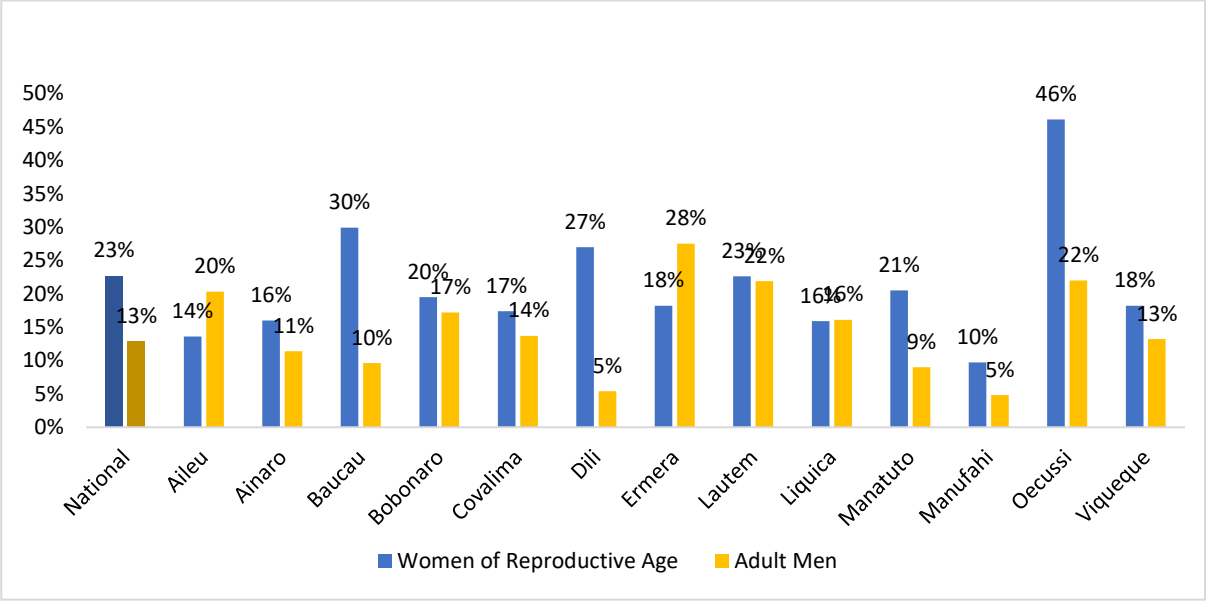
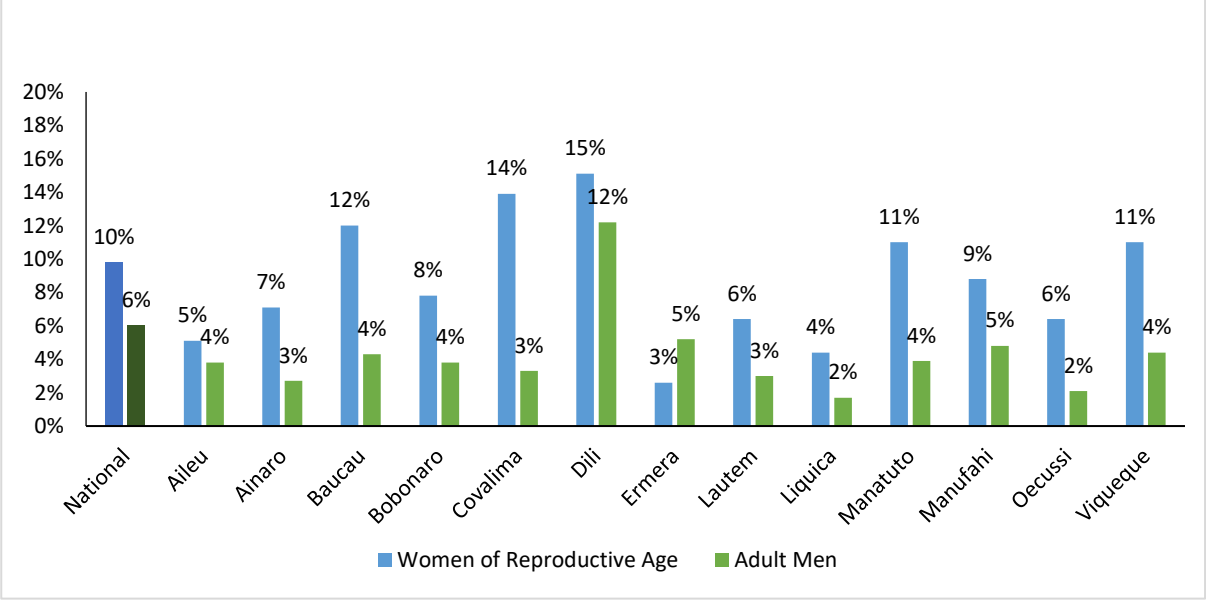


*Figure 25: Prevalence of **Overweight and Obesity** for **adult men and women** (non-pregnant, non-lactating) by municipality as per the 2016 DHS* (30)

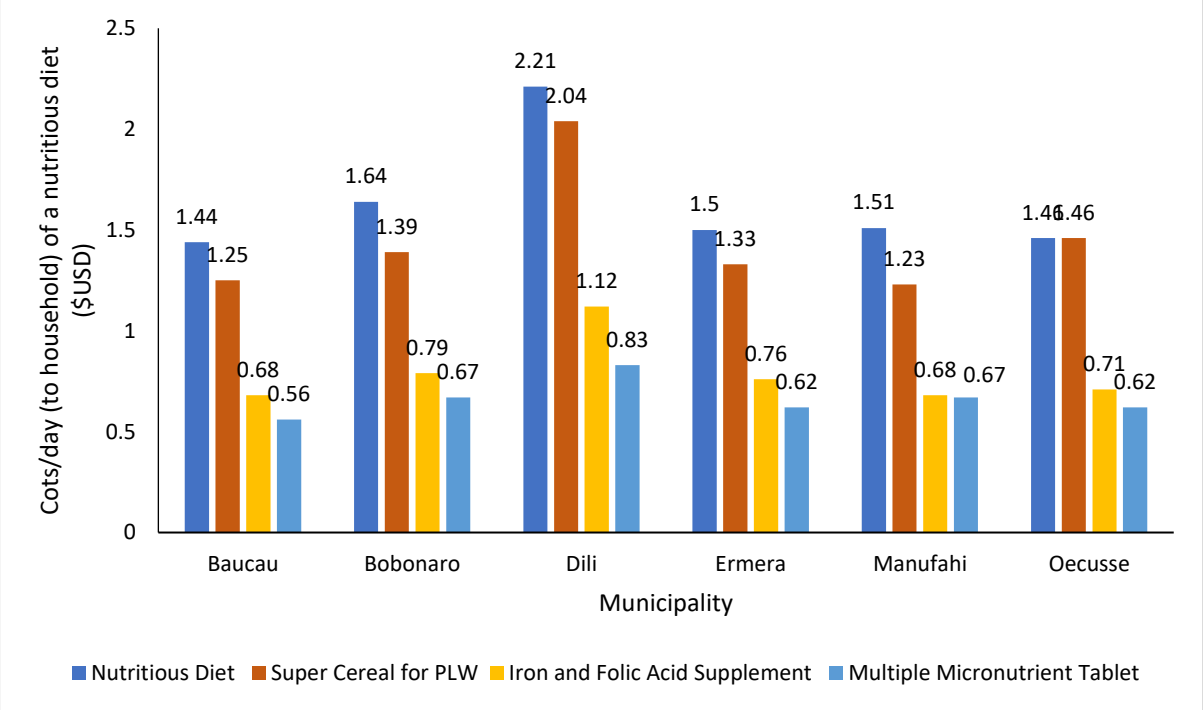


Poor Nutrition has impacts for the health of future generations but also, immediately, women's own health and wellbeing, caring capacity and economic potential. For example, a longitudinal research

[13] While it is acknowledged that there are some data quality concerns regarding the anthropometric data in the 2016 Timor-Leste Demographic and Health Survey (DHS), this does not mitigate the severity of the situation in any way; Timor-Leste is severely affected by poor nutrition, and malnutrition remains a serious concern for public health and the social and economic development of the country.

project in the country found that maternal height was a strong predictor of child malnutrition status(39). These findings suggest that mothers who are well-nourished themselves are more likely to raise well-nourished children. This also reinforces the need to focus on the nutrition of children, girls and women throughout the lifecycle and beyond the first 1000 days spanning pregnancy through to two years of age(39).

*Figure 26: Preliminary results of modelling the impact in CotD of providing alternative nutrition interventions on the cost of a nutritious diet for **lactating adult women** across the 6 assessment municipalities*



Nutrition-specific interventions prioritised by KONSSANTIL and other partners in key policy documents include the provision of micronutrient supplementation and specialised nutritious food for women. Super Cereal for PLW, a fortified cereal blend and two alternative micronutrient supplements; iron and folic acid (IFA) and multiple micronutrient tablets (MMT), were modelled for lactating women as per WFP and UNICEF technical standards (40,41). Lactating women were selected as a target group to represent pregnant women and NPNL women given their significant nutrient requirements during this life stage. Figure 26 displays the preliminary results of this intervention modelling. Providing Super Cereal for PLW (150g at zero cost to the household per day) reduced the cost of providing a nutritious diet for a woman by an average of 12% (0-19%), depending on the municipality. This suggests that providing a special fortified food may be more useful in some municipalities than others. In contrast supplements reduced the cost of a nutritious diet for women by more than half in all municipalities. That is, the cost to the household of providing a diet that would meet energy, protein and micronutrient requirements would be reduced if a supplement was included as per recommended dosage. In all municipalities, MMT supplement providing multiple micronutrients[14] would have a greater impact on reducing diet cost than iron and folic acid[15] only. Given the high initial cost of nutritious diets for women, interventions that would reduce this cost

[14] The MMT contains Vit A, Retinol (800 RE), vit D (200 IU), vit E (10 mg), vit C (70 mg), vit B1 (1.4 mg), vit B2 (1.4 mg), vit B6 (1.9 mg), vit B12 (2.6 mcg), folic acid (400 mcg), niacin (18 mg), zinc (15 mg), copper (2 mg), iron (30 mg), iodine (150 mcg) and selenium (65 mcg) (40)(67).

[15] The IFA contains folic acid (400 mcg) and iron (30 mg) (40,67).

could assist families greatly in affordably meeting their nutrient needs. Supplements could be provided in addition to nutrition-sensitive interventions targeting the household as a whole, such as agriculture or social-protection strategies. The combined impact of providing such intervention packages is detailed at the end in this report.

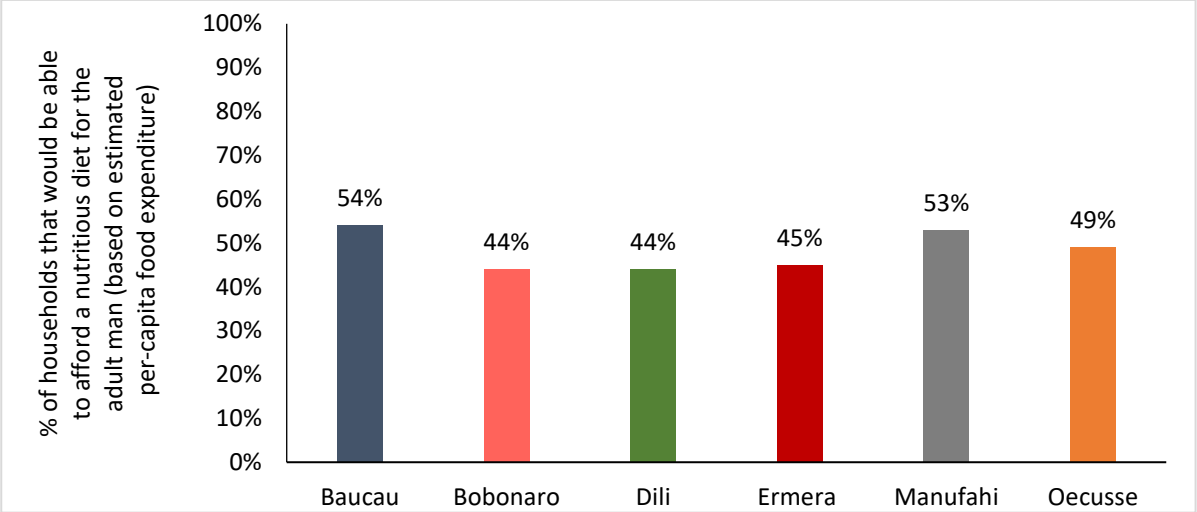
When considering factors influencing and possible interventions to address malnutrition for women, it is important to consider that biological nutritional differences can also be exacerbated due to gender factors that determine dietary practices, intra-household food allocation, food purchase and use and control over assets (42). Such factors in Timor-Leste could include fertility rate and access to family planning methods, age at first pregnancy, *Barlaki* or Bride Price, women's empowerment, gender-based violence and socio-cultural values regarding women's nutrition (42–44). In addition to prioritising evidence-based interventions to address malnutrition in Timor-Leste, there is a need for Gender-Sensitive programming that considers inequalities and more complex structures that may influence nutrition in the country.

Malnutrition and access to nutritious diets for men

It is important to note that by focussing key messages from the FNG findings on women, girls, school children and IYC and highlighting that intra-household food distribution may need to favour these groups, it could be assumed that the nutrition needs of men are being met. Unfortunately, in Timor-Leste this is not the case. As shown in the DHS results above, 13% of men in the country were anaemic in 2016 (30). Further, a quarter of men were found to be underweight and 6% obese or overweight (30). All these issues are contributed to by poor diets, suggesting that even men are not consuming adequate amounts of nutrients in the country.

While the cost of nutritious diets for men displayed in figure 23 appear low in comparison to those of women, these costs are still high in relation to the costs of meeting energy needs only and incomes in Timor-Leste. Figure 27 displays the affordability of the diets of adult men only, comparing the nutritious diet costs from figure 23 to per-capita food expenditure from the TL-SLS (6). While only an estimate, this figure reflects that nutritious diets for men would be affordable for less than half of the population. As such, while programming to target individual household members shown in messages 4-7 of this report is important, these should be provided alongside household-level interventions that can impact diet access for all members of a family, as shown in the key messages on agriculture, fortification and social protection.

Figure 27: Affordability of nutritious diets for adult men (diet cost compared to per-capita food expenditure) by municipality.



Key Finding 5: Improving the nutrition of infants and young children would require small investments in the short term that could deliver lasting returns over generations.

The average cost of a nutritious diet for IYC under two years of $0.30 per day is relatively low when compared with the diet costs of other household members. However, as shown in figure 28, providing a nutritious for this target group would still cost between 2.5 and 4 times as much as a diet that met energy needs only. Further, in this scenario the CotD software assumes that the child is receiving breastmilk in recommended quantities. If children are not breastfeeding or not receiving adequate amounts of breastmilk, the cost to the household of providing a nutritious diet would be higher.

Even though providing an adequate diet for their infant could cost a household as little as $0.22 per day or $6.70 per month (Oecusse), the prioritisation of food spending and time use for complementary feeding may not be feasible or acceptable for families. Apart from uneven distribution of animal-source foods, household members tend to eat similar diets (2,4,5,20). As such, providing different, more nutritious foods to infants would represent a change from existing practices. Instead of expecting families to change food spending and preparation for one household member only, interventions aimed at giving access to nutritious foods for everyone in the household could both be more realistic and have wider benefits.

Figure 28: Daily cost of the energy-only and Nutritious Diets modelled in CotD for 12-23mo Children

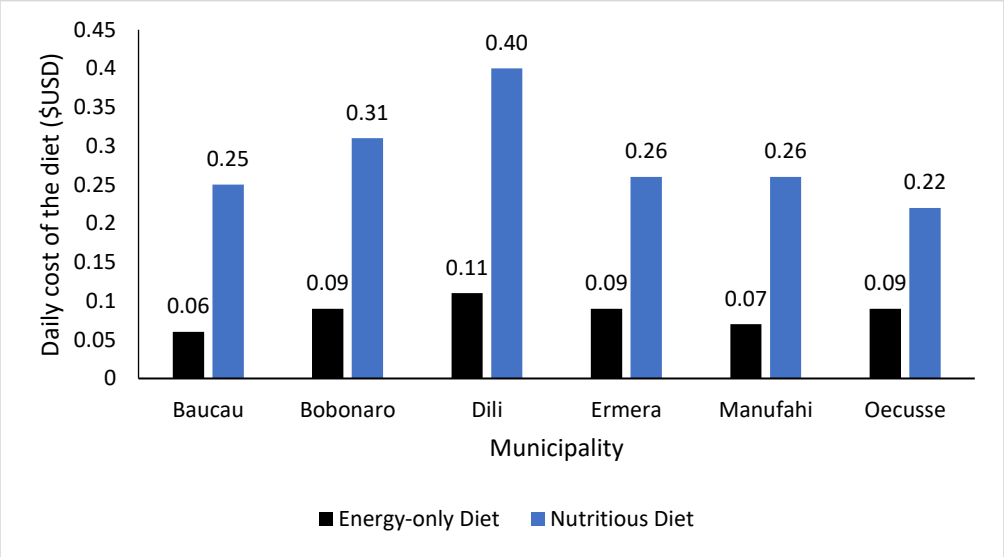
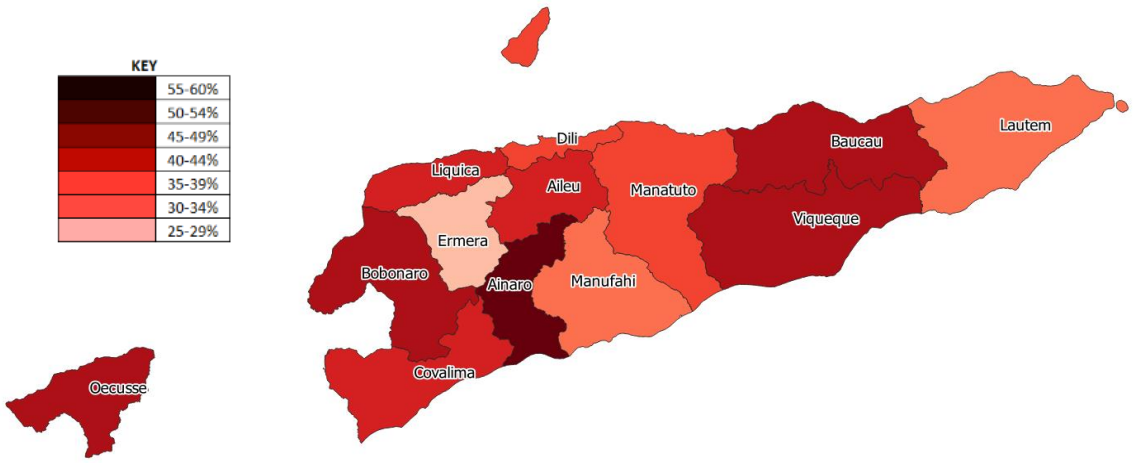


Figure 29: Stunting prevalence as per the 2016 DHS, by municipality (30)

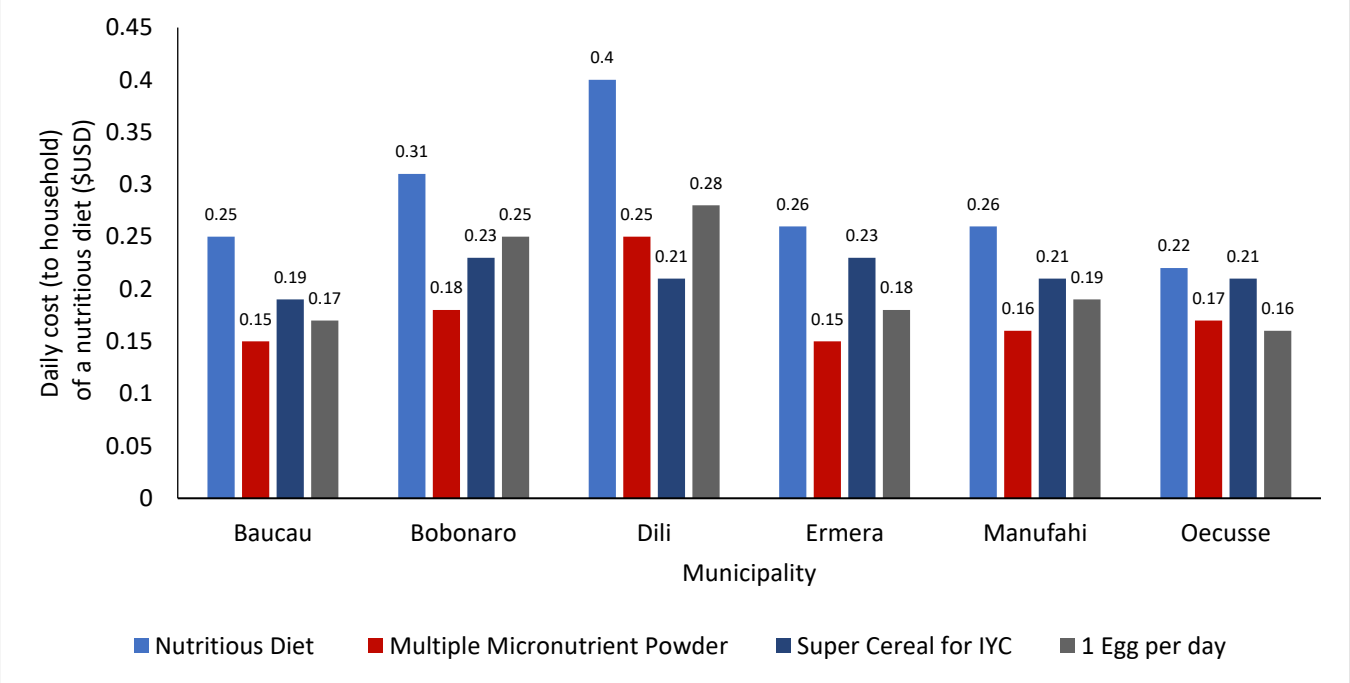


This likely difficulty in prioritising nutrient intake of IYC to improve diet is reflected in the evidence of poor dietary quality for IYC and subsequent poor nutritional outcomes. As per the 2019 IPC only 13% of IYC aged 6-23 months nationally were receiving a Minimum Acceptable diet, indicating that both dietary diversity and feeding frequency are suboptimal across the country (3). As per the most recent DHS, around 46% of children under five years have low height for age[16], an indicator of chronic malnutrition or stunting and 40% are anaemic, an indicator of micronutrient deficiency(3,30). This prevalence of malnutrition is experienced differently across the country, as per figure 29.

[16] While it is acknowledged that there are some data quality concerns regarding the anthropometric data in the 2016 Timor-Leste Demographic and Health Survey (DHS), this does not mitigate the severity of the situation in any way; Timor-Leste is severely affected by poor nutrition, and malnutrition remains a serious concern for public health and the social and economic development of the country.

A number of nutrition-specific interventions targeting only IYC have been prioritised in national policy and partner programmes. These include micronutrient supplementation[17] and provision of nutritious fortified foods and local nutritious foods. The preliminary results of intervention modelling for this target group are displayed in figure 30. Providing multiple micronutrients powder (MNP), did significantly reduce the cost of meeting nutrient requirements for households by an average of almost 40%. Another intervention was the provision of a fortified cereal (Supercereal Plus for IYC) (60g at zero cost to the household per day) which reduced the cost of providing a nutritious diet by 5% in Oecusse up to 25% in Bobonaro. This difference reflects the diversity of food availability in each municipality as well as limiting nutrients. While the provision of a fortified cereal may be effective at reducing diet costs however, the costs associated with implementing such an intervention would require consideration. Similarly, the last specialised intervention modelled, that of providing eggs for young children daily, which has recently garnered local and international interest(45), could reduce diet costs by more than 25%, with strongest impacts in Baucau and Ermera. However, once again the feasibility and cost of providing such an intervention at scale would require consideration.

Figure 30: Daily cost (to household) of providing a nutritious diet for 12-23mo IYC, incorporating supplementation and transfers of nutritious foods



Key Finding 6: Programa Merenda Eskolar provides a valuable entry point to improve nutrition in children, but menus need to be diverse and include micronutrient-dense foods.

The National School Feeding programme (Programa Merenda Eskolar, or PME) is implemented by the government across all municipalities. Though the programme's primary goals are to incentivise

[17] Provision of a large dose vitamin A supplements twice a year, as per the UNICEF guidelines(68) was not modelled in this assessment as it is not possible to show the impact on a weekly nutritious diet cost.

school attendance and reduce dropout rates, a sub-goal of improving the nutritional status of students means there is an increased focus on approaches to make the PME more nutrition-sensitive (2,15). This nutrition-sensitive approach is reflected in the allocation of resources per student for school feeding and school meal menus themselves.

The national PME guidelines, as well as the specific guidelines for Oecusse, are under review and interest has been shown by the government and implementing partners in including fortified rice in the school meal, increasing the meal budget per student and including nutritious, locally-sourced foods in the school meal.

From a nutrition and cost standpoint, three aspects can be considered when analysing school menus in CotD; nutrient content, impact on nutritious diet cost and programme costs. School meal menus are generally developed with the aim to cover at least 30% of a child's nutrient requirements, assuming provision of one out of three ideal daily meals. An exploration of the proportion of RNI targets for modelled nutrients met by different school menus allows the comparison of nutrient quality and identification of nutrients which may be difficult to provide or require a special focus.

The second aspect to be considered is the extent to which school meals can decrease the cost of a child's nutritious diet for a household. By providing a nutrient-dense school meal, the cost of a nutritious diet to the household can be materially reduced, as the school meal would cover an important part of the nutrition needs for the child. On the other hand, if the school meal is high in energy but low in micronutrients, the reduction in cost to the household may only be minimal, as the remaining foods that will be modelled in the diet would need to be highly nutritious. Such a scenario would leave children vulnerable to micronutrient deficiencies as the required quantity would likely not be able to be provided by home diets.

Finally, the third aspect is the cost to the programme (paid by the Government) of providing students with a school meal. As in other school feeding programmes, the PME budget allocates a set amount to spend on school meals per student per day, which then can be applied by schools to different menu options as per the corresponding guidelines. The Ministry of Education has recently increased the PME budget for all municipalities from $0.25 per student, per day, with provision of rice to the school at no cost to $0.50 per child per day, without the provision of free rice.

Given that the CotD software applies linear optimisation, these last two aspects are not necessarily directly comparable (the reduction in cost to the household is not necessarily the cost of the school meal per student). Yet, there is a cost-effectiveness element to be considered.

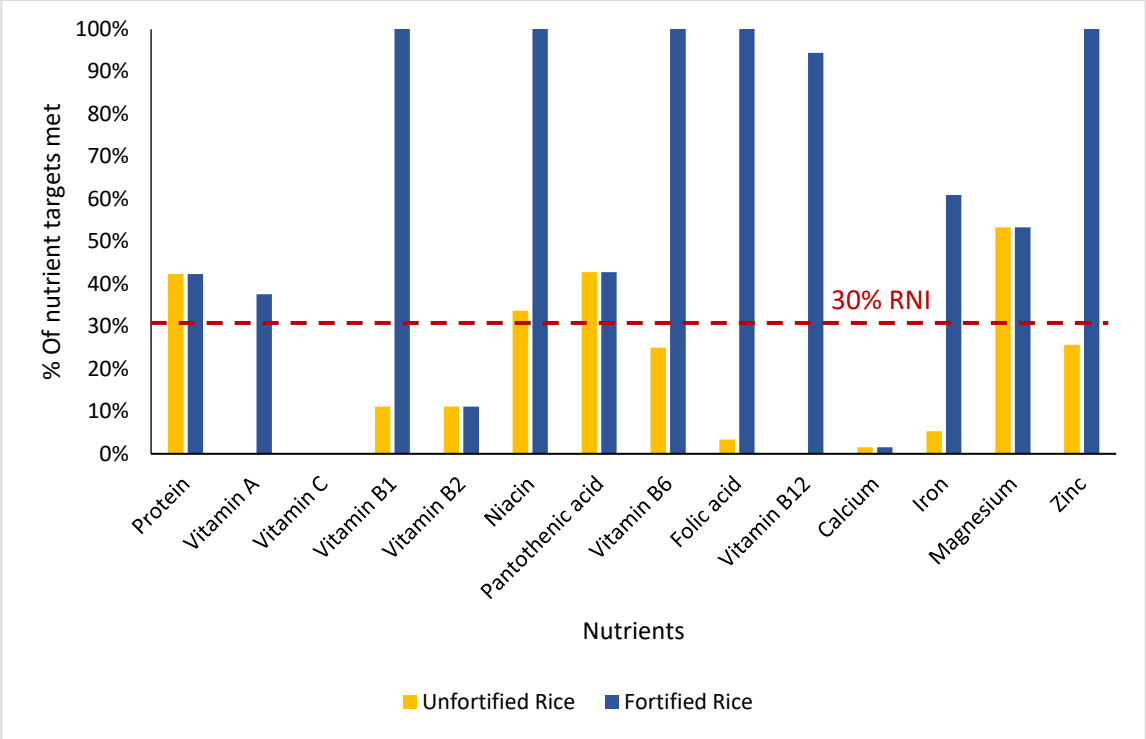
In order to guide initial discussions on programme decision-making and to inform any further modelling, a number of different school meal scenarios were modelled, as per table 6. The first round of modelling focuses on comparing the potential benefits of fortified rice to non-fortified rice, without accounting for nutrients provided by other foods. The next round of modelling compares a 'worst case scenario' menu (instant noodles and tea) with two examples of menus selected from the school feeding guidelines to represent more and less nutritious foods. Different versions of these menus are compared to account for inclusion of fortified rice and an increase from a daily budget per child of $0.25c (with free rice) to $0.50c (without free rice). The modelling for the $0.50c menu assumes a 30% labour and logistics cost. The results displayed here are preliminary findings only. Further modelling can be carried out in the next stage of the FNG if relevant to programming decisions.

Table 6: School Feeding Menu scenarios modelled in the CotD

Meal Name	Foods Included	Programme Cost
Basic Rice meal (unfortified)	Unfortified white rice	N/A
Basic Rice meal (fortified)	Fortified white rice	N/A
Poor School Feeding Diet Example	Instant Noodles Sugary Tea	N/A
Optimized Menu **Unfortified** (selection of the most nutrient-rich foods from the school-feeding guidelines)	Unfortified Rice Beans Cassava leaves Taro greens Tofu Fish Oil	25c Option + *Free rice* 50c Option (higher quantities)
Optimized Menu **Fortified** (selection of the most nutrient-rich foods from the school-feeding guidelines)	Fortified Rice Beans Cassava leaves Taro greens Tofu Fish Oil	25c Option + *Free rice* 50c Option (increased quantities)
Low micronutrient menu **Unfortified** (selection of the least nutritious food options from the school-feeding guidelines)	Unfortified Rice Cabbage Potatoes Tofu Oil	25c Option + *Free rice* 50c Option (increased quantities)
Low micronutrient menu **Fortified** (selection of the least nutritious food options from the school-feeding guidelines)	**Fortified** Rice Cabbage Potatoes Tofu Oil	25c Option + *Free rice* 50c Option (increased quantities)

Figure 31 below presents two examples of extremely basic (and not recommended) school feeding scenarios in which the percentage of nutrient requirements met by a simple meal of plain, unfortified rice (113g per child daily) is compared to a meal of fortified rice. Neither of these menu options would provide a minimum of 30% of nutrient requirements of a child. Yet, by changing the white rice for fortified rice, the full daily requirements of vitamin B1, niacin, vitamin B6, folic acid and vitamin B12 are met or almost met, in addition to a material improvement in the provision of vitamin A and iron.

Figure 31: Percentage of daily protein and micronutrient targets for school-age children met by a school meal of 113 grams per day of unfortified or fortified rice



As shown in table 6, using the list of foods included in the national PME guidelines currently under review, different school menu scenarios were modelled using CotD. Half of these models *optimise* the selection of foods provided by the programme within the given budget, while the other half take the more energy-dense choices with low micronutrient content as per given budget. In this sense, the potential impact of menu choices on the nutritional content of school meals and impact on household diet costs are highlighted. In both cases a menu costing $0.25 (current budget, with free rice) and $0.50 (improved budget, without rice) per student were modelled, using fortified and unfortified rice.

As can be seen in Figure 32 below, providing a very basic school meal of instant noodles and tea only has a minor impact on the cost of a nutritious diet for school children. In contrast, optimising food choices in the school menu can lead to an important reduction on the cost of a nutritious diet for the School Aged Child. All of the foods in the optimized menu were available in the markets surveyed in the corresponding modelling municipality and have been taken at market price. This reduction in the household cost is caused by a greater coverage of the daily micronutrient targets of the child. As can be seen in the example in figure 33, by adding a combination of micronutrient-dense foods to the school menu, the PME has the potential to cover a large percentage of the targets for all micronutrients.

Figure 32: Daily cost (to household) of a nutritious diet for school children at baseline (nutritious diet) and with the provision of alternative school feeding menu options

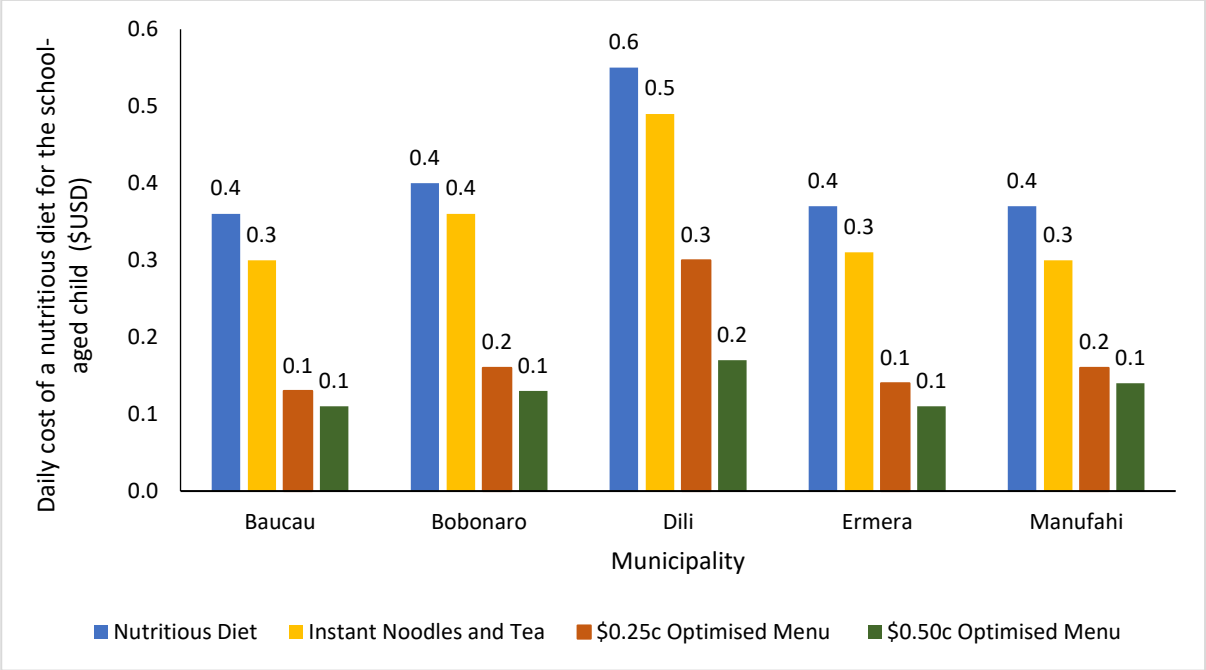
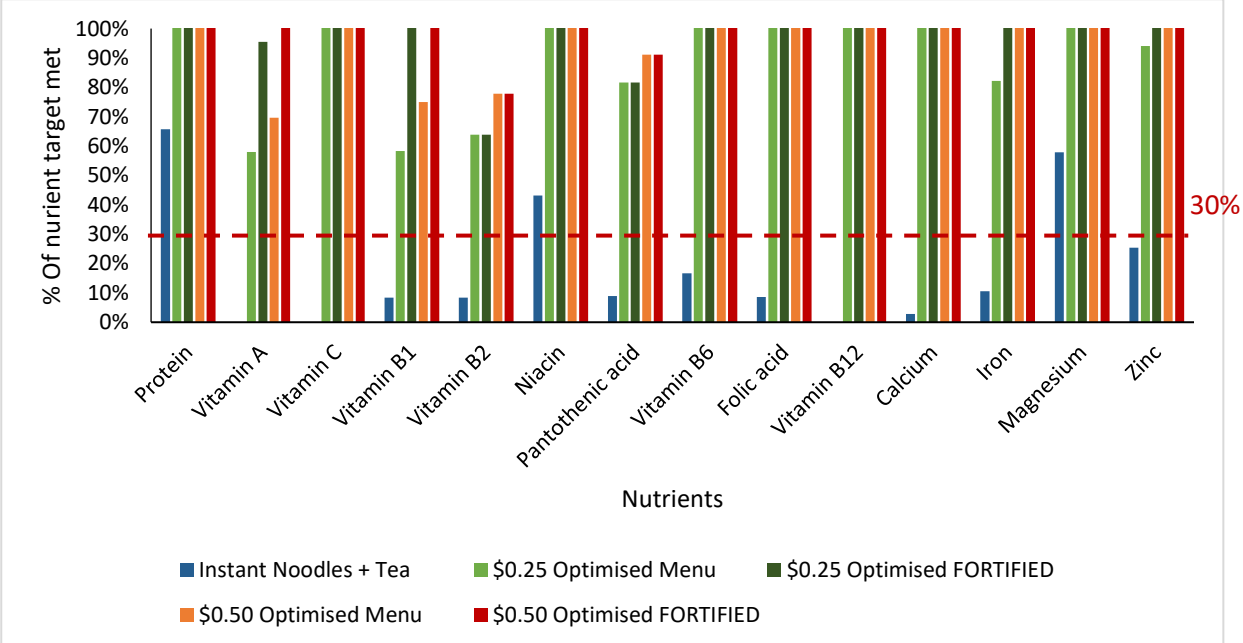


Figure 33: Percentage of daily protein and micronutrient targets (100% RNI) for school-age children met by different menu options



Neither the cost reduction nor the high coverage of nutrient targets seen in figures 32 and 33 are the same in the case of the low micronutrient menu. This menu consists of a combination of rice, cabbage, potatoes, tofu and oil, and would also be in compliance with the specifications of the PME guidelines. As shown in figure 34, the proportion of nutrient targets met depends greatly on which foods are selected from the school feeding menu guidelines, which would in turn influence the cost of a nutritious diet for households (figure 35). Figure 35 also compares the potential additional benefit for diet cost of increasing school meal budget or including fortified rice; in all municipalities,

a similar impact on nutritious diet cost could be achieved from adding fortified flour to the 25c diet as increasing the diet budget to 50c without fortified rice.

While more nuanced software programmes are available for the fine-tuning of school feeding diets, the CotD modelling presented here displays not only the nutrient content of school meals possible with added foods or increased budgets, but the potential flow on effect for household access to nutritious diets.

Figure 34: Percentage of daily protein and micronutrient targets (100% RNI) for school-age children met by an Optimised School Feeding Menu and a Low Nutrient Menu

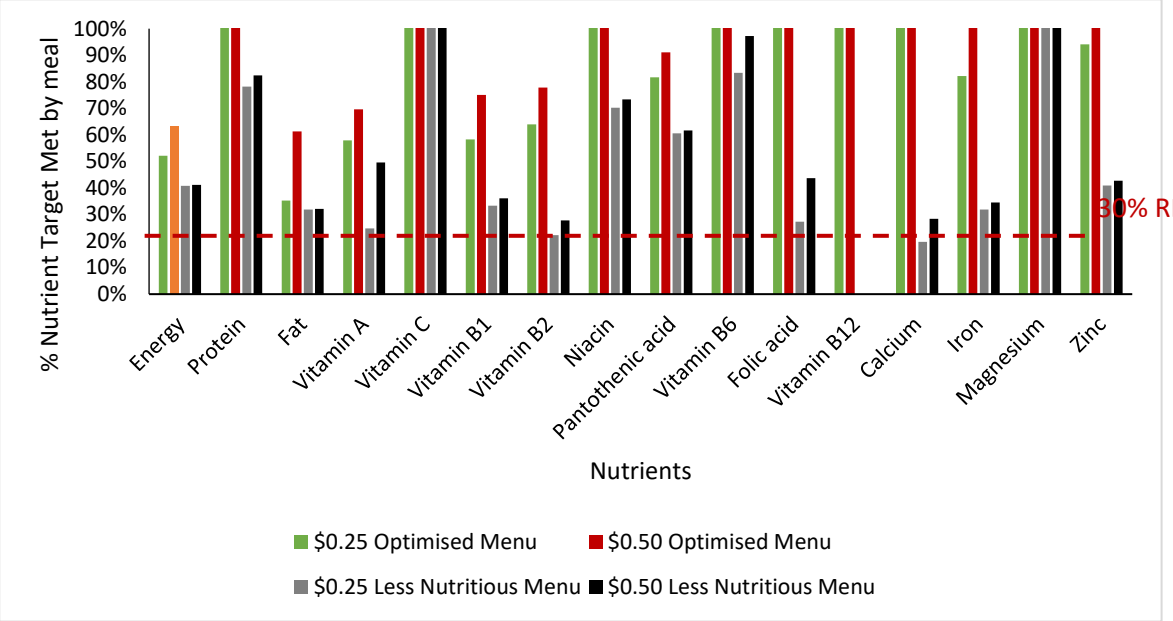
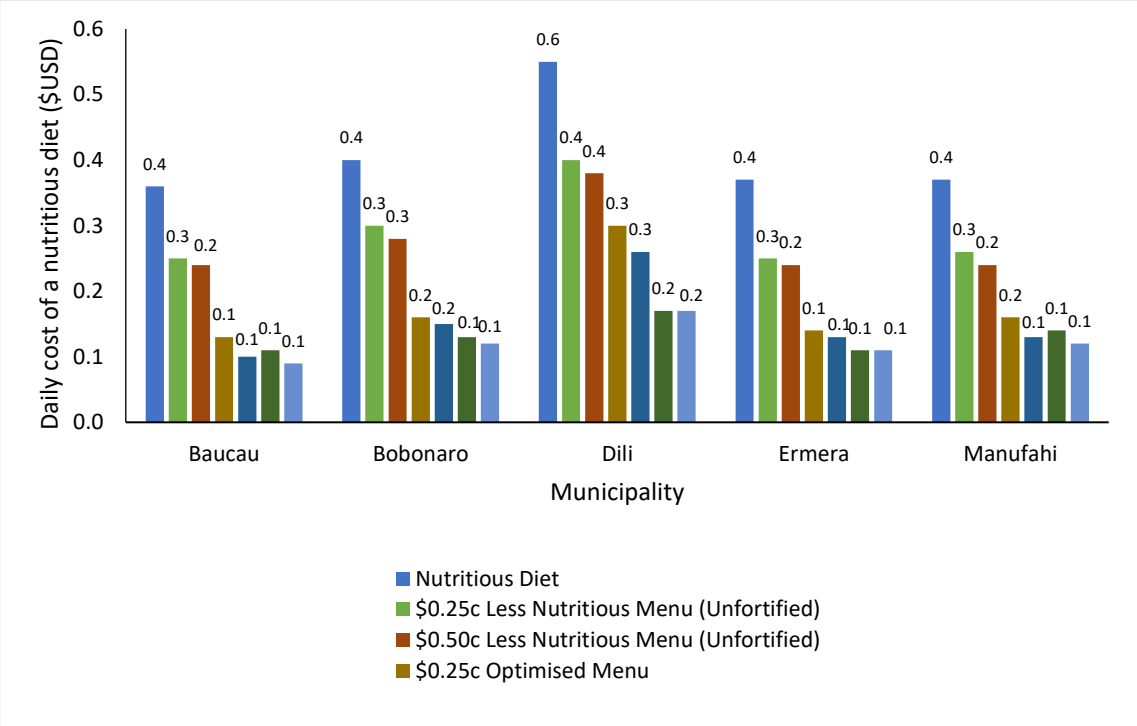


Figure 35: Daily cost of a nutrition diet for the School Child with an Optimised School Feeding Menu (fortified and unfortified) and a Low Nutrient Menu at a budget of $0.25 and $0.50 per child, per day



Key Finding 7: Meeting the nutrient requirements of adolescent girls would cost more than any other member of the family. They are at high risk of micronutrient deficiencies, but few interventions exist to address their needs and data to inform programming is limited.

One quarter of the population of Timor-Leste are adolescents, meaning that there are approximately 324,837 young women and men in the country at present, a figure that is predicted to increase in coming years (1,5,46). As well as having implications for areas such as education, employment, and social services, the already significant size and predicted growth of this youth population has implications for nutrition outcomes. Despite this, to date national surveys have not collected specific data on the nutritional status and diet quality of adolescents in Timor-Leste. While qualitative studies(5) have focussed on adolescent nutrition, quantitative data is also needed in order to assess need and inform targeted programming.

Figure 37 displays the costs of providing an energy-only and nutritious diet for adolescents in each municipality. While the cost of meeting energy needs is very similar for boys and girls, it costs, on average, three times as much to provide a nutritious diet for girls as it would for boys. The results are similar when comparing nutritious diet cost between members of the model household (figure 36); providing a diet that meets nutrient requirements for an adolescent girl costs 45% of the total household diet cost. This is due to the significant requirements for micronutrients for young women during this life stage.

Whilst age at first marriage and pregnancy has increased in Timor-Leste in recent years, more than 1 in 20 girls aged 15-19 had begun childbearing as of the last DHS (30). Given the increased micronutrient requirements during pregnancy and lactation, the cost of providing a nutritious diet would likely increase further if girls became mothers during adolescence while they are still growing themselves. Further, early pregnancy is also associated with poor health outcomes for women and their children (5,30,47). As such, opportunities for using nutrition as further evidence to advocate for access to family planning services should be explored.

Figure 36: Proportion of total household diet cost (in an ideal scenario where nutrient requirements are met) required to provide a nutritious diet for each model household member

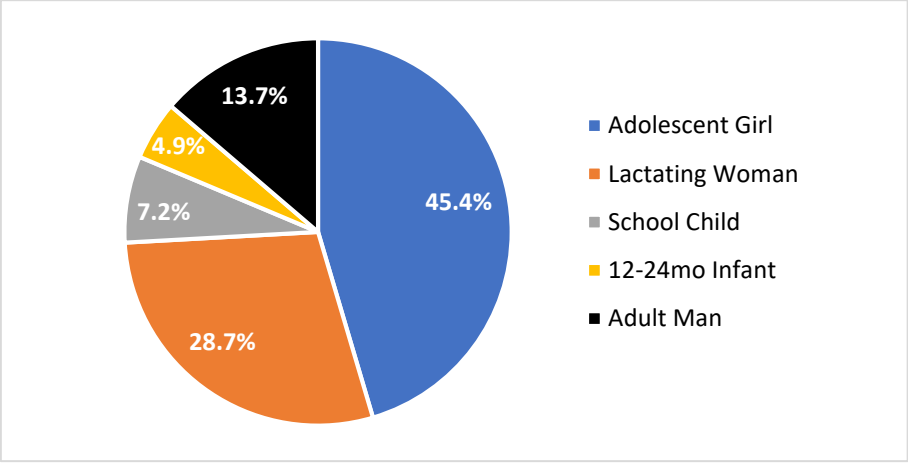
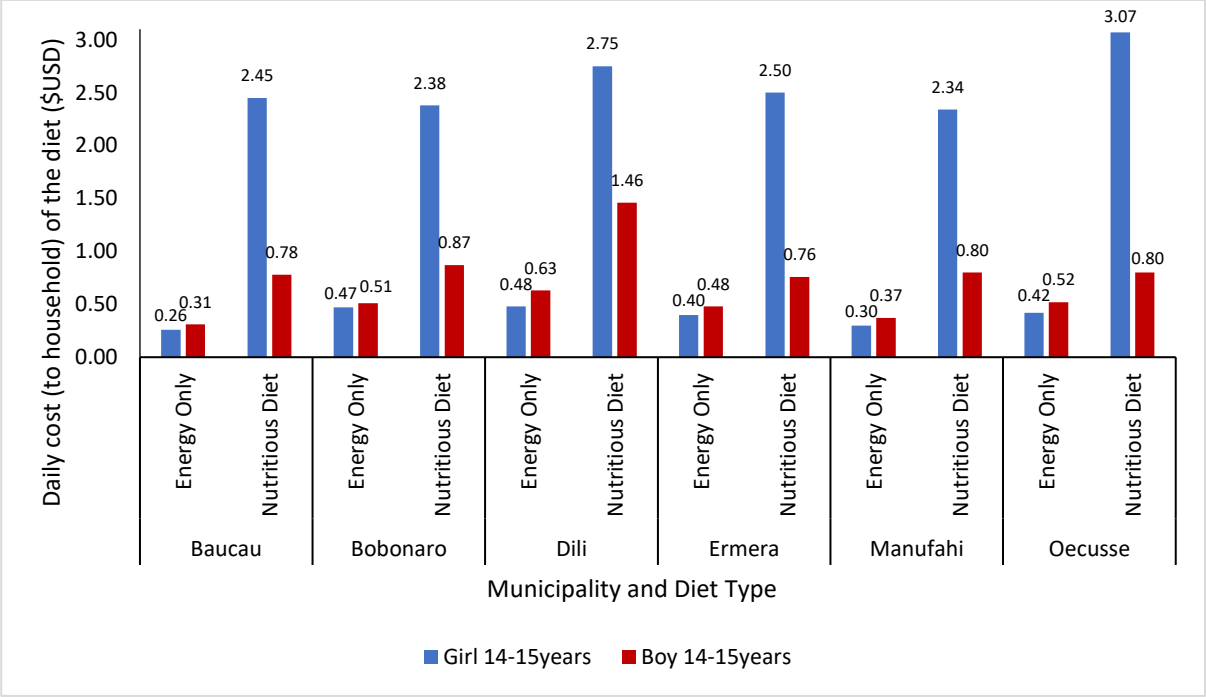
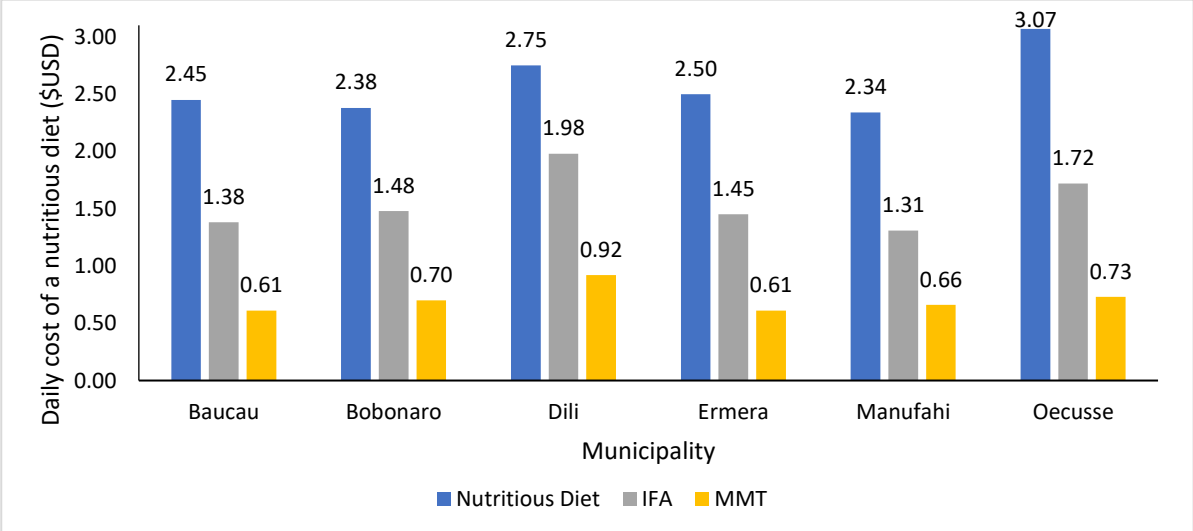


Figure 37: Daily cost (to household) of the energy-only and nutritious diets modelled in CotD for Adolescent Boys and Adolescent Girls in each Municipality



Young people will provide Timor-Leste's human capital over the coming decades as well as becoming parents to the next generation of children(5). Therefore, any investments in the nutrition and development of this group now can have significant consequences in the long-term. Currently prioritised nutrition interventions specifically targeting adolescents in Timor-Leste are inclusion of this age group in micronutrient supplementation with iron and folic acid (IFA), school-feeding, for those attending school and the Bolsa da Mãe cash transfer. Modelling results for the latter two interventions are presented under key findings 6 and 10 respectively. The preliminary results of the modelling of IFA or multiple micronutrient tablet (MMT) supplements as part of interventions that could be targeted at adolescent girls are presented in Figure 38 below.

*Figure 38: Preliminary results of modelling the impact in CotD of providing alternative nutrition interventions on the cost of a nutritious diet for **adolescent girls** across the 6 assessment municipalities*



These preliminary results suggest that providing a supplement of iron and folic acid could almost halve the nutritious diet cost, reducing the cost of a nutritious diet from $2.60 to $1.60 on average. Similar to the modelling for women, providing a multiple micronutrient tablet instead of iron and folic acid would have a much greater impact on diet cost for adolescent girls, reducing it by almost four times from $2.6 to $0.70 per day.

Despite the fact that adolescents make up a significant proportion of the population and that they are nutritionally vulnerable group, especially girls, apart from micronutrient supplementation, there are no other specific nutrition interventions targeting adolescent nutrition at present. Given the significant role that adolescents will play in the social, economic and educational future of Timor-Leste, greater guidance and programming to invest in ensuring their access to nutritious diets is needed.

Key Finding 8: Timor-Leste is a nation with strong participation in the agricultural sector and produces a great diversity of foods, yet productivity is low. Interventions targeting both the quantity and nutritional quality of foods produced could improve access to nutritious diets for all.

A range of fresh, nutritious foods were observed in markets across the six assessment municipalities however the CotD results suggest that meeting nutrient requirements using these foods would be mostly unaffordable for local households. There is therefore a role for agriculture in improving the local production, availability, prices of and consumption of nutritious local foods as well as improving the yields and nutritional content of foods that are already produced and reducing losses.

The agricultural sector is the largest employer in Timor-Leste, providing direct employment to over half of the working population (3,24,26,48,49). Most (>80%) households are engaged in some form of smallholder farming and almost 90% of the rural poor are dependent on agriculture for their livelihoods (1,49,50). The sector contributes to 17% of non-oil GDP in Timor-Leste (49). In spite of this, the sector is underfunded at the public-level; only 1% of the total of state budget was allocated to the Ministry of Agriculture in 2019, a decrease from the 2008 proportion of 3.9% (1).

Timor-Leste produces many nutritious and varied foods yet one of the factors contributing to poor diets is low agricultural productivity and a focus on staple crop production rather than diversification towards nutritious foods (26,42). Agricultural productivity in the country is substantially lower than neighbouring countries with similar conditions and the lowest in the South-East Asian Region (42). Average rice yields in Timor-Leste are 3 tonnes per hectare compared to 5.1 tonnes in Indonesia and 5.75 tonnes in Vietnam (51). Likewise, maize yields are below average at 2.2 tonnes per hectare and post-harvest losses ranges from 20-50% for most agricultural products (42,52,53). Private sector wholesale, retail and processing representatives have reported that the low productivity of agricultural production means that local produce is often prohibitively expensive and cheaper, imported products that are produced using less labour and other resources are favoured; thus the volume of production per labour unit needs to be increased to ensure there is a market for local produce(42). In addition to crops, livestock productivity in the country is also low as a result of low input grazing/scavenger systems, low rates of reproduction, slow growth and high mortality of young

animals, high disease incidence causing mortality and poor meat quality as well as poor milk and egg production(42,54,55).

There is significant room for improvement in access to and utilisation of improved practices; less than 1 in 10 farmers reported using improved technologies or practices[18] in the 2015 Population and Housing Census and less than 2 in 10 reported using improved seeds or organic fertilisers (46). The application of improved practices could lead to higher yields. Further, in 2016 FAO estimated that less than half of Timor-Leste's 800,000 hectares of potential arable land is being used for agricultural production, also indicating significant room for improvement (42).

The 2017 draft Agriculture Policy and Strategic Framework Towards Nutrition-Sensitive, Climate Smart Agriculture and Food Systems has identified the "enhancement of innovative and appropriate climate-smart technologies to increase production and productivity and reduce post-harvest losses and protection of productive lands" as well as "the diversification of staples (rice, maize and tubers) to other nutrient-rich foods such as legumes, fruits, vegetables, eggs, meat and dairy products and creating awareness of preparing healthy foods" as parts of its key policy challenges (17). The government and partners are responding with a range of projects focussing on production quality and quantity using improved methods and technology.

Homestead production of diverse, nutritious foods

One approach prioritised by KONSSANTIL for leveraging agriculture to support nutrition has been the promotion of homestead production and consumption of nutritious foods, including animal-source foods. An example model from Baucau has been provided below in which a number of different foods are promoted and available for consumption by the household at a cost that would be 50% of the market price. Table 7 shows the different scenarios that were modelled, in each it was assumed that the listed nutritious foods were available to be consumed by the household at 50% of market price (to represent input costs).

Table 7: Homestead Food Production intervention scenarios modelled in CotD for Baucau Municipality

Option 1: Small Animal Production	Option 2: Vegetable Production	Option 3: Vegetable + Biofortified OFSP and Beans	Option 4: Production of all options
Household production of eggs (chicken raising)	Production of green leafy vegetables	Production of - Green leafy Vegetables - Orange Flesh Sweet Potato - Beans	Production of - Green leafy Vegetables - Orange Flesh Sweet Potato - Beans - Eggs
All products were modelled at 50% of market price to represent establishment and labour costs			

Figure 39 displays the impact on household nutritious diet cost if the various scenarios from table 7 were in place. If the household were able to access eggs from own production, the cost of meeting nutrient needs for the family would be reduced from $5.20 to $4.80. Similarly, the diet cost would be

[18] Such as Conservation agriculture, mulching, chemical fertilisers, herbicides, pesticides and irrigation(42,46)

reduced from $5.20 to $4.50 if Green Leafy Vegetables (GLV) could be consumed from own production. Combining eggs, GLV, beans and Biofortified Orange-Flesh Sweet Potato (OFSP) would further reduce the diet cost to $3.80 per day if this intervention was able to be implemented at scale across the analysis municipalities.

Figure 40 displays the impact of these intervention scenarios on the percentage of households estimated to be able to afford a nutritious diet in Baucau. In each scenario, the percentage of households able to afford a nutritious diet increased. The largest increase of almost 30 percentage points was with the assumed production of eggs, GLV, beans and OFSP, which would mean that 66% instead of 37% of households would be able to afford a nutritious diet.

These findings suggest that improving economic access to nutritious foods from own production could significantly reduce the cost of meeting nutrient needs across the household. However, given the current low dietary diversity and poor diets across Timor-Leste, it is likely that access to nutritious foods alone would not guarantee consumption. Indeed, a number of smaller studies have shown that even among chicken producing households, there is a preference for selling animal-source foods such as eggs, as opposed to consuming them(22,24). Similarly, larger animals that could be consumed as meat are mostly kept for cultural purposes or for sale only (22,24). For these reasons, any agricultural interventions aimed at improving diets through the production to consumption pathway (56) must include a strong social and behaviour change communication (SBCC) component, informed by formative research, to address other barriers to consumption of these nutritious foods.

Figure 39: Cost (to the household) of a nutritious diet for a 5-person household if, using different intervention scenarios, the household was able to access nutritious foods from home production in ***Baucau Municipality***

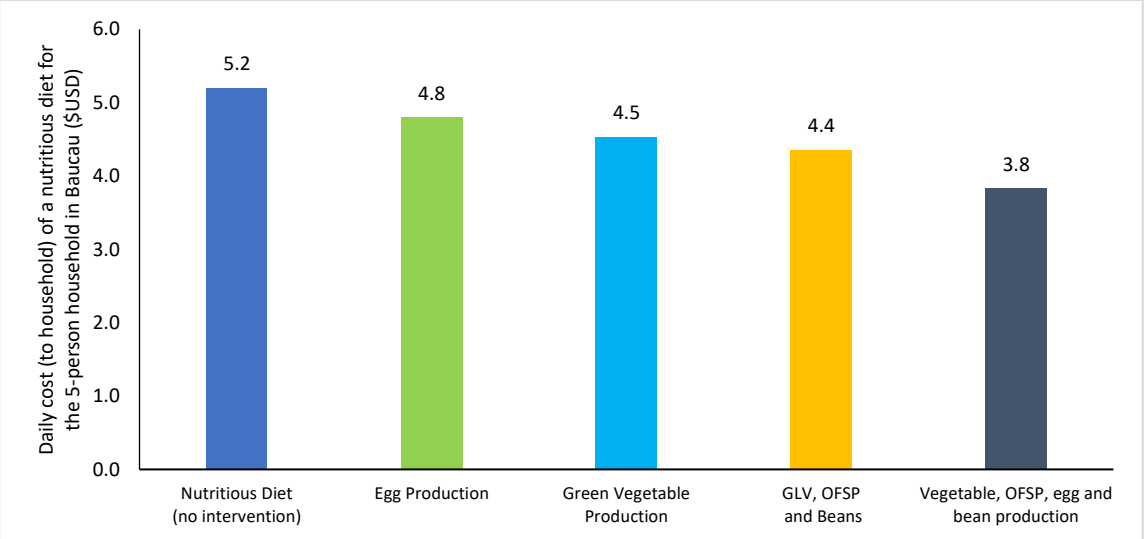
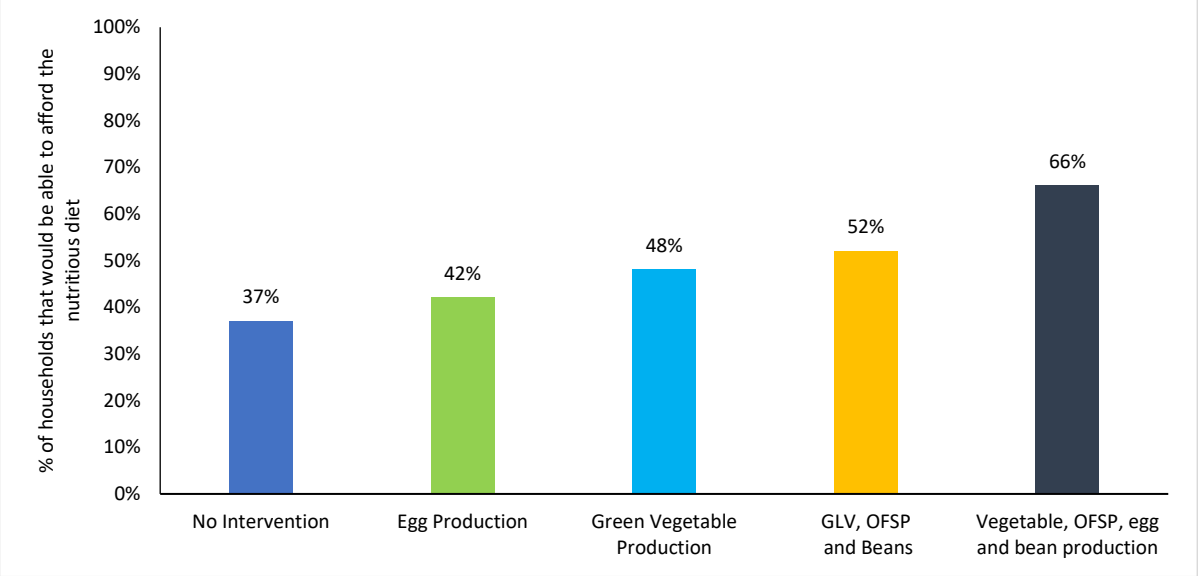
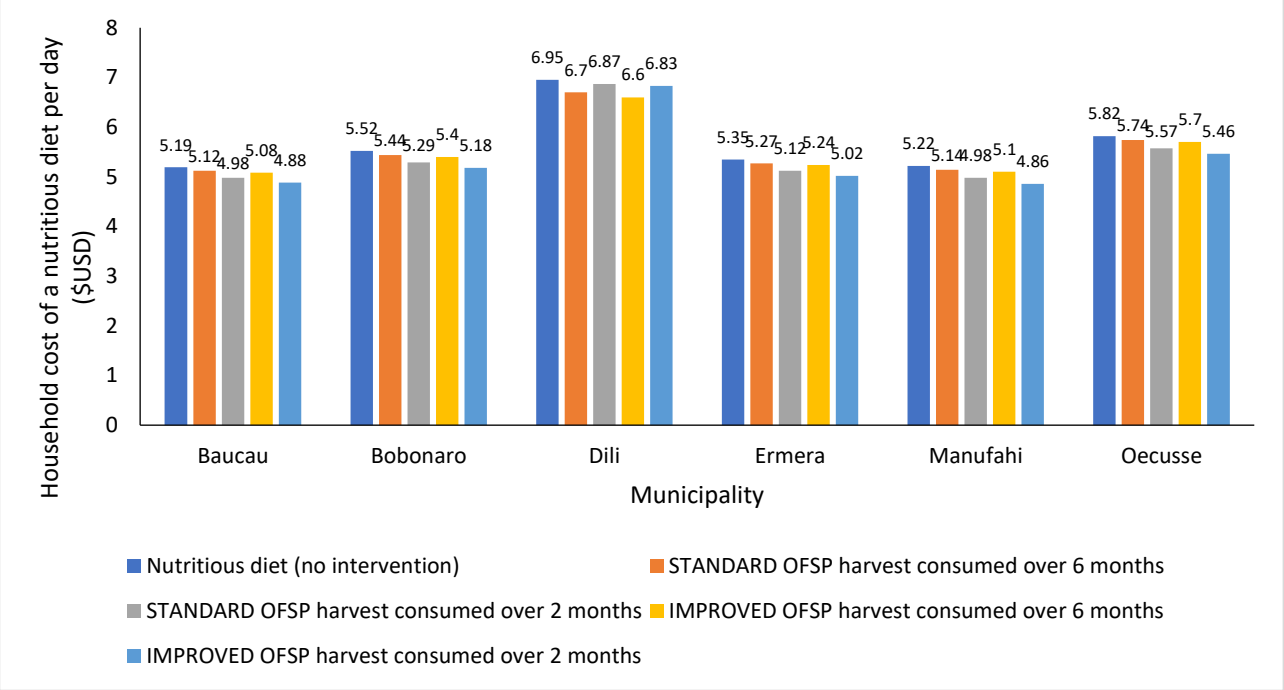


Figure 40: Proportion of households that would be able to afford a nutritious diet if, using different intervention scenarios, they were able to access nutritious foods from their own production in ***Baucau Municipality***



An alternative model for considering the impact of homestead food production on diet access is provided in figure 41. Data from the TOMAK programme has shown that there is an average production rate of 40 kgs of OFSP per household per season (up to two seasons per year), that can last for 2-6 months. In the subsequent model, average household production of OFSP was modelled for two varieties of OFSP; a standard (USDA), naturally high in Vitamin A, and an improved variety (Harvest Plus and CIP, see appendix 7) that is naturally higher in Vitamin A, Iron and Zinc. Up to 40kgs of each product was made available to the household at zero cost for consumption over either a 2 or 6-month period. Figure 41 shows that in both instances, the cost of meeting nutrient requirements was reduced by household access to this nutritious food, but more so when a more micronutrient-rich variety was used; up to $0.35 per day or almost $11.00 per month.

Figure 41: Possible impact of home production and consumption of Orange Flesh Sweet Potatoes



Improved poultry management and chicken vaccination

In addition to the above modelling representing homestead production of nutritious foods in Baucau, scenarios representing improved homestead production and consumption of eggs were modelled in all municipalities. Over 70% of households in Timor-Leste own chickens, with average flock sizes of 4.5 birds (57). Despite this, production is low with hens producing an average of three batches of 12 eggs per year (57). However of these 162 eggs, the majority (10 per batch, per hen or 135 in total) are incubated (57). Of these eggs, 85% are hatched however survival rates are as low as 10% due to predation, exposure and disease (57). Given further household preferences for selling eggs and chickens or using them for cultural practices, very few eggs are actually available for household consumption(23,24,54,57).

Based on the TOMAK programme which is supporting disease control for poultry flocks, promotion of the nutritional benefits of eggs and improved poultry management, a scenario was modelled where households would be able to access up to two eggs per week. Figures 42 and 43 below show that if households were able to consume two eggs per week (at zero cost to the household), the impact on the cost of meeting nutrient requirements would depend on who ate those eggs. If the eggs were prioritised for consumption by the most nutritionally vulnerable household members, the price reduction would be greater. However, while this reduction would be greater, it would still not amount to very much. For a significant reduction in the cost of meeting nutrient requirements, access to a higher number of eggs would be needed, which would necessitate a dramatic shift in production patterns from what is currently possible, even with improved poultry management.

Figure 42: Possible impact of household access to 2 eggs per week through own production, depending on household member/s receiving eggs, Ermera, Manufahi and Oecusse

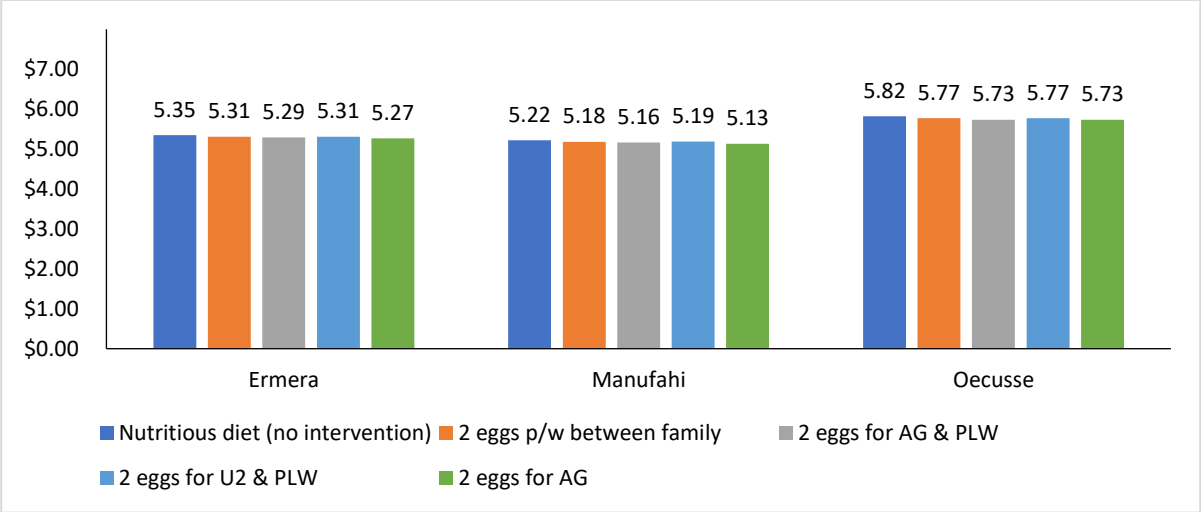
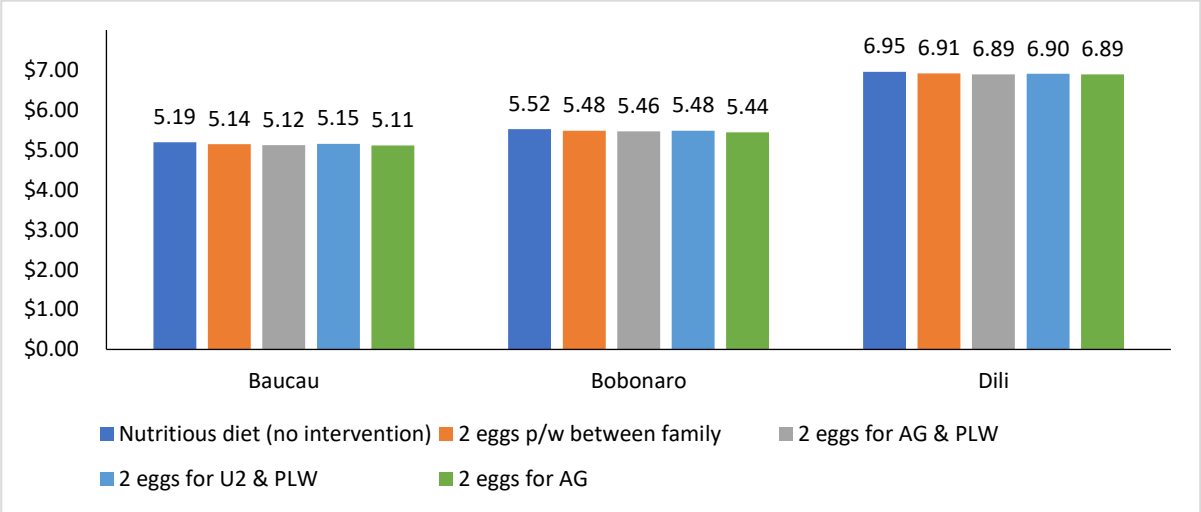


Figure 43: Possible impact of household access to 2 eggs per week through own production, depending on household member/s receiving eggs, Baucau, Bobonaro and Dili



Simulating a dramatic increase in egg production of up to 5 eggs per day (1 per family member), an alternative model was added where daily egg consumption was allowed at 20% of the standard market price (to represent the need for inputs to sustain this production). Figure 44 shows that improved home production of eggs to allow all household members up to one egg per day could reduce the cost of meeting household nutrient needs by an average of 15%. The estimated impact of such interventions on the percentage of households able to afford a nutritious diet is shown in figure 45. On average, if eggs were available from own production for all household members, diet access could increase by an average of 37%. Although it is unlikely households will be able to move from current low flock and low production numbers to the level needed for daily egg consumption in the short-term, this model suggests that doing so would be able to have an impact on access to nutrients and nutritious diets. However, in order to bring about such a change, simultaneous efforts would need to be made to address current preferences for selling chickens and eggs or dedicating them to cultural practices only as opposed to keeping them for home consumption(23,24,54,57).

Figure 44: Daily cost of a nutritious diet for the model 5-person household and the impact on diet cost if up to 1 egg per day could be accessed by each household member from own production (reduced cost)

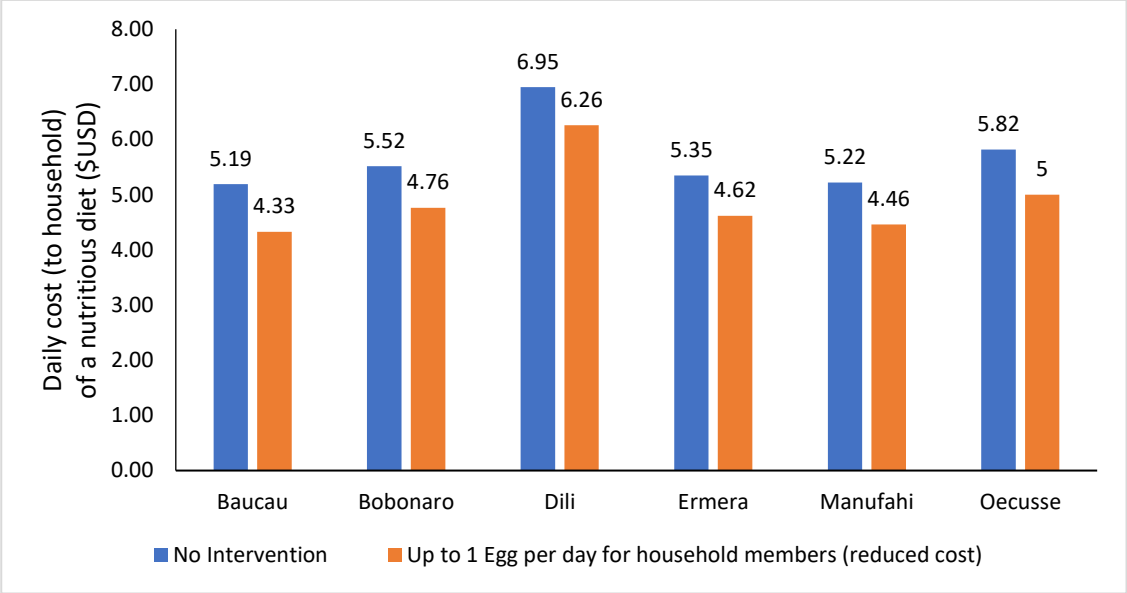
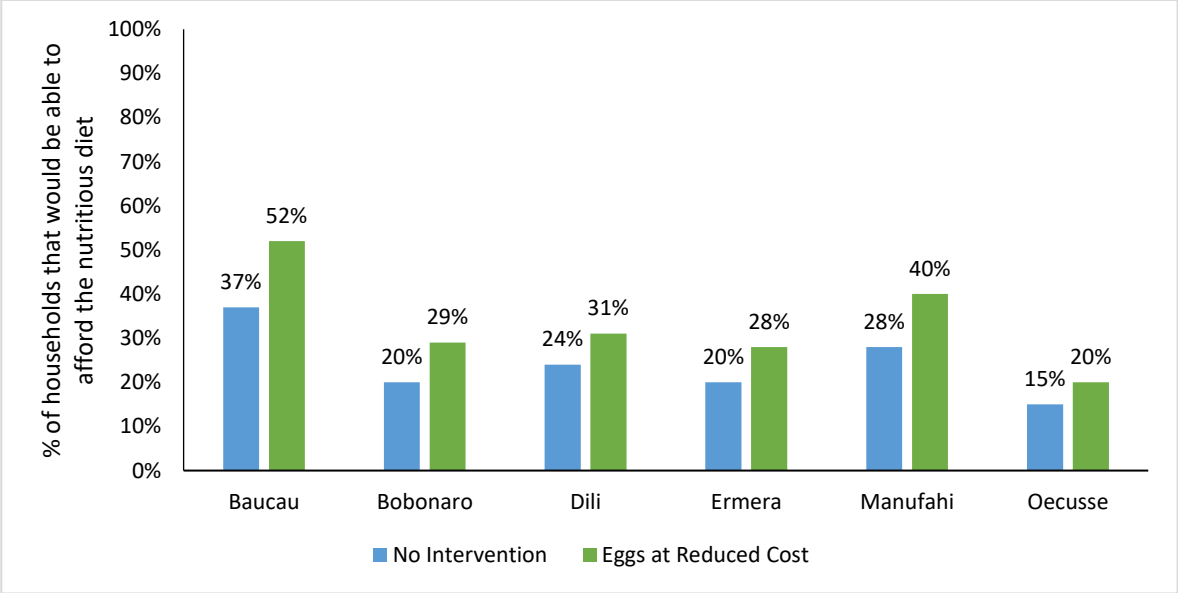


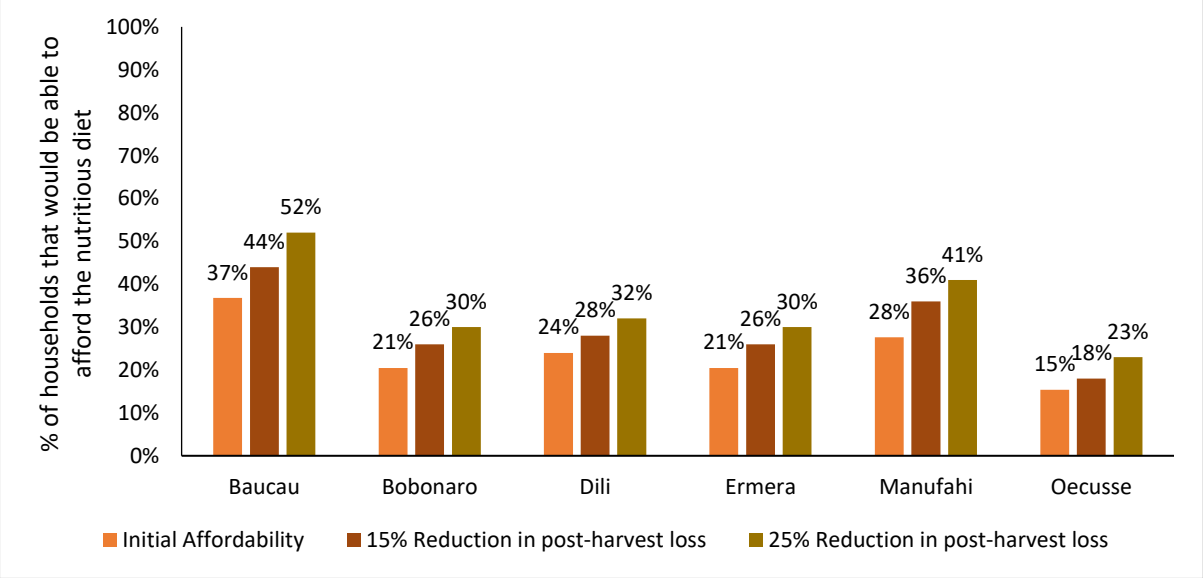
Figure 45: Proportion of households that would be able to afford a nutritious diet if up to 1 egg per day could be accessed by each household member from own production (reduced cost)



Reduction of post-harvest losses

Another key issue affecting agriculture production, incomes and ultimately, access to nutritious diets, is the loss of yields due to insufficient harvest, packaging, transport and storage practices and facilities (58). The improvement of post-harvest practices is mentioned across national policies and has been recognised as a KONSSANTIL priority area for improved nutrition(1). Estimates of the extent of post-harvest losses for staple production in the country vary considerably, from 13-45% (58–61). Reducing post-harvest losses by building knowledge and capacity and improving storage facilities could increase household income and ultimately diet access. Figure 46 demonstrates the impact on nutritious diet access of improved incomes as a result of reducing post-harvest losses by 15% and 25%[19] respectively. If income benefits related to a 15% reduction in post-harvest losses was achieved, the proportion of households able to afford a nutritious diet could increase by an average of 19%. Alternatively, income benefits related to a 25% reduction in post-harvest losses would increase nutritious diet access by 31%. This modelling suggests that agriculture interventions other than those focused directly on production can also be nutrition-sensitive and have a significant impact on diet access in Timor-Leste.

Figure 46: Proportion of households that would be able to afford a nutritious diet if, using interventions aimed at reducing post-harvest loss, income was improved by reductions in losses of either 15% or 25%.



Improved income through the use of Conservation Agriculture

The Ministry of Agriculture and Fisheries (MAP), FAO and the EU set up the Pro-Resilience Project in 2017, aiming to strengthen agricultural resilience in rural communities affected by drought. Through conservation agriculture techniques consisting of no-burning and zero or minimal tillage, Pro-

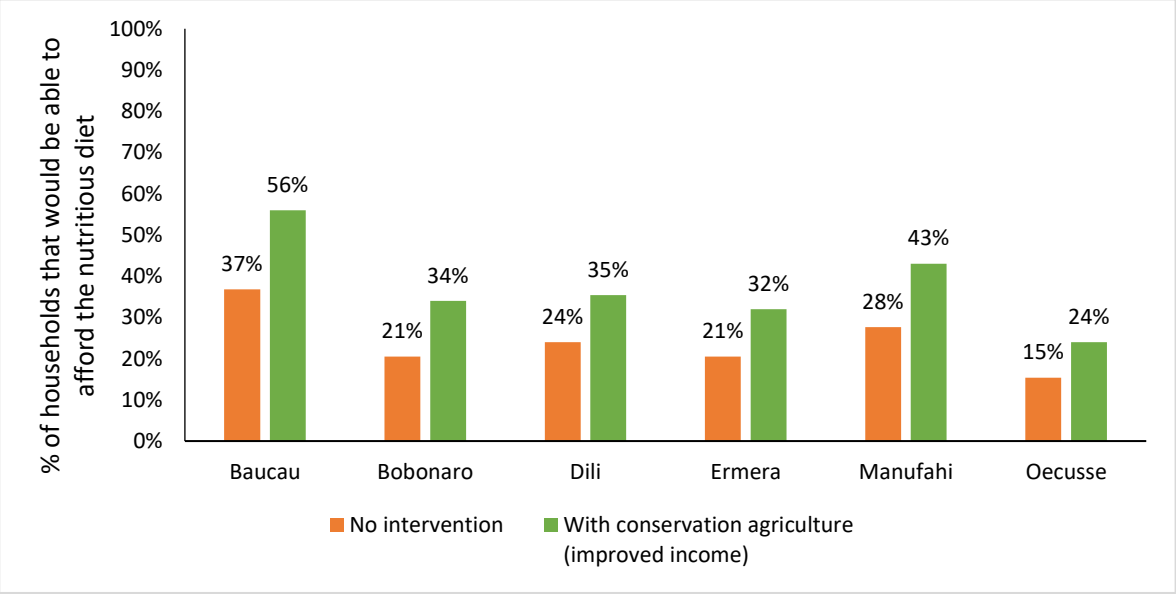
[19] For all modelling of the impact of income improvement or cash transfer interventions on purchasing power on the affordability of nutritious diets, only 70% of the transfer or income increment is made available for food purchase in the model to simulate a more realistic scenario in which households have other costs and are unlikely to dedicate 100% of their household budget to food purchase. In spite of this, it is appreciated that behaviour change communication would be required to encourage the allocation of income gains or cash transfers to the acquisition of nutritious foods.

Resilience aims, among other things, to increase crop yields and decrease crop production costs, ultimately increasing rural households' income from agriculture (62,63).

An impact evaluation of Pro-Resilience's conservation agriculture component conducted in 2019 shows, on average, 16 percent higher yields among those farmers that adopted conservation agriculture. Though dependent on maize variety and location of the farm (as soil conditions and rain frequency could change), the evaluation found that conservation agriculture techniques would bring an increase in yields of approximately 1 ton per hectare, all other things equal (62,63).

An increase in yields has the potential to translate into increased income for the household. The evaluation found that households using conservation agriculture had, on average, a 24% higher income than households that used traditional agricultural techniques.[20] As has been explained before, affordability of nutritious diets is affected both by the cost of such nutritious diet, as well as the expenditure on food by the household. Any interventions that aim to raise the income of households have the potential to, in turn, increase affordability of a nutritious diet. As can be seen in Figure 47 below, a 24% increase in monthly income from an adoption of conservation agriculture techniques would, on average, increase affordability of a nutritious diet by 58%.

Figure 47: Proportion of households that would be able to afford a nutritious diet if, using Conservation Agriculture, income was able to be improved an average of 24% (62,63).



Reduction in the price of fish through Aquaculture interventions

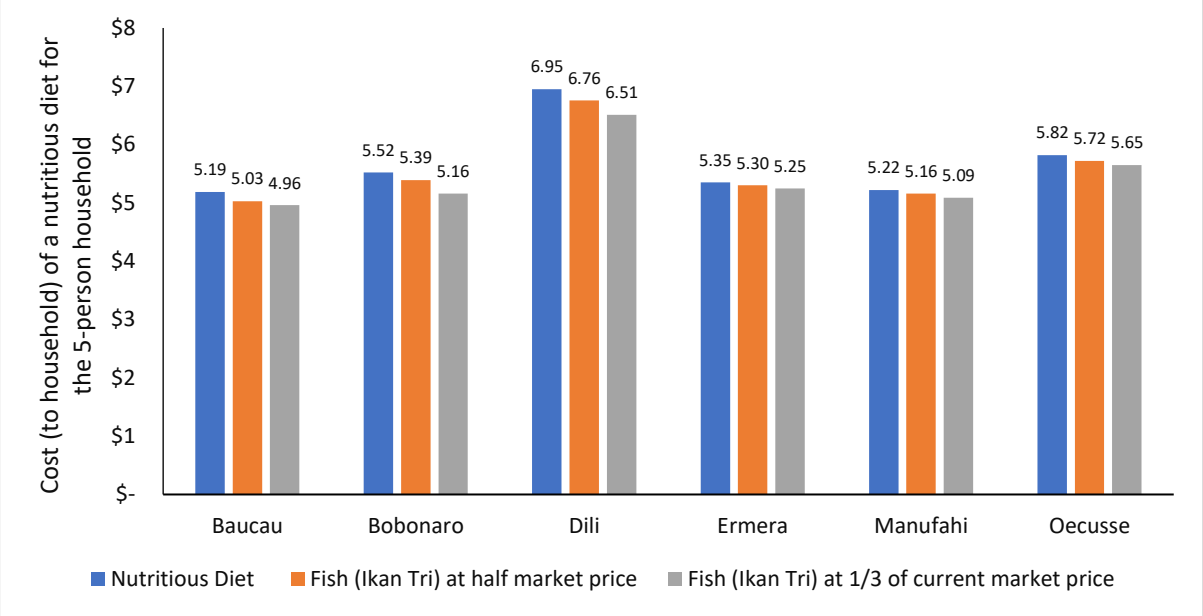
MAP has also established an Aquaculture programme aiming to increase fish production in the country. Though there is little information on the programme outcomes and performance, it is reasonable to expect that increased local production of fish through fish ponds could potentially increase access to fish and decrease its market price. Therefore, using CotD, the impact of a 50%

[20] Though the evaluation found that the results regarding increased income were not statistically significant, households using conservation agriculture techniques had an average income of $210 dollars per month, while households in the control group had an income of $170 per month. Though we recognize the lack of statistical significance of these results, for the purposes of FNG modelling, it provides a good example of the impact of an agricultural intervention on income.

decrease in market prices of the different fish varieties available in the six modelled municipalities was modelled. In addition, to further explore the potential of an intervention of this sort, a reduction to one third of the current market price was modelled (figure 48).

Given the optimisation function in CotD and the limiting nutrients in the modelled nutritious diet, the reduction in the market price of fish only showed results for one specific variety that has a high Calcium content. It is important to clarify that a decrease in the cost of other varieties could still make a nutritious diet more accessible and affordable for many households, even if this is not reflected in the modelling below.

Figure 48: Cost to the household of a nutritious diet using current market prices and using a price of fish (Ikan Tri) reduced by 50 percent and by 66 percent.



Key Finding 9: Diets across the country are overwhelmingly dependent on staples such as white rice, which provide energy but are low in essential micronutrients. Exploring the potential for supporting rice fortification could mean greater access to nutritious diets.

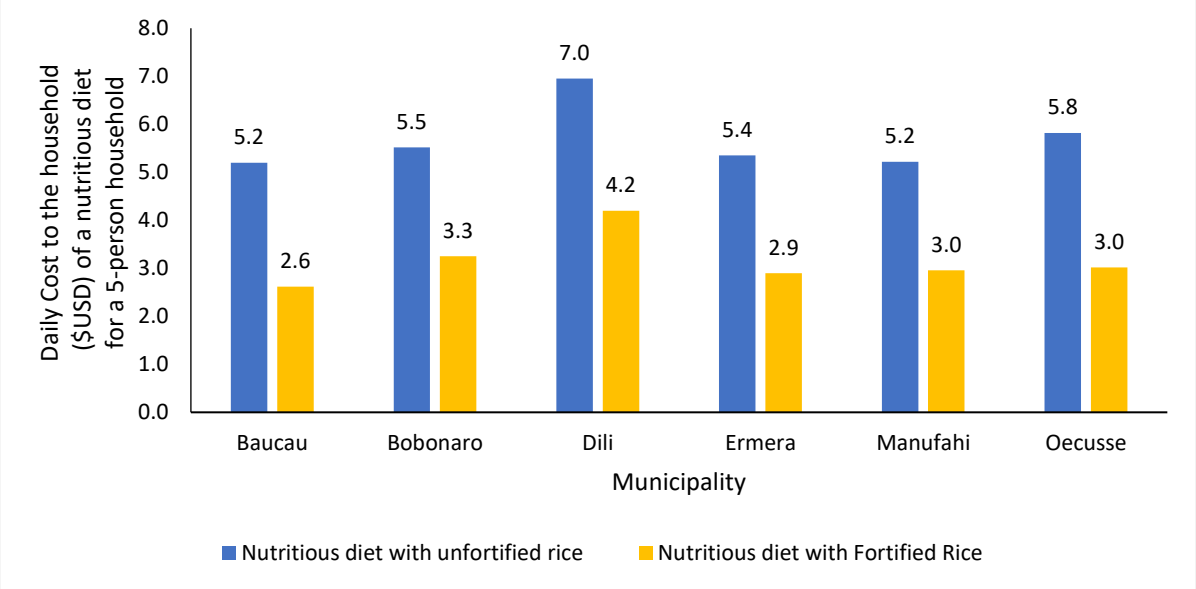
Diets in Timor-Leste are overly dependent on unfortified starchy staples such as rice and tubers (4,20,21,23). The National Nutrition Strategy and Zero Hunger Action Plan have prioritised actions to support mass food fortification(8,9). Whilst a law mandating the fortification of salt with iodine was drafted in 2013, there is little guidance and few implementation and monitoring systems to support the fortification of other food products at the national-level (1,9).

The FNG modelling plan included an intervention in which rice, fortified as per WFP standards(64) was available on the local market in each assessment municipality in addition to non-fortified rice. For the purpose of this assessment it was assumed that the fortified rice would be available for the

same price as non-fortified rice. This was done as exact information on the expected price of fortified rice if provided in high quantities and possibly from national production was not found. It is expected however that fortified rice would be more expensive than unfortified rice, if this is the case, not all consumers may decide to purchase it. To ensure that lower income consumers would also have access to this food, voucher schemes to improve access to a certain amount of fortified rice at a reduced price could be considered.

Figure 49 shows that when fortified rice was made available for modelling, using the same limits and price as unfortified rice, the cost of a nutritious diet for the household was reduced by an average of 45%. The magnitude of the effect varied by municipality; reducing diet cost by 40% in Dili up to 50% in Baucau. These preliminary findings suggest that investing in and supporting rice fortification in Timor-Leste could have a significant impact on nutritious diet access for the entire household.

*Figure 49: Preliminary results of modelling the impact of ensuring that **fortified rice** is available at market cost on the cost of a nutritious diet for the model 5-person household across the 6 assessment municipalities*



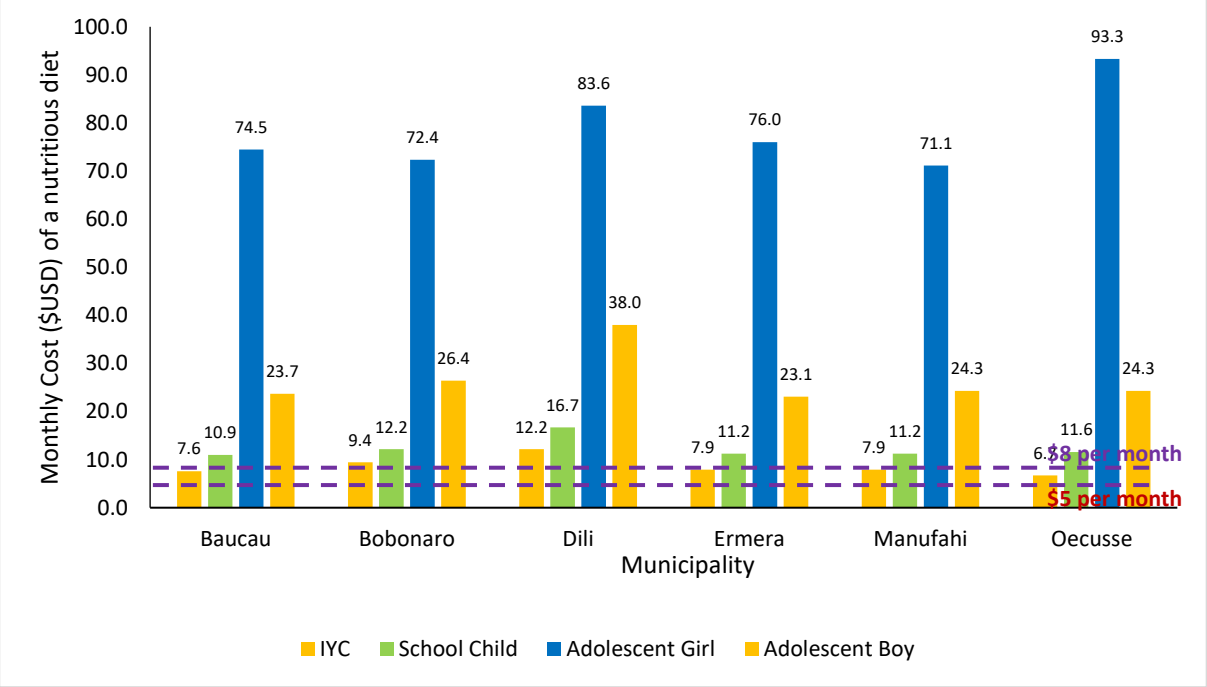
Key Finding 10: Social protection has significant potential to improve access to nutritious diets for the most vulnerable, but only if realistic transfer amounts and nutrition-sensitive packages are provided.

Cash Transfers within the National Social Protection Programme

Bolsa da Mãe is a conditional cash transfer that targets vulnerable households with children. The current transfer provides $5 per month for every child to a maximum of three children per household and reaches 30% of children nationally (1). Concern has been raised by the government and international agencies over the low overall budget, transfer amounts and the programme's limited potential to achieve a greater impact (1,65). A 2018 UN-ILO/MSS assessment recommended that the transfer amount be raised to $23 per family per month and that the coverage be increased (1,65). Further, KONSSANTIL has prioritised improvements of Bolsa da Mãe to better achieve a nutrition impact (1).

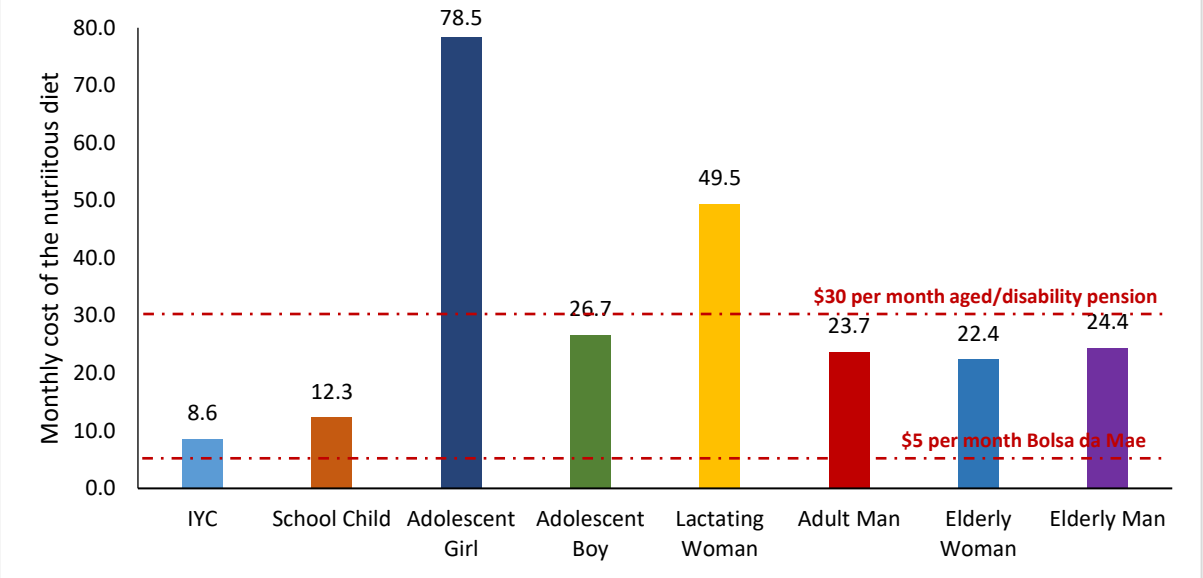
To demonstrate the potential of current and improved transfer amounts to improve access to nutritious diets, figure 50 compares transfer amounts to the cost of the nutritious diet for IYC, school children and adolescent girls and boys by municipality. The current $5 per child monthly transfer would cover on average 60% of the nutritious diet cost for IYC and 40% for school children but only 6% of the diet cost of adolescent girls and 19% of the diet cost for adolescent boys. Increasing the transfer to $8 per child per month (or roughly $23 for a household of three children) would be able to cover the cost of a nutritious diet for IYC in Baucau, Ermera, Manufahi and Oecusse but only 85% of the IYC diet in Bobonaro and 66% in Dili. The $8 transfer would be able to cover an average of 65% of nutritious diet cost for school children but still only 10% for adolescent girls and 30% for adolescent boys.

Figure 50: Monthly cost of a nutritious diet for household members for which the existing $5 Monthly Bolsa da Mãe Cash Transfer would apply



Even if the Bolsa da Mae transfers were able to be increased to $23 per household per month, they would still be less than the $30 monthly old age pension and significantly less than monthly veterans pension amounts. Figure 51 compares the average cost of nutritious diets for children and adolescents with the cost of nutritious diets for older men and women (60+ years) in Timor-Leste. These results show that the cost of meeting nutrient needs for elderly men and women would be less than the cost of meeting nutrient requirements for adolescents and lactating women.

Figure 51: Average monthly cost of a nutritious diet for different groups in the population



While it is useful to compare the cost of individual nutritious diets to cash transfer amounts, in reality, such transfers are not likely to be dedicated to individual household members. As such, figure 52 displays the possible impact of different monthly cash transfer[21] amounts on the affordability of a nutritious diet for the entire household. These results are further explained in figure 53 which demonstrates the 'steepness' of the impact, shown as the percentage increase in the proportion of affordability when different cash transfers are implemented.

A key point to highlight from this modelling is that cash transfers would have more/less impact on the proportion of households that would be able to afford a nutritious diet, depending on municipality and baseline diet affordability (first column in figure 52). For example, in Oecusse, the municipality with the lowest baseline affordability of (15%), the $15 monthly Bolsa da Mãe Cash Transfer (current transfer based on three children in household) would have the lowest impact in terms of increasing affordability (4% increase, see figure 53). The impact was similar in Dili, with an impact of 5% increase (figure 53). In contrast, in Baucau and Manufahi where baseline affordability was highest at 37% and 28% respectively, the impact of the $15 monthly cash transfer could be much more; potentially increasing affordability by 13% and 11%.

Slight increases to the Bolsa da Mãe Cash Transfer could have significant impacts to nutritious diet access in some municipalities. For example, a transfer of $23 per month instead of $15 could increase affordability by 23% in Baucau and 17% in Manufahi (figure 53). Doubling the Bolsa da Mãe transfer to $32 monthly, the same as the amount in the old age pension, would have an even more substantial impact in these municipalities; increasing diet affordability by 33% in Baucau and 23% in Manufahi. At the same time, a $32 monthly cash transfer would have little impact in Oecusse and Dili. This begs

[21] For all modelling of the impact of income improvement or cash transfer interventions on purchasing power on the affordability of nutritious diets, only 70% of the transfer or income increment is made available for food purchase in the model to simulate a more realistic scenario in which households have other costs and are unlikely to dedicate 100% of their household budget to food purchase. In spite of this, it is appreciated that behaviour change communication would be required to encourage the allocation of income gains or cash transfers to the acquisition of nutritious foods.

the question about whether it's appropriate and effective to implement the same intervention in all parts of the country or whether tailored programming may be needed.

Even when an unrealistic cash transfer of $50 monthly per household was modelled, it was not enough to increase the proportion of households able to afford a nutritious diet to 100%. Further models were run to investigate just how much cash would have to be provided to achieve 100% affordability. This was only achieved with highly unrealistic monthly cash transfers (not shown and not intended for policy advice). These findings indicate that cash transfers alone will not improve access to nutritious diets and that instead combination packages of nutrition sensitive and specific interventions should be considered. Further, as the youth population ages, more people will likely find it difficult to enter the workforce and may need to be reliant on social protection. As such, more permanent solutions are needed for long term sustainability.

*Figure 52: Proportion of households that would be able to afford a nutritious diet if different **cash transfer amounts** were provided in the six assessment municipalities*

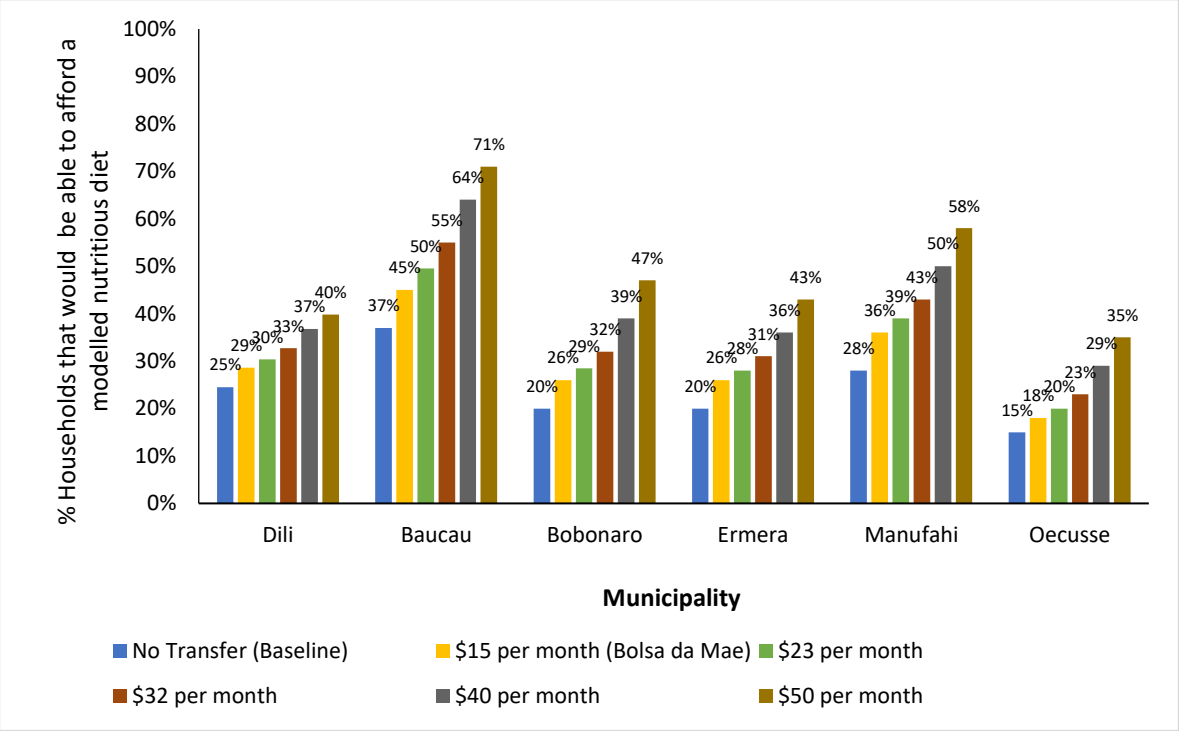
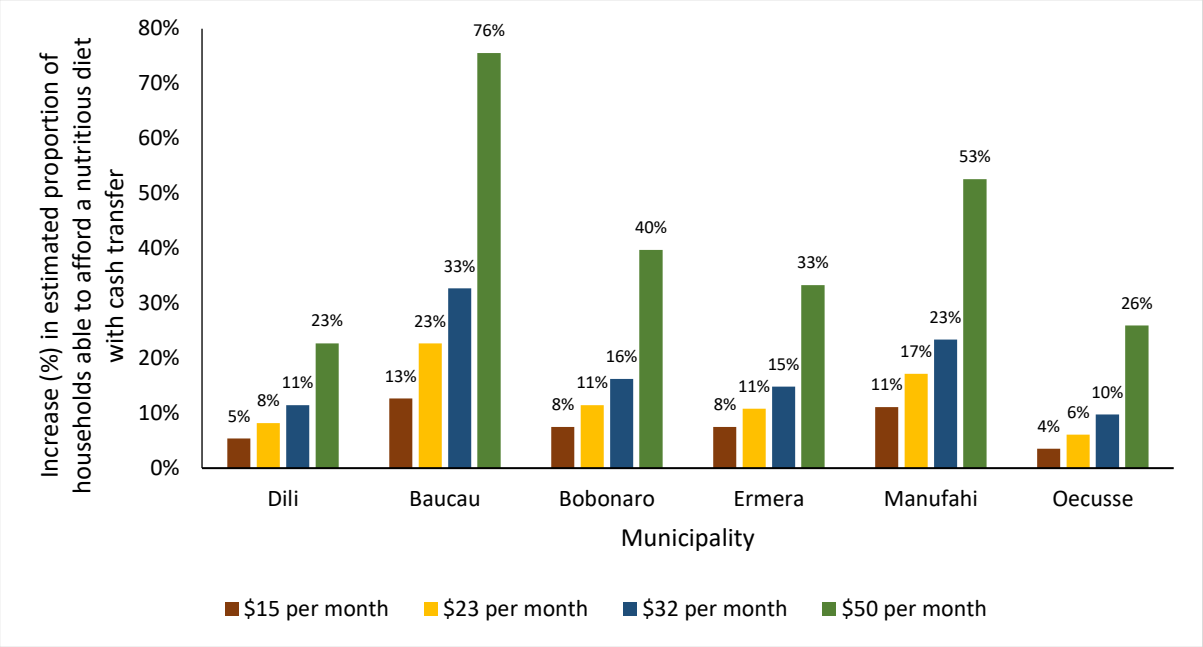


Figure 53: Impact of possible cash transfers on ability of households to afford a nutritious diet (percentage difference between baseline affordability or 'No Transfer) and affordability if Cash Transfer amount implemented).



Nutritious food vouchers

In addition to cash transfers, the NFNSP, NNS and PAN-HAM-TIL prioritise the distribution of nutritionally improved food voucher interventions. The use of vouchers means that there is the oportunity for sourcing foods from local producers. The content of the proposed nutritious food vouchers is provided in table 8. The options modelled included provision of vouchers for fresh and dried foods with unfortified or fortified rice.

Table 8: Modelled Nutritious Food Vouchers (Quarterly Transfer)

Unfortified Food Voucher		Fortified Rice Food Voucher	
White Rice (local)	30000g	**Fortified Rice**	30000g
Milk (imported)	8000g	**Milk (imported)**	8000g
Red beans (local)	10000g	**Red beans (local)**	10000g
Mung beans (imported)	10000g	**Mung beans (imported)**	10000g
Eggs (imported)	3600g	**Eggs (imported)**	3600g
Oil (Bimoli)	10000g	**Oil (Bimoli)**	10000g

Figure 54 displays the impact of the different food voucher options on the cost of a nutritious diet for the model household in each assessment area. In each municipality, the voucher containing fortified rice and oil had the greatest impact on reducing the cost of a nutritious diet. Similarily, figure 55 shows the impact that food vouchers could have on the proportion of households that could afford a nutritious diet. Providing the fortified food voucher could increase the proportion of households able to afford a nutritious diet to 68% in Baucau but only to 32% in Oecusse.

Figure 54: Monthly cost of a nutritious diet for the model 5-person household and the impact on diet cost if different food vouchers were provided

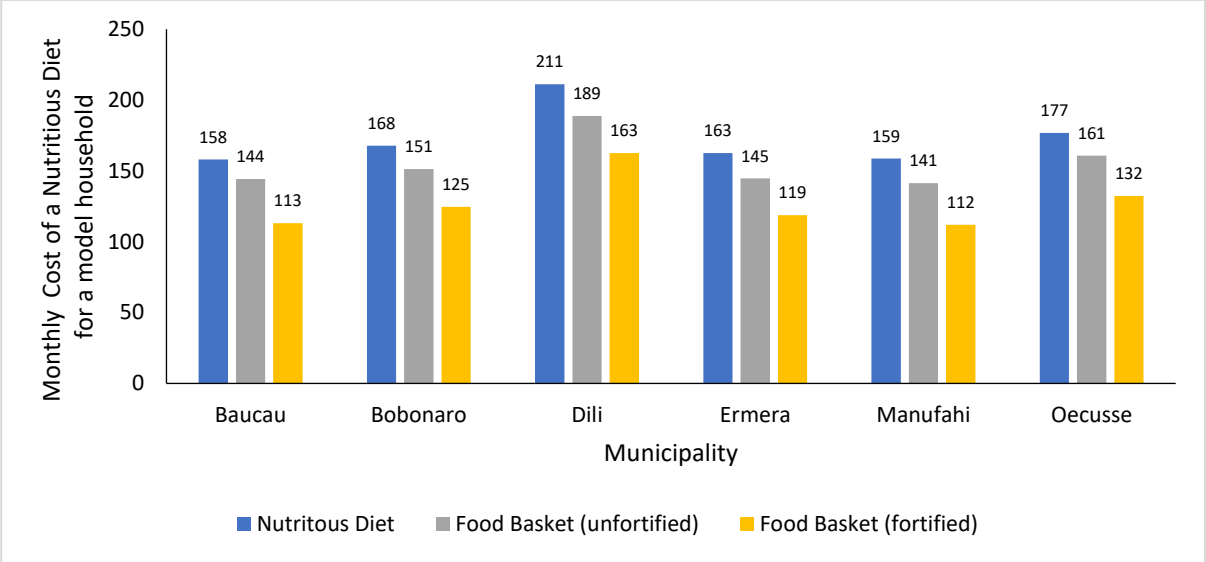
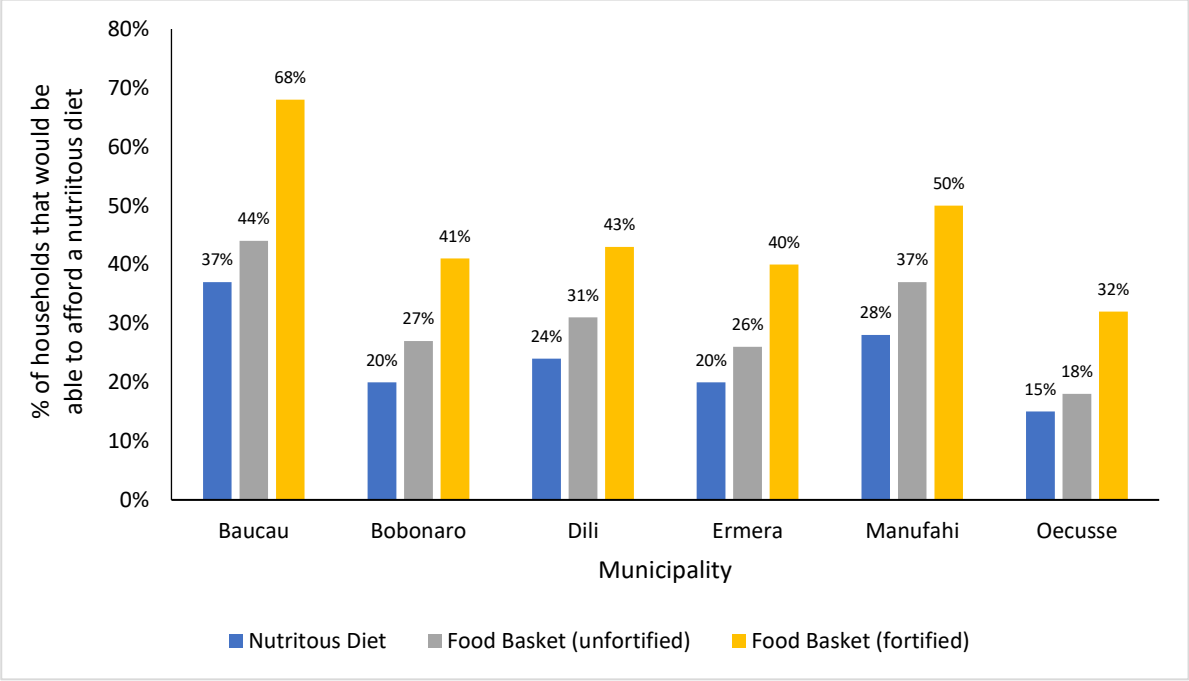


*Figure 55: Proportion of households that would be able to afford a nutritious diet if **food vouchers** were provided in the six assessment municipalities*



Final observations: combined impact of household packages

The last step of the CotD modelling is to form the modelled interventions into household packages to simulate the simultaneous provision of programmes by different sectors or partners. In each of the figures presented, a series of scenarios are compared in which different, multisectoral interventions are implemented to reach alternative individuals in the household or the entire household. This modelling is included to estimate the possible impact on nutritious diet access if multiple actions were put into place at the same time within areas, reaching the same households. Two sets of household packages are modelled to show how results would differ if MMT was used as the supplement for women and adolescent girls instead of IFA.

A key message from the results shown in figures 56 and 57 is that interventions from one sector only would not be able to provide access to nutritious diets to all households in the population. Conversely, it would only be with interventions from all relevant sectors that such improvements can be made. This information can be used to show that nutrition is not only the responsibility of the health sector but the combined responsibility of all sectors and that nutrition-specific and -sensitive approaches are needed.

Table 9: Household intervention packages modelled to show potential combined intervention of multiple nutrition-sensitive and nutrition-specific interventions across sectors (sector colours shown in key)

Package	IYC	School Child	Adolescent Girl	PLW	Adult Man	Entire Household
Household packages shown in figure 56						
1. Supplements	MNP		IFA	IFA		
2. Supplements + School Feeding (SF)	MNP	School Feeding	IFA	IFA		
3. Cash transfers (CT) + vouchers	Bolsa da Mae $5	Bolsa da Mae $5	Bolsa da Mae $5			Food Vouchers
4. Supplements + SF + CT	MNP BdM $5	SF BdM $5	IFA BdM $5	IFA		
5. Supplements + SF + CT + Vouchers	MNP BdM $5	SF BdM $5	IFA BdM $5	IFA		Food Vouchers
6. Supplements, SF + CT + Agriculture	MNP BdM $5	SF BdM $5	IFA BdM $5	IFA		Reduced PH losses
Household packages shown in figure 57 (showing impact if MMT was used instead of IFA)						
1. Supplements	MNP		MMT	MMT		
2. Supplements + School Feeding (SF)	MNP	School Feeding	MMT	MMT		
3. Cash transfers (CT) + vouchers	Bolsa da Mae $5	Bolsa da Mae $5	Bolsa da Mae $5			Food Vouchers
4. Supplements + SF + CT	MNP BdM $5	SF BdM $5	MMT BdM $5	MMT		
5. Supplements + SF + CT + Vouchers	MNP BdM $5	SF BdM $5	MMT BdM $5	MMT		Food Vouchers

6. Supplements, SF + CT + Agriculture	**MNP BdM $5**	**SF BdM $5**	**MMT BdM $5**	**MMT**	**Reduced PH losses**

KEY			
Health Sector	**Social Protection**	**Agriculture Sector**	**Education**

Figure 56: Impact of different packages of household interventions on the percentage of households who would be able to afford a nutritious diet (packages using IFA for women and girls)

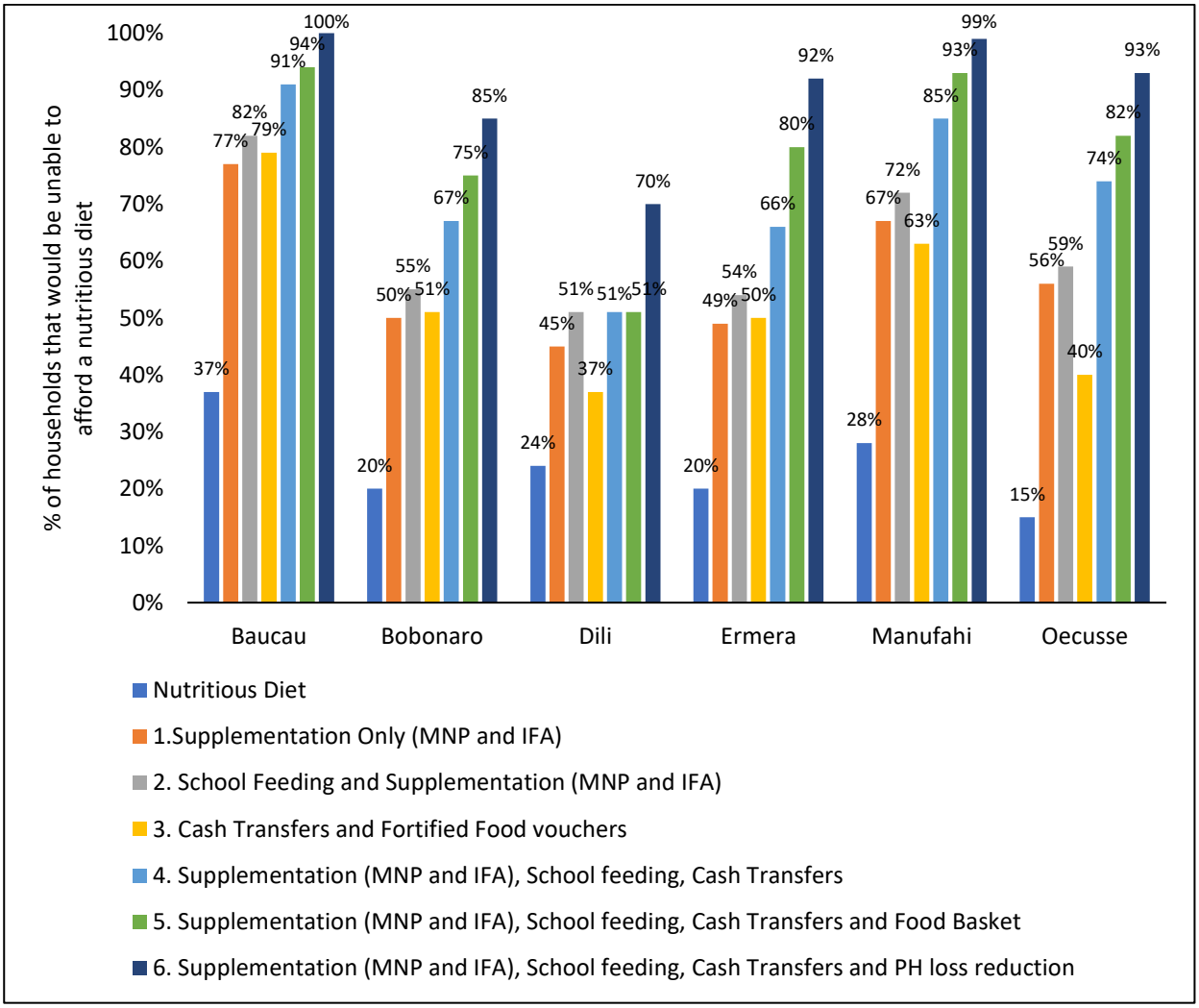
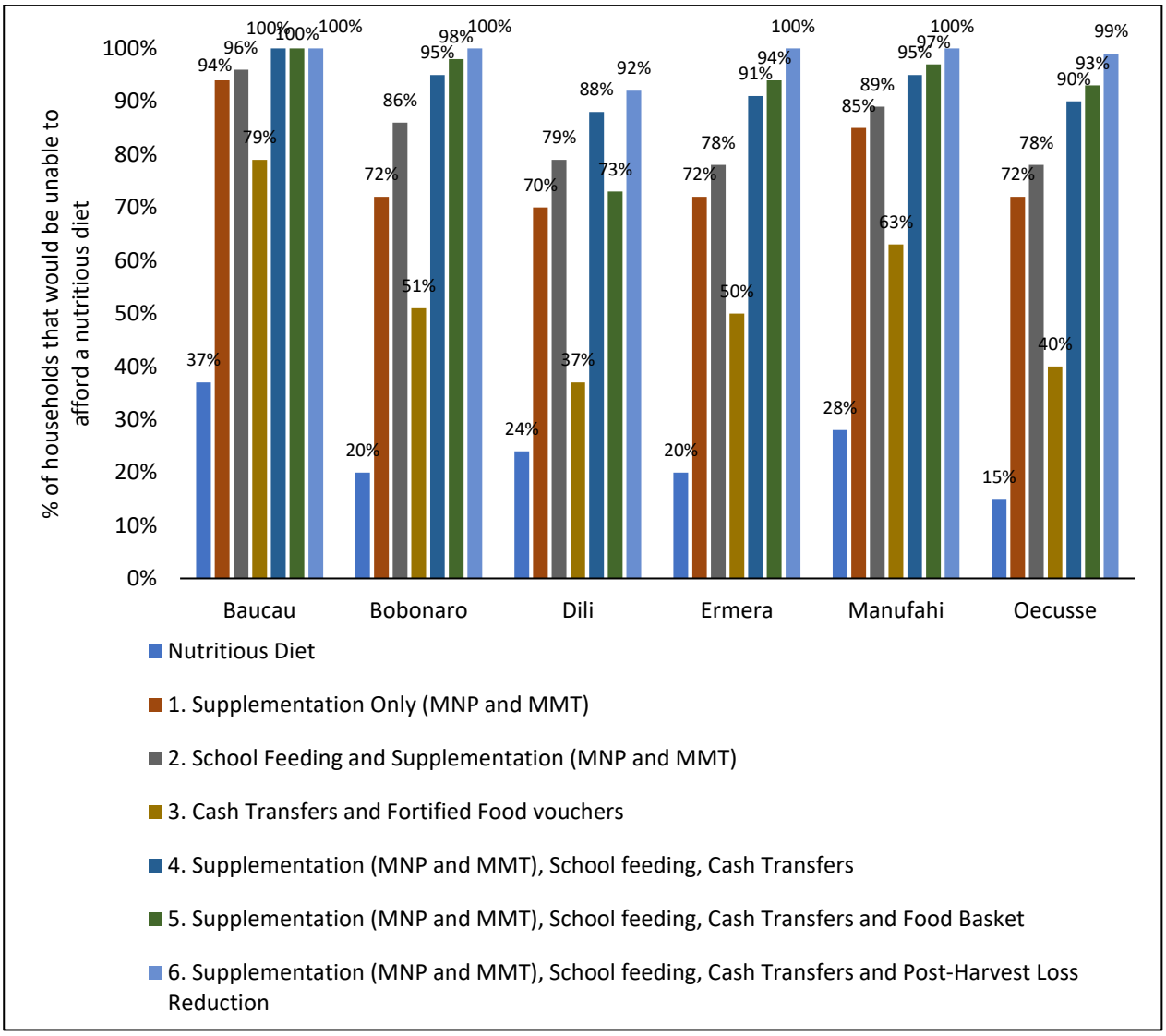


Figure 57: Impact of different packages of household interventions on the percentage of households who would be able to afford a nutritious diet (packages using MMT for women and girls)



Draft KONSSANTIL Recommendations

In October 2019 the preliminary FNG results were shared with Technical Working group members, KONSSANTIL, UN partners, Donors and other intuitional partners via a series of workshops. During this process, KONSSANTIL members developed a set of **draft**, initial recommendations from the FNG results available to them. These recommendations are not in any way intended to be final or binding but will be used to initiate discussion amongst KONSSANTIL and partners when the FNG analysis is finalised and final results are available. For the purpose of discussion and review before this stage, the draft, unvalidated and non-binding recommendations are summarised by sector in the table below.

Table 10: DRAFT recommendations prioritised by KONSSANTIL members for follow-up as the FNG process continues

Health	Social Protection	Education	Agriculture	Commerce	KONSSANTIL (overarching)
Strengthen existing supplement programmes for IYC, adolescent girls and women (MNP and IFA) For future procurement and policy rounds, provide MMT to girls and women instead of IFA Extend targeted supplementary feeding programme for PLW, incorporating fortified food such as Timor Vita (Super Cereal for PLW)	Provide food vouchers to vulnerable households, ensuring nutritious foods are included Increase the Bolsa da Mae transfer from per child per month to cover a greater proportion of diet cost Provide targeted and informed behaviour change activities communication to encourage purchase of nutritious foods with cash transfers	Increase budget for school menu from 25c to 50c per day per child Strengthen home grown school feeding to ensure a minimum proportion of school meal ingredients are sourced from local farmers Include fortified rice in school feeding meals where possible Revise menus in guidance to specify inclusion of the most nutritious food options Provide budget for school feeding directly to schools using mobile payments (mosan) to avoid delay	Diversify food production by supporting homestead production (including small animals) via Gov/NGO Agriculture extension programmes Provision of well-informed BCC and education to encourage households to consume rather than sell nutritious produce Continue to promote nutrition-sensitive agriculture programming across Further explore and model options for supporting fish production and consumption	Support food innovation to promote new uses of local foods and create markets Improve market access for small producers via farmer cooperatives and distribution networks	Monitoring and evaluation of multisectoral activities prioritised through FNG process

Figure 58: KONSSANTIL Presentation of the FNG Preliminary Findings, October 9th, 2019


Fill the Nutrient Gap Timor-Leste 2019
Analiza hodi Halo Desizaun ba Sistema Aihan Sustentavel
Hodi Hadiak Kapital Umanu no Dieta Saudavel


unicef
USAID
Fill the Nutrient Gap Timor-Leste 2019
Analysis for Decision-Making Towards Sustainable Food Systems
For Healthy Diets and Improved Human Capital


KOICA
USAID
unicef
Fill the Nutrient Gap Timor-Leste 2019
Analysis for Decision-Making Towards Sustainable Food Systems
For Healthy Diets and Improved Human Capital

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Appendices

Appendix Table 1: Locations of the market price data collection and geographic zone reassignment categories

No.	Municipality	Administrative Post	Suco	Market Name	Geographic Zone
1	Baucau	Bagia	Lavateri	Lavateri Market	Remote/Mountains
2	Baucau	Baucau	Buibau	Vila Nova	Urban (Large town)
3	Baucau	Laga-Soba	Soba	Soba	Coast
4	Baucau	Quelicai	Bagia	Quelicai Vila	Remote/Mountains
5	Baucau	Vemasse	Oralan	Vemasse-Oralan	Coast
6	Baucau	Venilale	Uatu Haco	Venilale market	Remote/Mountains
7	Bobonaro	Atabae	Atabae	Koilima	Remote/Mountains
8	Bobonaro	Balibo	Balibo Vila	Balibo Vila	Urban (Large town)
9	Bobonaro	Bobonaro	Mailubu	Mailubu	Remote/Mountains
10	Bobonaro	Cailaco	Meligo	Marko Cailaco	Remote/Mountains
11	Bobonaro	Cailaco	Puruga	Bilimau	Remote/Mountains
12	Bobonaro	Maliana	Lahomea	Vila Lahomea	Urban (Large town)
13	Dili	Atauro	Beloi	Beloi	Coast
14	Dili	Dili Barat - Dom Alexio	Bairro Pite	Bario Pite	Dili (Capital)
15	Dili	Dili Barat - Dom Alexio	Manleu-ana	Meanleu-ana	Dili (Capital)
16	Dili	Dili Timur - Cristo Rei	Kamea	Becora/Kamea	Dili (Capital)
17	Dili	Dili Timur - Nain Feto	Lahane Sae	Taibessi	Dili (Capital)
18	Dili	Metinaro	Sabuli	Metinaro Market	Coast
19	Ermera	Atsabe	Laklo	Laklo	Remote/Mountains
20	Ermera	Ermera	Riheu	Gleno-Dauhati	Urban (Large town)
21	Ermera	Hatolia	Fatubolu	Fatubolu/Dauhati	Remote/Mountains
22	Ermera	Hatolia	Hatolia Vila	Hatolia Vila	Remote/Mountains
23	Ermera	Letefoho	Lauana	Lauana	Remote/Mountains
24	Ermera	Railaku	Samalete	Daserlaku	Remote/Mountains
25	Manufahi	Alas	Dotik	Dotik	Coast
26	Manufahi	FatuBerliu	Klakuk?	Weikar	Coast
27	Manufahi	Same	Betano	Betano	Coast
28	Manufahi	Same	Dai-sua	Daisua	Remote/Mountains
29	Manufahi	Same	Letefoho	Same Vila	Urban (Large town)
30	Manufahi	Turiskai	Fatucalo	Turiskai Market	Remote/Mountains
31	Oecusse	Nitibe	Bene Ufe	Bauknana/Baocnana	Coast
32	Oecusse	Nitibe	Usi Taco	Nitibe	Remote/Mountains
33	Oecusse	Oesilo	Uci Tacae	Pune	Remote/Mountains
34	Oecusse	Pante Makasar	Costa	Numbei	Urban (Large town)
35	Oecusse	Pante Makasar	Naimeco	Baqui Market	Urban (Large town)
36	Oecusse	Pante Makasar	Taiboco	Neofnua	Urban (Large town)
37	Oecusse	Passabe	Abani	Passabe	Remote/Mountains

Appendix Table 2: Availability and cost (average across all markets) of foods

Food Group Name	Food Name Tetun	Food Name English	Baucau		Bobonaro		Dili		Ermera		Manufahi		Oecusse	
			PRICE per 100g	Cost/100kcal	PRICE per 100g	Cost/100kcal	PRICE per 100g	Cost/100kcal	PRICE per 100g	Cost/100kcal	PRICE per 100g	Cost/100kcal	PRICE per 100g	Cost/100kcal
Grains and grain-based products	**Batar Fai ()**	**Pounded Maize**	0.20	**0.06**	0.10	**0.03**	0.21	**0.06**	0.13	**0.04**	0.12	**0.03**	0.12	**0.03**
	Batar Ikis	**Maize Powder**	0.18	**0.05**	0.16	**0.04**	0.22	**0.06**	0.16	**0.04**	.	**.**	.	**.**
	Batar Maran- musan ()	**Corn(maize)**	0.10	**0.03**	0.07	**0.02**	0.12	**0.03**	0.09	**0.03**	0.07	**0.02**	0.07	**0.02**
	Batar Maran-fulin ()	**Dry corn**	0.07	**0.02**	.	**.**	0.12	**0.03**	0.06	**0.02**	0.02	**0.01**	.	**.**
	Batar mutin ()	**White Maize**	.	**.**	.	**.**	.	**.**	0.07	**.**	.	**.**	.	**.**
	Batar Nurak ()	**Young/baby maize**	0.08	**0.05**	0.05	**0.03**	0.07	**0.05**	.	**.**	0.07	**0.05**	.	**.**
	Batar Uut ()	**Yellow Maize flour**	0.07	**0.02**	.	**.**	.	**.**	.	**.**	.	**.**	.	**.**
	Foos Mutin -importa ()	**White rice - imported**	0.05	**0.01**	0.06	**0.02**	0.07	**0.02**	0.07	**0.02**	0.08	**0.02**	0.07	**0.02**
	Foos Rai Mean ()	**Red local rice**	1.20	**0.33**	0.12	**0.03**	0.21	**0.06**	0.14	**0.04**	0.14	**0.04**	0.29	**0.08**
	Foos Rai Metan ()	**Black local rice**	0.22	**0.06**	0.14	**0.04**	0.26	**0.07**	0.18	**0.05**	.	**.**	.	**.**
	Foos Rai mutin ()	**White local rice**	0.13	**0.04**	0.09	**0.02**	0.18	**0.05**	0.12	**0.03**	0.14	**0.04**	0.10	**0.03**
	Makaraun ()	**Macaroni**	0.30	**0.08**	0.45	**0.13**	0.28	**0.08**	0.30	**0.08**	0.30	**0.08**	0.73	**0.21**
	Mie ()	**Chinese noodles**	0.27	**0.08**	0.26	**0.08**	0.27	**0.08**	0.22	**0.07**	0.33	**0.10**	0.27	**0.08**
	Paun ()	**Bread**	0.12	**0.04**	0.12	**0.04**	0.42	**0.16**	0.12	**0.04**	0.07	**0.03**	0.11	**0.04**
	Terigu/farina ()	**Wheat flour**	0.09	**0.02**	0.11	**0.03**	0.10	**0.03**	0.09	**0.02**	0.09	**0.02**	0.08	**0.02**
	Tora ()	**Millet**	.	**.**	.	**.**	.	**.**	.	**.**	0.10	**0.03**	.	**.**
Roots and tubers	**Ai farina isin ()**	**Fresh Cassava**	0.04	**0.03**	0.03	**0.02**	0.09	**0.07**	0.05	**0.04**	0.03	**0.02**	0.05	**0.04**
	Akar ut ()	**Sago**	.	**.**	0.11	**0.03**	0.12	**0.04**	0.16	**0.05**	0.13	**0.04**	.	**.**
	Fehuk Midar ()	**White Sweet Potato**	0.06	**0.05**	0.04	**0.04**	0.09	**0.08**	0.05	**0.04**	0.09	**0.08**	0.05	**0.04**
	Fehuk midar mean ()	**Red Sweet Potato**	0.05	**0.04**	.	**.**	.	**.**	.	**.**	.	**.**	.	**.**
	Fehuk ropa ()	**Potatoes**	0.16	**0.17**	0.19	**0.20**	0.14	**0.15**	0.15	**0.16**	0.14	**0.15**	0.18	**0.19**
	Sinkumas ()	**Jicama/ yambean**	0.05	**0.13**	0.05	**0.13**	0.07	**0.18**	.	**.**	.	**.**	0.07	**0.18**
	Talas Bee ()	**Water taro**	0.08	**0.07**	0.07	**0.06**	.	**.**	0.06	**0.05**	.	**.**	.	**.**
	Talas Rai maran ()	**Taro**	0.05	**0.01**	0.10	**0.03**	0.10	**0.03**	0.05	**0.01**	0.04	**0.01**	0.06	**0.02**
	Uhi ()	**Mountain Yam**	0.07	**0.10**	.	**.**	.	**.**	.	**.**	.	**.**	.	**.**

Food Group Name	Food Name Tetun	Food Name English	Baucau		Bobonaro		Dili		Ermera		Manufahi		Oecusse	
			PRICE per 100g	Cost/100 kcal	PRICE per 100g	Cost/100 kcal	PRICE per 100g	Cost/100 kcal	PRICE per 100g	Cost/100 kcal	PRICE per 100g	Cost/100 kcal	PRICE per 100g	Cost/100 kcal
Legumes, nuts and seeds	Ervilla nurak ()	Green peas in pod	.	.	0.18	**0.51**	0.39	**1.11**	0.08	**0.23**	.	.	.	.
	Fore Keli musan ()	Soy beans	0.23	**0.16**	0.29	**0.20**	0.28	**0.19**	0.28	**0.19**	0.32	**0.22**	.	.
	Fore masin/ Fore lotuk ()	Rice bean	0.17	**0.05**	0.12	**0.04**	0.25	**0.08**	0.19	**0.06**	0.30	**0.09**	.	.
	Fore mungu ()	Mung bean(green gram)	0.22	**0.19**	0.14	**0.12**	0.28	**0.24**	0.23	**0.20**	0.28	**0.24**	0.28	**0.24**
	Fore mungu mean ()	Red Mung bean	.	.	.	.	.	.	.	.	0.19	.	.	.
	Fore Mungu moris ()	Mung bean sprouts	0.22	**0.36**	0.14	**0.23**	0.25	**0.41**	.	.	0.28	**0.46**	0.40	**0.66**
	Fore rai ()	Pea nut	0.24	**0.04**	0.24	**0.04**	0.39	**0.07**	0.29	**0.05**	0.33	**0.06**	0.25	**0.04**
	Fore rai ho kulit ()	Peanuts with skin	0.20	**0.05**	.	.	.	.	.	.	.	.	0.19	**0.05**
	Fore rai sona ()	Roasted Peanut	0.22	**0.04**	0.35	**0.06**	.	.	.	.	.	.	.	.
	Fore tali musan/ Fore metan ()	Black Beans	0.21	**0.06**	0.18	**0.05**	0.34	**0.10**	0.20	**0.06**	0.27	**0.08**	0.13	**0.04**
	Kami ()	Candlenut	0.14	**0.02**	0.30	**0.05**	0.35	**0.06**	0.17	**0.03**	0.05	**0.01**	0.56	**0.10**
	Kiar(Nut) ()	Nuts	.	.	0.39	**0.07**	0.49	**0.08**	0.37	**0.06**	.	.	.	.
	Koto mean ()	Kidney beans	0.26	**0.08**	0.18	**0.05**	0.30	**0.09**	0.23	**0.07**	0.22	**0.07**	0.34	**0.10**
	Koto moruk ()	Lima bean	0.14	**0.11**	0.08	**0.06**	0.17	**0.13**	0.09	**0.07**	.	.	0.10	**0.08**
	Koto mutin ()	Common bean	0.28	**0.08**	0.14	**0.04**	0.29	**0.09**	0.23	**0.07**	0.23	**0.07**	.	.
	Kulu jaka musan bot ()	Jack fruit seed	.	.	.	.	0.04	**0.03**	.	.	.	.	.	.
	Lehe musan ()	Wild beans	0.11	**0.03**	.	.	.	.	.	.	.	.	0.05	**0.01**
	Tahu ()	Soy bean tofu	0.10	**0.13**	0.13	**0.17**	0.13	**0.17**	0.16	**0.21**	0.09	**0.12**	0.11	**0.14**
	Tempe ()	Fermented soybean	0.14	**0.07**	0.17	**0.09**	0.18	**0.09**	0.18	**0.09**	0.15	**0.08**	0.23	**0.12**
	Tunis ()	Pigeon Pea	.	.	0.09	**0.03**	0.20	**0.06**	0.18	**0.06**	0.10	**0.03**	0.15	**0.05**
Meat and offal	Ayam potong -	Frozen chicken (imported)	.	.	0.37	**0.26**	0.28	**0.20**	0.41	**0.29**	.	.	.	.
	Fahi Moris ()	Live Pig	0.99	**0.52**	.	.	.	.	.	.	.	.	0.90	**0.47**
	Manu kelen ()	Chicken Drumstick	.	.	.	.	0.13	.	.	.	.	.	.	.
	Manu lokal (moris) ()	Chicken (local)	1.19	**0.40**	0.96	**0.33**	1.33	**0.45**	0.88	**0.30**	0.99	**0.34**	1.05	**0.36**
	Naan aten ()	Liver	.	.	0.48	**0.40**	0.65	**0.55**	0.78	**0.66**	0.60	**0.50**	0.60	**0.50**
	Naan bibi (Bibi Timor) ()	Goat	.	.	.	.	0.80	**0.30**	.	.	.	.	.	.
	Naan fahi ()	Pork	0.77	**0.40**	.	.	0.80	**0.42**	0.81	**0.42**	.	.	.	.
	Na'an Karau ()	Beef	0.55	**0.20**	0.70	**0.26**	0.80	**0.30**	0.81	**0.30**	0.80	**0.30**	0.67	**0.25**

Food Group Name	Food Name Tetun	Food Name English	Baucau		Bobonaro		Dili		Ermera.		Manufahi.		Oecusse.	
			PRICE per 100g	Cost/100 kcal	PRICE per 100g	Cost/100 kcal	PRICE per 100g	Cost/100 kcal	PRICE per 100g	Cost/100 kcal	PRICE per 100g	Cost/100 kcal	PRICE per 100g	Cost/100 kcal
Meat and offal	Naan kuda ()	Horse	.	.	.	.	0.80	0.71	.	.	.	.	.	.
	Naan manu lokal ()	Chicken (dead)	1.14	0.40	.	.	.	.	.	.	.	.	.	.
	Naan manu rasa (buras)	Dark Chicken Meat	.	.	.	.	1.28	0.55	0.95	0.41	.	.	.	.
	Naan maran (karau) ()	Dried meat (beef)	0.90	0.34	0.70	0.27	3.18	1.21	1.00	0.38	0.73	0.28	1.43	0.55
	Naan ten ()	Beef or Pork intestine	0.40	0.43	0.45	0.48	.	.	.	.	0.60	0.64	.	.
	Naan toalha (Karau) ()	Tripe or other pale organ meats	0.50	0.60	0.47	0.57	0.50	0.60	0.50	0.60	0.60	0.72	0.40	0.48
Fish, seafood, amphibians and invertebrates	Deho ()	Canned tuna	0.60	0.12	1.25	0.53	0.77	0.33	1.25	0.53	0.68	0.29	0.75	0.32
	Gurita maran ()	Octopus Dry	3.05	3.72	.	.	2.02	2.46	.	.	.	.	.	.
	Ikan maran ()	Dried Fish	0.73	0.62	0.66	0.56	0.72	0.62	0.65	0.56	0.51	0.44	0.48	0.41
	Ikan maran kiik ()	Dried small fish	1.30	0.39	.	.	.	.	.	.	.	.	.	.
	Ikan Saboko ()	Baked Fish	.	.	.	.	.	.	0.41	0.39	.	.	.	.
	Ikan Tasi Fresku ()	Fresh fish (large)	0.43	0.51	0.23	0.27	0.34	0.40	.	.	.	.	.	.
	Ikan tri ()	Small dried fish	0.58	0.17	0.53	0.16	0.78	0.23	0.49	0.15	0.56	0.17	0.78	0.23
	Langostra ()	Lobster	.	.	.	.	2.33	2.35	.	.	.	.	.	.
	Ramis ()	Mussels/Clams	.	.	.	.	0.11	0.18	.	.	.	.	.	.
	Sardines can ()	Sardines	0.59	0.17	.	.	.	.	.	.	.	.	0.32	0.09
Eggs and egg products	Manu tolun rasa ()	Chicken eggs (Imported)	0.35	0.25	0.40	0.29	0.39	0.28	0.41	0.30	.	.	0.44	0.32
	Manu tolun timor ()	Chicken eggs	0.73	0.46	0.50	0.32	1.05	0.66	0.47	0.30	0.56	0.35	0.57	0.36
Milk and milk products	Dancow (Nestle) ()	Dancow (Nestle) ()	0.99	0.20	.	.	.	.	.	.	.	.	.	.
	Susu been karau fresku ()	Fresh cow milk	0.25	0.49	.	.	.	.	.	.	.	.	.	.
	Susu kental ()	Condensed milk	0.54	0.17	0.29	0.09	0.21	0.07	0.34	0.11	0.23	0.07	0.34	0.11
	Susuben Uut (sachet) ()	Powdered Milk	0.88	0.18	0.72	0.14	0.93	0.19	0.89	0.18	1.00	0.20	0.93	0.19
Vegetables and vegetable products	Budu Tasi ()	Fresh Seaweed	0.17	0.65	.	.	0.12	0.46	0.09	0.35	0.15	0.58	.	.
	Agriaun ()	Water cress	0.10	0.20	0.10	0.20	0.13	0.27	0.06	0.12	0.11	0.22	0.15	0.31
	Aidila fuan okir ()	Baby young papaya fruit	0.05	0.23	0.05	0.23	0.06	0.27	0.05	0.23	0.03	0.14	0.04	0.18

	Aidila funan ()	**Papaya flower**	0.20	**0.91**	0.18	**0.82**	0.35	**1.59**	0.22	**1.00**	0.14	**0.64**	0.15	**0.68**
	Aidila nu ()	**Unripe Papaya**	0.04	**0.18**	.	**.**	.	**.**	.	**.**	.	**.**	.	**.**
	Aidila tahan ()	**Papaya leaves**	0.07	**0.12**	0.11	**0.18**	0.30	**0.50**	0.31	**0.52**	0.07	**0.12**	0.18	**0.30**

Food Group Name	Food Name Tetun	Food Name English	Baucau		Bobonaro		Dili		Ermera.		Manufahi.		Oecusse.	
			PRICE per 100g	Cost/100kcal	PRICE per 100g	Cost/100kcal	PRICE per 100g	Cost/100kcal	PRICE per 100g	Cost/100kcal	PRICE per 100g	Cost/100kcal	PRICE per 100g	Cost/100kcal
Vegetables and Vegetable Products	**Aifarina tahan ()**	**Cassava leaves**	0.06	**0.16**	0.07	**0.19**	0.10	**0.27**	0.07	**0.19**	0.05	**0.14**	0.06	**0.16**
	Alfase (romaine) ()	**Lettuce(bib, romaine)**	0.20	**1.25**	0.17	**1.06**	0.27	**1.69**	0.10	**0.63**	0.22	**1.38**	0.29	**1.81**
	Alfase2 (light green) ()	**Lettuce(light green)**	0.24	**1.85**	0.15	**1.15**	0.27	**2.08**	0.19	**1.46**	0.17	**1.31**	0.22	**1.69**
	Audubun ()	**Bamboo shoot**	.	**.**	.	**.**	0.25	**1.92**	.	**.**	.	**.**	.	**.**
	Baria ()	**Bitter melon**	0.12	**0.39**	0.11	**0.35**	0.19	**0.61**	0.14	**0.45**	0.11	**0.35**	0.13	**0.42**
	Baria tahan ()	**Bitter Gourd Leaf**	0.08	**0.27**	.	**.**	0.11	**0.37**	0.27	**0.90**	0.10	**0.33**	.	**.**
	Bayam mean ()	**Red Spinach**	0.11	**0.30**	.	**.**	.	**.**	.	**.**	.	**.**	.	**.**
	Bayang ()	**Spinach**	0.09	**0.24**	0.10	**0.27**	0.11	**0.30**	0.12	**0.32**	0.09	**0.24**	0.17	**0.46**
	Brinjela ()	**Eggplant (aubergine, brinjal)**	0.11	**0.39**	0.07	**0.25**	0.11	**0.39**	0.09	**0.32**	0.09	**0.32**	0.09	**0.32**
	Ervilla ()	**Peas, green, when eaten as fresh pod**	0.33	**0.94**	0.20	**0.57**	0.43	**1.23**	0.17	**0.49**	0.32	**0.91**	.	**.**
	Ervilla mussan ()	**Dry green pea (sweet pea)**	.	**.**	.	**.**	.	**.**	0.16	**.**	.	**.**	.	**.**
	Fahi matak ()	**Eggplant**	0.13	**0.43**	.	**.**	.	**.**	0.10	**0.33**	0.08	**0.27**	0.10	**0.33**
	Fehuk dikin ()	**Sweet potato leaves**	0.07	**0.47**	0.11	**0.73**	0.12	**0.80**	0.10	**0.67**	0.07	**0.47**	0.08	**0.53**
	Fore sikoti ()	**Long strangle green bean**	0.15	**0.43**	0.25	**0.71**	0.25	**0.71**	0.14	**0.40**	0.14	**0.40**	0.20	**0.57**
	Fore tali ho kulit matak ()	**Cowpeas in pods**	0.12	**0.31**	.	**.**	.	**.**	.	**.**	.	**.**	0.07	**0.18**
	Hudi dubun fresku ()	**Banana heart**	0.06	**0.29**	0.10	**0.48**	0.10	**0.48**	0.07	**0.33**	0.04	**0.19**	0.07	**0.33**
	Kabura ()	**Flowering Fern (warabi)**	0.10	**0.29**	.	**.**	0.11	**0.32**	0.14	**0.41**	0.09	**0.26**	0.04	**0.12**
	Kanko ()	**Water spinach(kang kung)**	0.08	**0.31**	0.10	**0.38**	0.12	**0.46**	0.08	**0.31**	0.08	**0.31**	0.08	**0.31**
	Kobi funan ()	**Cauliflower**	0.37	**1.48**	.	**.**	.	**.**	.	**.**	.	**.**	0.40	**1.60**
	Kobi tahan ()	**Broccoli rabe (rappi, turnip greens)**	.	**.**	0.07	**0.25**	0.06	**0.21**	0.06	**0.21**	0.11	**0.39**	.	**.**

	Kobi tahan (nurak/matak) ()	**Chinese Kale (Chinese broccoli, kai-lan)**	.	**.**	.	**.**	0.13	**0.46**	0.04	**0.14**	0.11	**0.39**	.	**.**
	Koto nurak ()	**Bush and pole beans**	0.16	**0.46**	0.10	**0.29**	0.32	**0.91**	0.11	**0.31**	0.14	**0.40**	0.28	**0.80**
	Lakeru dikin ()	**Pumpkin greens**	0.08	**0.28**	0.10	**0.34**	0.09	**0.31**	0.10	**0.34**	0.08	**0.28**	.	**.**
	Lakeru fuan tasak ()	**Pumpkin**	0.04	**0.22**	0.06	**0.33**	0.06	**0.33**	0.04	**0.22**	.	**.**	0.04	**0.22**
	Lakeru Japanes dikin	**Chayote leaves**	0.11	**0.73**	.	**.**	.	**.**	.	**.**	.	**.**	.	**.**
	Lakeru japanes verdi ka mutin ()	**Chayote (sayote, tayota, choko)**	0.04	**0.20**	0.05	**0.25**	0.06	**0.30**	0.04	**0.20**	0.03	**0.15**	0.05	**0.25**

Food Group Name	**Food Name Tetun**	**Food Name English**	**Baucau**		**Bobonaro**		**Dili**		**Ermera.**		**Manufahi.**		**Oecusse.**	
			PRICE per 100g	**Cost/100 kcal**	**PRICE per 100g**	**Cost/100 kcal**	**PRICE per 100g**	**Cost/100 kcal**	**PRICE per 100g**	**Cost/100 kcal**	**PRICE per 100g**	**Cost/100 kcal**	**PRICE per 100g**	**Cost/100 kcal**
Vegetables and Vegetable Products	**Lakeru nurak (Naruk) ()**	**Zucchini**	0.07	**0.41**	0.04	**0.24**	0.05	**0.29**	0.05	**0.29**	0.04	**0.24**	.	**.**
	Lakeru ukir ()	**Squash(Summer and other light squash)**	0.07	**0.44**	0.04	**0.25**	0.10	**0.63**	0.05	**0.31**	0.05	**0.31**	0.07	**0.44**
	Maraquijas Tahan ()	**Roselle Leaf**	.	**.**	.	**.**	.	**.**	0.21	**0.43**	0.16	**0.33**	.	**.**
	Marungi ()	**Drumstick greens**	0.07	**0.10**	.	**.**	.	**.**	.	**.**	.	**.**	.	**.**
	Mostarda ()	**Chinese cabage(bok choy, pak choy)**	0.09	**0.41**	.	**.**	0.13	**0.59**	0.07	**0.32**	0.18	**0.82**	0.10	**0.45**
	Mostarda Metan ()	**Green mustard leaf**	0.09	**0.60**	0.07	**0.47**	0.10	**0.67**	0.08	**0.53**	0.09	**0.60**	0.13	**0.87**
	Mostarda mutin naruk ()	**White Mustard Leaf**	0.09	**0.33**	0.06	**0.22**	0.08	**0.30**	0.07	**0.26**	0.08	**0.30**	0.12	**0.44**
	Mustarda mutin ()	**Mustard greens**	0.10	**0.45**	0.07	**0.32**	0.08	**0.36**	0.07	**0.32**	0.09	**0.41**	0.11	**0.50**
	Nabu/seinora mutin ()	**Radish**	.	**.**	.	**.**	0.17	**1.31**	0.03	**0.23**	.	**.**	.	**.**
	Patola ()	**Patola/Sponge Gourd**	0.03	**0.13**	.	**.**	.	**.**	.	**.**	0.06	**0.25**	.	**.**
	Picai ()	**Chinese Cabbage**	0.10	**0.63**	0.09	**0.56**	0.10	**0.63**	0.05	**0.31**	0.13	**0.81**	0.15	**0.94**
	Pipinu ()	**Cucumbers**	0.04	**0.31**	0.05	**0.38**	0.10	**0.77**	0.05	**0.38**	0.07	**0.54**	0.03	**0.23**
	Repolhu (mutin, mean) ()	**Cabbage(common and red varieties)**	0.10	**0.77**	0.10	**0.77**	0.10	**0.77**	0.07	**0.54**	0.10	**0.77**	0.13	**1.00**
	Salsa ()	**Celery**	0.50	**3.85**	0.99	**7.62**	1.22	**9.38**	0.41	**3.15**	0.33	**2.54**	0.75	**5.77**
	Senoura ()	**Carrot**	0.15	**0.33**	0.11	**0.24**	0.13	**0.29**	0.08	**0.18**	0.15	**0.33**	0.26	**0.58**
	Talas tahan ()	**Taro greens**	.	**.**	.	**.**	.	**.**	0.03	**0.08**	.	**.**	.	**.**
Fruit and fruit products	**Aidila ()**	**Papaya(ripe, fresh and dried)**	0.04	**0.10**	0.03	**0.08**	0.07	**0.18**	0.06	**0.15**	0.03	**0.08**	0.04	**0.10**
	Ainanas ()	**Pineapple**	0.08	**0.16**	0.14	**0.29**	0.16	**0.33**	0.09	**0.18**	.	**.**	0.17	**0.35**

	Aiyata boot ()	**Soursop (guanabana, graviola)**	.	**.**	0.08	**0.11**	0.16	**0.23**	0.02	**0.03**	.	**.**	0.06	**0.09**
	Amare ()	**Ambarella**	0.04	**0.13**	.	**.**	0.08	**0.25**	0.05	**0.16**	.	**.**	.	**.**
	Avocati ()	**Avocado**	0.13	**0.08**	0.10	**0.06**	0.17	**0.11**	0.06	**0.04**	.	**.**	0.15	**0.09**
	Bilimbi ()	**Star fruit(kamrakh)**	.	**.**	0.02	**0.06**	0.28	**0.88**	0.27	**0.84**	.	**.**	0.03	**0.09**
	Goiavas ()	**Guavas**	0.06	**0.12**	0.05	**0.10**	0.08	**0.16**	0.04	**0.08**	0.09	**0.18**	0.03	**0.06**
	Haas ()	**Mango (ripe fresh and dried)**	.	**.**	.	**.**	0.23	**0.35**	.	**.**	.	**.**	.	**.**
	Hudi Fatuk ()	**White Banana**	0.04	**0.04**	0.05	**0.05**	0.05	**0.05**	0.05	**0.05**	0.03	**0.03**	0.04	**0.04**
	Hudi fatuk tasak ()	**Ripe Banana**	.	**.**	.	**.**	.	**.**	.	**.**	.	**.**	0.04	**0.04**
	Hudi karau ()	**Ripe Banana**	.	**.**	0.06	**.**	.	**.**	.	**.**	.	**.**	.	**.**

Food Group Name	Food Name Tetun	Food Name English	Baucau		Bobonaro		Dili		Ermera.		Manufahi.		Oecusse.	
			PRICE per 100g	Cost/100 kcal	PRICE per 100g	Cost/100 kcal	PRICE per 100g	Cost/100 kcal	PRICE per 100g	Cost/100 kcal	PRICE per 100g	Cost/100 kcal	PRICE per 100g	Cost/100 kcal
Fruit and fruit products	**Hudi Tambaga ()**	**Yellow Banana**	0.05	**0.05**	0.06	**0.06**	0.07	**0.07**	0.09	**0.08**	0.05	**0.05**	.	**.**
	Hudi Tasak ()	**Banana**	0.05	**0.05**	0.07	**0.08**	0.10	**0.11**	0.09	**0.10**	0.08	**0.09**	0.05	**0.05**
	Jambu air ()	**Rose apple**	0.04	**0.16**	.	**.**	.	**.**	.	**.**	.	**.**	.	**.**
	Jambua ()	**Citrus Bali**	0.03	**0.09**	.	**.**	0.10	**0.31**	.	**.**	0.03	**0.09**	0.04	**0.13**
	Karambola ()	**Sour Carambola**	.	**.**	.	**.**	.	**.**	0.04	**0.13**	.	**.**	0.06	**0.19**
	Kulu Jaka Tasak ()	**Jackfruit(kathal)**	.	**.**	.	**.**	0.08	**0.07**	0.03	**0.03**	0.02	**0.02**	0.05	**0.04**
	Kulu modo ()	**Breadfruit**	0.08	**0.08**	.	**.**	.	**.**	0.03	**0.03**	0.03	**0.03**	.	**.**
	Manggis ()	**Mangosteen**	.	**.**	.	**.**	.	**.**	0.66	**1.12**	.	**.**	.	**.**
	Markuzas ()	**Passion fruit(ripe)**	0.11	**0.26**	.	**.**	0.38	**0.88**	0.05	**0.12**	.	**.**	0.09	**0.21**
	Masan ()	**Apple**	0.35	**0.59**	0.17	**0.29**	0.23	**0.39**	.	**.**	0.36	**0.61**	.	**.**
	Nuu Laloir ()	**Coconut flesh**	0.04	**0.01**	0.07	**0.02**	0.02	**0.01**	0.07	**0.02**	.	**.**	.	**.**
	Nuu Maran ()	**Dried Coconut**	0.03	**0.00**	0.04	**0.01**	0.07	**0.01**	0.04	**0.01**	0.03	**0.00**	0.03	**0.00**
	Pateka ()	**Watermelon**	.	**.**	0.10	**0.45**	.	**.**	.	**.**	.	**.**	0.03	**0.14**
	Rambutan ()	**Rambutan**	.	**.**	.	**.**	.	**.**	0.56	**1.14**	.	**.**	.	**.**
	Sabraka ()	**Orange**	0.09	**0.19**	0.06	**0.13**	0.12	**0.26**	0.09	**0.19**	0.08	**0.17**	0.10	**0.21**
	Sukaer ()	**Tamarind**	0.34	**0.15**	0.42	**0.19**	0.42	**0.19**	0.11	**0.05**	0.23	**0.10**	0.36	**0.16**
	Tanjerinya ()	**Mandarin**	0.19	**0.40**	0.16	**0.34**	0.29	**0.62**	0.13	**0.28**	0.21	**0.45**	0.17	**0.36**

	Tomate (red, yellow, green)	**Tomato(red, yellow**	0.18	**0.86**	0.13	**0.62**	0.20	**0.95**	0.21	**1.00**	0.22	**1.05**	0.09	**0.43**
Herbs, spices and condiments	**Derok kinur boot ()**	**Lemon**	0.06	**0.21**	0.05	**0.17**	0.14	**0.48**	0.10	**0.34**	.	**.**	0.10	**0.34**
	Derok masin ()	**Lime**	0.12	**0.41**	0.19	**0.66**	0.30	**1.03**	0.18	**0.62**	0.10	**0.34**	0.17	**0.59**
	Pimentaun matak ()	**Chili greens**	0.39	**0.87**	.	**.**	0.55	**1.22**	.	**.**	.	**.**	.	**.**
Oils and fats	**Manteiga ()**	**Butter**	.	**.**	0.19	**0.03**	0.18	**0.03**	0.22	**0.03**	0.16	**0.02**	0.17	**0.02**
	Margarina ()	**Margarine, shortening**	0.16	**0.03**	0.20	**0.03**	.	**.**	.	**.**	.	**.**	0.17	**0.03**
	Mina azeite ()	**Olive Oil**	.	**.**	.	**.**	1.90	**0.21**	.	**.**	.	**.**	.	**.**
	Mina importa (hanesan bimoli)	**Imported Vegetable Oil**	0.17	**0.02**	0.22	**0.03**	0.27	**0.03**	0.19	**0.02**	0.19	**0.02**	0.22	**0.03**
	Mina Kami ()	**Candlenut Oil**	.	**.**	.	**.**	0.34	**0.04**	.	**.**	.	**.**	.	**.**
	Mina nu ()	**Coconut oil**	0.18	**0.02**	0.32	**0.04**	0.36	**0.04**	0.26	**0.03**	0.21	**0.02**	0.60	**0.07**

Food Group Name	**Food Name Tetun**	**Food Name English**	**Baucau**		**Bobonaro**		**Dili**		**Ermera**		**Manufahi**		**Oecusse**	
			PRICE per 100g	**Cost/100 kcal**	**PRICE per 100g**	**Cost/100 kcal**	**PRICE per 100g**	**Cost/100 kcal**	**PRICE per 100g**	**Cost/100 kcal**	**PRICE per 100g**	**Cost/100 kcal**	**PRICE per 100g**	**Cost/100 kcal**
Supplements and infant foods	**Energen Vanila ()**	**Energen Vanila ()**	0.34	**0.09**	.	**.**	.	**.**	.	**.**	.	**.**	.	**.**
	Serelak ()	**Cerelac Complementary Feeding Product**	.	**.**	.	**.**	.	**.**	.	**.**	0.63	**0.16**	.	**.**
	SUN (ba labarik) ()	**SUN Complementary Feeding Product**	0.63	**0.16**	0.63	**0.16**	0.63	**0.16**	0.56	**0.14**	0.63	**0.16**	0.57	**0.15**

*Appendix Table 3: Weekly content and cost of the modelled nutritious diet in **BAUCAU** Municipality by Household Member*

Food Name	White Rice	Cowpeas	Velvet Beans	Tofu	Dried Meat	Dried squid	Small dried fish	Papaya Leaves	Cassava leaves	Spinach	Drumstick/ Moringa leaves	Dried coconut	Vegetable Oil	Breast milk	
Food Name (Tetun)	(Foos Mutin)	(Fore tali musan/ Fore metan)	(Lehe musan)	(Tahu)	(Naan maran (karau))	(Gurita maran)	(Ikan tri)	(Aidila tahan)	(Aifarina tahan)	(Bayang)	(Marungi)	(Nuu Maran)	(Mina importa (bimoli)	Breast milk	**TOTAL**
The WEEKLY quantities of foods in grams (g) selected by the software															
12-23-month-old Child	477	17	325	477	0	0	22	0	671	0	0	43	0	3724	**5756**
6-7-year-old Child	1578	40	344	0	0	0	70	0	731	0	190	455	0	0	**3408**
Adolescent Girl	2520	0	0	1287	685	129	0	0	5524	0	0	0	362	0	**10508**
Lactating Woman	2418	0	920	1210	19	0	158	0	5744	1191	0	517	0	0	**12176**
Adult Man	2891	0	1039	0	0	0	140	439	1307	0	0	621	0	0	**6438**
Total edible weight	9883	57	2629	2974	705	129	390	439	13976	1191	190	1636	362	3724	**38286**
Total weight	**9883**	**57**	**2629**	**2974**	**705**	**129**	**390**	**578**	**16443**	**1489**	**254**	**1636**	**362**	**3724**	**41252**
The WEEKLY number of servings of foods selected by the software															
12-23-month-old Child	7	1	14	21	0	0	1	0	7	0	0	2	0	7	N/A
6-7-year-old Child	14	2	10	0	0	0	2	0	5	0	2	9	0	0	N/A
Adolescent Girl	14	0	0	22	15	2	0	0	19	0	0	0	12	0	N/A
Lactating Woman	14	0	16	21	1	0	3	0	21	5	0	7	0	0	N/A
Adult Man	15	0	16	0	0	0	2	2	5	0	0	7	0	0	N/A
Total Servings	**64**	**3**	**56**	**64**	**16**	**2**	**8**	**2**	**57**	**5**	**2**	**25**	**12**	**7**	N/A
WEEKLY Cost of the Diet (USD):															
12-23-month-old Child	0.24	0.04	0.36	0.48	0	0	0.13	0	0.47	0	0	0.01	0	0	**1.73**
6-7-year-old Child	0.79	0.08	0.38	0	0	0	0.41	0	0.52	0	0.18	0.14	0	0	**2.49**
Adolescent Girl	1.26	0	0	1.29	6.17	3.94	0	0	3.9	0	0	0	0.62	0	**17.17**
Lactating Woman	1.21	0	1.01	1.21	0.17	0	0.91	0	4.05	1.34	0	0.16	0	0	**10.07**
Adult Man	1.45	0	1.14	0	0	0	0.81	0.4	0.92	0	0	0.19	0	0	**4.91**
Total Cost of the Diet	**4.94**	**0.12**	**2.89**	**2.97**	**6.34**	**3.94**	**2.26**	**0.4**	**9.87**	**1.34**	**0.18**	**0.49**	**0.62**	**0**	**36.36**

*Appendix Table 4: Weekly quantity of each nutrient provided by the edible portions of foods included in the Weekly Nutritious Household Diet in **BAUCAU** Municipality*

Food Name	Energy (kcal)	Protein (g)	Fat (g)	Vitamin A (µg RE)	Vitamin C (mg)	Vitamin B1 (mg)	Vitamin B2 (mg)	Niacin (mg NE)	Pantothenic acid (mg)	Vitamin B6 (mg)	Folic acid (µg DFE)	Vitamin B12 (µg)	Calcium (mg)	Iron (mg)	Magnesium (mg)	Zinc (mg)
Grains and grain-based products																
White Rice	35679	662.2	59.3	0	0	5.9	5.9	237.2	112.7	13.8	593	0	790.7	3	3558	108.7
Legumes, nuts and seeds																
Cowpeas	193.9	12.3	0.8	0	0	0.5	0.1	1.1	0.5	0.2	252.5	0	70	0.1	97.2	2.1
Velvet Beans	9701.5	620.5	102.5	65.7	105.2	10	4.5	153.8	32.1	11	12252	0	2366.2	10.8	2918.3	97.3
Tofu	2259.9	240.9	142.7	0	0	2.4	1.5	68.4	2.1	1.5	446	0	3122.3	8	3062.8	23.8
Meat and offal																
Dried Meat	1846.2	377.7	25.4	0	0	0.4	3.5	165.6	2.4	6.5	126.8	24.7	211.4	7.4	465.1	35.2
Fish, seafood, amphibians and invertebrates																
Dried squid	105.9	19.3	1.3	58.1	6.5	0	0.1	2.7	0.6	0.5	20.7	25.8	68.4	1.7	38.7	2.2
Small dried fish	1306.8	228.6	36.7	0	0	0.4	1.1	74.6	6	1.6	109.2	46.8	6631.4	2.4	546.1	20.3
Vegetables and vegetable products																
Papaya Leaves	263.6	23.3	4	1539.6	136.2	1	2.2	14.7	0.4	4.1	101	0	663.3	0.5	663.3	2.2
Cassava leaves	5171.2	517.1	28	36269	4612.2	12.6	26.6	181.7	34.9	75.5	14535	0	29490	21.7	8665.3	55.9
Spinach	440.6	44.1	2.4	3090.1	393	1.1	2.3	15.5	3	6.4	1238.4	0	2512.6	1.8	738.3	4.8
Drumstick/Moringa leaves	137	12.7	3.4	2093.2	418.6	0.5	1.3	4.9	0.3	2.3	390.1	0	837.3	0.1	79.9	0.3
Fruit and fruit products																
Dried Coconut	9913.7	97	922.7	0	4.9	1.3	1.3	14.7	2.8	1.3	427	0	523.5	2.8	1210.6	24.5
Oils and fats																
Vegetable Oil	3122.4	0	362.2	0	0	0	0	0	0	0	0	0	0	0	0	0
Breast Milk																
Breast milk	2420.6	39.1	145.2	1862	149	0.8	1.3	16.1	6.7	0.3	316.5	3.6	1042.7	0	130.3	4.5
Totals																
Total	**72562**	**2894.7**	**1836.6**	**44977**	**5825.4**	**36.9**	**51.5**	**951.1**	**204.5**	**125**	**30809**	**100.9**	**48330**	**60.3**	**22174**	**381.7**
Target nutrient amount for the household	**72562**	**1213.9**	**1836.6**	**20300**	**1505**	**34.3**	**35**	**441**	**154**	**39.2**	**11550**	**67.9**	**30800**	**60.3**	**6202**	**212.1**

*Appendix Table 5: The percentage (%) of each nutrient target provided by the edible portion of foods selected by the software for the Weekly Nutritious Household Diet in **BAUCAU** Municipality*

Food Name English	Food Name Tetun	Energy	Protein	Fat	Vitamin A	Vitamin C	Vitamin B1	Vitamin B2	Niacin	Pantothenic acid	Vitamin B6	Folic acid	Vitamin B12	Calcium	Iron	Magnesium	Zinc
Grains and grain-based products																	
White Rice	(Foos Mutin - importa)	49.2	54.5	3.2	0	0	17.3	16.9	53.8	73.2	35.3	5.1	0	2.6	4.9	57.4	51.3
Legumes, nuts and seeds																	
Cowpeas	(Fore tali musan/ Fore metan)	0.3	1	0	0	0	1.5	0.3	0.3	0.3	0.4	2.2	0	0.2	0.2	1.6	1
Velvet Beans	(Lehe musan)	13.4	51.1	5.6	0.3	7	29.1	12.8	34.9	20.8	28.2	106.1	0	7.7	17.9	47.1	45.9
Tofu	(Tahu)	3.1	19.8	7.8	0	0	6.9	4.2	15.5	1.4	3.8	3.9	0	10.1	13.3	49.4	11.2
Meat and offal																	
Dried Meat	(Naan maran (karau))	2.5	31.1	1.4	0	0	1.2	10.1	37.5	1.6	16.5	1.1	36.3	0.7	12.3	7.5	16.6
Fish, seafood, amphibians and invertebrates																	
Dried squid	(Gurita maran)	0.1	1.6	0.1	0.3	0.4	0.1	0.1	0.6	0.4	1.2	0.2	38	0.2	2.8	0.6	1
Small dried fish	(Ikan tri)	1.8	18.8	2	0	0	1.1	3	16.9	3.9	4.1	0.9	68.9	21.5	4	8.8	9.6
Vegetables and vegetable products																	
Papaya Leaves	(Aidila tahan)	0.4	1.9	0.2	7.6	9	2.8	6.4	3.3	0.3	10.4	0.9	0	2.2	0.8	10.7	1
Cassava leaves	(Aifarina tahan)	7.1	42.6	1.5	178.7	306.5	36.7	75.9	41.2	22.7	192.5	125.8	0	95.7	35.9	139.7	26.4
Spinach	(Bayang)	0.6	3.6	0.1	15.2	26.1	3.1	6.5	3.5	1.9	16.4	10.7	0	8.2	3.1	11.9	2.2
Drumstick/Moringa leaves	(Marungi)	0.2	1.1	0.2	10.3	27.8	1.4	3.6	1.1	0.2	5.8	3.4	0	2.7	0.1	1.3	0.1
Fruit and fruit products																	
Dried coconut	(Nuu Maran)	13.7	8	50.2	0	0.3	3.8	3.7	3.3	1.8	3.3	3.7	0	1.7	4.6	19.5	11.6
Oils and fats																	
Vegetable Oil	(Mina importa)	4.3	0	19.7	0	0	0	0	0	0	0	0	0	0	0	0	0
Breast Milk																	
Breast milk	Breast milk	3.3	3.2	7.9	9.2	9.9	2.3	3.7	3.7	4.4	0.9	2.7	5.3	3.4	0	2.1	2.1
Total	1	100	238.5	100	221.6	387.1	107.5	147.3	215.7	132.8	318.9	266.7	148.6	156.9	100	357.5	180

*Appendix Table 6: Weekly content and cost of the modelled nutritious diet in **BOBONARO** Municipality by Household Member*

	White Rice	Kidney Bean	White Bean	Tofu	Pigeon Pea	Liver	Dried meat	Small dried fish	Egg (local)	Cassava leaves	Dried Coconut	Vegetable Oil	Breast milk	Total
	(Foos Mutin - importa)	(Koto mean)	(Koto mutin)	(Tahu)	(Tunis)	(Naan aten)	(Naan maran (karau))	(Ikan tri)	(Manu tolun timor)	(Aifarina tahan)	(Nuu Maran)	(Mina importa	Breast milk	
The WEEKLY quantities of foods in grams (g) selected by the software for the household nutritious diet														
12-23-month-old Child	477	196	1	477	162	20	0	0	0	751	60	0	3724	5867
6-7-year-old Child	1578	0	170	0	0	2	0	54	0	1344	587	0	0	3736
Adolescent Girl	2520	0	0	1287	0	21	811	0	682	3796	0	283	0	9400
Lactating Woman	2418	1051	0	1210	0	56	187	0	0	5744	572	0	0	11238
Adult Man	2891	0	75	0	1047	85	0	0	0	2559	689	0	0	7346
Total edible weight	9883	1247	246	2974	1209	184	998	54	682	14194	1908	283	3724	37587
Total weight	9883	1247	246	2974	1209	184	998	54	784	16699	1908	283	3724	40194
The WEEKLY number of servings of the foods selected by the software for the household nutritious diet														
12-23-month-old Child	7	9	0	21	7	1	0	0	0	7	2	0	7	
6-7-year-old Child	14	0	5	0	0	0	0	2	0	8	11	0	0	
Adolescent Girl	14	0	0	22	0	1	18	0	6	14	0	10	0	
Lactating Woman	14	19	0	21	0	1	5	0	0	21	7	0	0	
Adult Man	15	0	2	0	16	1	0	0	0	8	7	0	0	
Total Servings	64	28	7	64	23	4	23	2	6	58	27	10	7	
WEEKLY Cost of the Household Nutritious Diet (USD):														
12-23-month-old Child	0.29	0.35	0	0.62	0.15	0.1	0	0	0	0.62	0.02	0	0	2.14
6-7-year-old Child	0.95	0	0.24	0	0	0.01	0	0.29	0	1.11	0.23	0	0	2.83
Adolescent Girl	1.51	0	0	1.67	0	0.1	5.68	0	3.92	3.13	0	0.62	0	16.63
Lactating Woman	1.45	1.89	0	1.57	0	0.27	1.31	0	0	4.73	0.23	0	0	11.45
Adult Man	1.73	0	0.1	0	0.94	0.41	0	0	0	2.11	0.28	0	0	5.57
Total Cost of the Diet	**5.93**	**2.24**	**0.34**	**3.87**	**1.09**	**0.88**	**6.99**	**0.29**	**3.92**	**11.69**	**0.76**	**0.62**	**0**	**38.63**

*Appendix Table 7: Weekly quantity of each nutrient provided by the edible portions of foods included in the Weekly Nutritious Household Diet in **BOBONARO** Municipality*

Food Name	Food Name (tetun)	Energy (kcal)	Protein (g)	Fat (g)	Vitamin A (µg RE)	Vitamin C (mg)	Vitamin B1 (mg)	Vitamin B2 (mg)	Niacin (mg NE)	Pantothenic acid (mg)	Vitamin B6 (mg)	Folic acid (µg DFE)	Vitamin B12 (µg)	Calcium (mg)	Iron (mg)	Magnesium (mg)	Zinc (mg)
Grains and grain-based products																	
White Rice	(Foos Mutin)	35679	662.2	59.3	0	0	5.9	5.9	237.2	112.7	13.8	593	0	790.7	3	3558	108.7
Legumes, nuts and seeds																	
Kidney Bean	(Koto mean)	4176.6	286.8	16.2	0	37.4	5.2	2	76.4	7.2	4	4276.4	0	922.6	4.8	1483.6	36.2
White Bean	(Koto mutin)	823.5	54.4	3.6	36.7	0	2.2	0.3	4	1.2	1.3	971	0	181.9	0.7	456.9	9.3
Tofu	(Tahu)	2259.9	240.9	142.7	0	0	2.4	1.5	68.4	2.1	1.5	446	0	3122.3	8	3062.8	23.8
Pigeon Pea	(Tunis)	3858.3	266.1	14.5	36.3	0	3.5	3.1	66.3	5.6	2.4	3652.7	0	1257.9	2.7	1511.9	35.1
Meat and offal																	
Liver	(Naan aten)	219.3	33.4	6.6	27760	20.3	0.2	4.9	22	7.8	0.7	396.2	150	9.2	2.3	27.6	8.3
Dried meat	(Naan maran (karau))	2615.1	535	35.9	0	0	0.6	5	234.6	3.4	9.2	179.7	34.9	299.4	10.5	658.8	49.9
Fish, seafood, amphibians and invertebrates																	
Small dried fish	(Ikan tri)	182	31.8	5.1	0	0	0.1	0.1	10.4	0.8	0.2	15.2	6.5	923.4	0.3	76	2.8
Eggs and egg products																	
Egg (local)	(Manu tolun timor)	1078.1	90.8	79.2	1450.1	0	1.2	2.7	23.2	9.6	1	341.2	17.7	409.4	2.8	72.1	13.9
Vegetables and vegetable products																	
Cassava leaves	(Aifarina tahan)	5251.8	525.2	28.4	36834	4684.1	12.8	27	184.5	35.5	76.6	14762	0	29950	22	8800.4	56.8
Fruit and fruit products																	
Dried Coconut	(Nuu Maran)	11562	113.1	1076.1	0	5.7	1.5	1.5	17.2	3.2	1.5	498	0	610.5	3.2	1411.8	28.6
Oils and fats																	
Vegetable Oil	(Mina importa)	2436.1	0	282.6	0	0	0	0	0	0	0	0	0	0	0	0	0
Breast Milk																	
Breast milk	Breast milk	2420.6	39.1	145.2	1862	149	0.8	1.3	16.1	6.7	0.3	316.5	3.6	1042.7	0	130.3	4.5
Total		**72562**	**2878.6**	**1895.5**	**67979**	**4896.4**	**36.4**	**55.4**	**960.3**	**195.8**	**112.6**	**26448**	**212.7**	**39520**	**60.3**	**21250**	**377.7**
Target amount for the household		**72562**	**1213.9**	**1836.6**	**20300**	**1505**	**34.3**	**35**	**441**	**154**	**39.2**	**11550**	**67.9**	**30800**	**60.3**	**6202**	**212.1**

*Appendix Table 8: The percentage (%) of each nutrient target provided by the edible portion of foods selected by the software for the Weekly Nutritious Household Diet in **BOBONARO** Municipality*

Food Name	Food Name (Tetun)	Energy	Protein	Fat	Vitamin A	Vitamin C	Vitamin B1	Vitamin B2	Niacin	Pantothenic acid	Vitamin B6	Folic acid	Vitamin B12	Calcium	Iron	Magnesium	Zinc
Grains and grain-based products																	
White Rice	(Foos Mutin)	49.2	54.5	3.2	0	0	17.3	16.9	53.8	73.2	35.3	5.1	0	2.6	4.9	57.4	51.3
Legumes, nuts and seeds																	
Kidney Bean	(Koto mean)	5.8	23.6	0.9	0	2.5	15.3	5.7	17.3	4.7	10.2	37	0	3	8	23.9	17
White Bean	(Koto mutin)	1.1	4.5	0.2	0.2	0	6.4	0.8	0.9	0.8	3.2	8.4	0	0.6	1.2	7.4	4.4
Tofu	(Tahu)	3.1	19.8	7.8	0	0	6.9	4.2	15.5	1.4	3.8	3.9	0	10.1	13.3	49.4	11.2
Pigeon Pea	(Tunis)	5.3	21.9	0.8	0.2	0	10.2	9	15	3.6	6.2	31.6	0	4.1	4.4	24.4	16.5
Meat and offal																	
Liver	(Naan aten)	0.3	2.7	0.4	136.7	1.3	0.7	14	5	5	1.8	3.4	220.9	0	3.8	0.4	3.9
Dried meat	(Naan maran (karau))	3.6	44.1	2	0	0	1.7	14.3	53.2	2.2	23.4	1.6	51.4	1	17.4	10.6	23.5
Fish, seafood, amphibians and invertebrates																	
Small dried fish	(Ikan tri)	0.3	2.6	0.3	0	0	0.2	0.4	2.4	0.5	0.6	0.1	9.6	3	0.6	1.2	1.3
Eggs and egg products																	
Egg (local)	(Manu tolun timor)	1.5	7.5	4.3	7.1	0	3.6	7.8	5.3	6.2	2.6	3	26	1.3	4.7	1.2	6.5
Vegetables and vegetable products																	
Cassava leaves	(Aifarina tahan)	7.2	43.3	1.5	181.4	311.2	37.2	77.1	41.8	23	195.5	127.8	0	97.2	36.5	141.9	26.8
Fruit and fruit products																	
Dried Coconut	(Nuu Maran)	15.9	9.3	58.6	0	0.4	4.4	4.4	3.9	2.1	3.9	4.3	0	2	5.4	22.8	13.5
Oils and fats																	
Vegetable Oil	(Mina importa)	3.4	0	15.4	0	0	0	0	0	0	0	0	0	0	0	0	0
Breast Milk																	
Breast milk	Breast milk	3.3	3.2	7.9	9.2	9.9	2.3	3.7	3.7	4.4	0.9	2.7	5.3	3.4	0	2.1	2.1
Total		**100**	**237.1**	**103.2**	**334.9**	**325.3**	**106.3**	**158.3**	**217.8**	**127.1**	**287.3**	**229**	**313.3**	**128.3**	**100**	**342.6**	**178.1**

*Appendix Table 9: Weekly content and cost of the modelled nutritious diet in **DILI** Municipality by Household Member*

	White Rice	Adzuki/Rice Bean	Red Kidney Bean	White Beans	Tofu	Liver	Beef	Small dried fish	Mussles/ Clams	Cassava Leaves	Spinach	Mustard Greens	Coconut flesh	Breast milk	Total
	(Foos Mutin)	(Fore masin/ Fore lotuk)	(Koto mean)	(Koto mutin)	(Tahu)	(Naan aten)	(Naan karau)	(Ikan tri)	(Ramis)	(Aifarina tahan)	(Bayang)	(Mustarda mutin)	(Nuu Laloir)	Breast milk	
The WEEKLY quantities of foods in grams (g) selected by the software for the household nutritious diet															
12-23-month-old Child	477	64	193	8	477	19	0	0	0	806	0	0	180	3724	5948
6-7-year-old Child	1578	0	0	119	0	8	0	14	0	1111	0	598	1077	0	4505
Adolescent Girl	2520	0	60	0	1287	0	297	0	1932	4468	0	0	1033	0	11598
Lactating Woman	2418	0	1066	0	1210	34	0	0	0	5744	1281	0	978	0	12730
Adult Man	2891	0	0	285	275	43	0	0	0	2848	0	0	1849	0	8190
Total edible weight	9883	64	1319	411	3249	104	297	14	1932	14976	1281	598	5117	3724	42970
Total weight	9883	64	1319	411	3249	104	431	14	6038	17619	1601	787	6561	3724	51805
The WEEKLY number of servings of the foods selected by the software for the household nutritious diet															
12-23-month-old Child	7	3	9	1	21	1	0	0	0	8	0	0	6	7	
6-7-year-old Child	14	0	0	4	0	1	0	1	0	7	0	4	20	0	
Adolescent Girl	14	0	2	0	22	0	7	0	21	16	0	0	12	0	
Lactating Woman	14	0	19	0	21	1	0	0	0	21	5	0	12	0	
Adult Man	15	0	0	5	4	1	0	0	0	9	0	0	18	0	
Total Servings	64	3	30	10	68	4	7	1	21	61	5	4	68	7	
WEEKLY Cost of the Household Nutritious Diet (USD):															
12-23-month-old Child	0.67	0.16	0.58	0.02	0.62	0.12	0	0	0	0.95	0	0	0.05	0	3.17
6-7-year-old Child	2.21	0	0	0.34	0	0.05	0	0.11	0	1.31	0	0.63	0.28	0	4.93
Adolescent Girl	3.53	0	0.18	0	1.67	0	3.45	0	6.64	5.26	0	0	0.26	0	20.99
Lactating Woman	3.38	0	3.2	0	1.57	0.22	0	0	0	6.76	1.76	0	0.25	0	17.14
Adult Man	4.05	0	0	0.83	0.36	0.28	0	0	0	3.35	0	0	0.47	0	9.33
Total Cost of the Diet	**13.84**	**0.16**	**3.96**	**1.19**	**4.22**	**0.68**	**3.45**	**0.11**	**6.64**	**17.62**	**1.76**	**0.63**	**1.31**	**0**	**55.56**

*Appendix Table 10: Weekly quantity of each nutrient provided by the edible portions of foods included in the Weekly Nutritious Household Diet in **DILI** Municipality*

Food Name	Food Name (Tetun)	Energy (kcal)	Protein (g)	Fat (g)	Vitamin A (µg RE)	Vitamin C (mg)	Vitamin B1 (mg)	Vitamin B2 (mg)	Niacin (mg NE)	Pantothenic acid (mg)	Vitamin B6 (mg)	Folic acid (µg DFE)	Vitamin B12 (µg)	Calcium (mg)	Iron (mg)	Magnesium (mg)	Zinc (mg)
Grains and grain-based products																	
White Rice	(Foos Mutin)	35679	662.2	59.3	0	0	5.9	5.9	237.2	112.7	13.8	593	0	790.7	3	3558	108.7
Legumes, nuts and seeds																	
Adzuki/ Rice Bean	(Fore masin/ lotuk)	209.5	12.7	0.3	0.6	0	0.3	0.1	1.7	0.9	0.2	396	0	42	0.2	80.9	3.2
Red Kidney Bean	(Koto mean)	4419.8	303.4	17.2	0	39.6	5.5	2.1	80.9	7.7	4.2	4525.3	0	976.3	5.1	1570	38.3
White Beans	(Koto mutin)	1377.1	91	6.1	61.3	0	3.7	0.5	6.7	2.1	2.1	1623.7	0	304.1	1.2	763.9	15.5
Tofu	(Tahu)	2469	263.1	155.9	0	0	2.6	1.6	74.7	2.3	1.6	487.3	0	3411.1	8.8	3346.1	26
Meat and offal																	
Liver	(Naan aten)	123.7	18.8	3.7	15660	11.4	0.1	2.8	12.4	4.4	0.4	223.5	84.6	5.2	1.3	15.6	4.7
Beef	(Naan kuda)	395.6	63.6	13.7	0	3	0.4	0.3	13.7	0	1.1	0	8.9	17.8	2.8	71.4	8.6
Fish, seafood, amphibians and invertebrates																	
Small dried fish	(Ikan tri)	46.1	8.1	1.3	0	0	0	0	2.6	0.2	0.1	3.9	1.7	233.8	0.1	19.3	0.7
Mussles/ Clams	(Ramis)	1159.2	224.9	29.8	2798.3	0	0.2	0.6	86.7	11.6	0.2	76.7	66.1	598.1	6.2	291.3	7.7
Vegetables and vegetable products																	
Cassava Leaves	(Aifarina tahan)	5541.3	554.1	30	38864	4942.2	13.5	28.5	194.7	37.4	80.9	15576	0	31600	23.2	9285.4	59.9
Spinach	(Bayang)	473.9	47.4	2.6	3324	422.7	1.2	2.4	16.7	3.2	6.9	1332.2	0	2702.8	2	794.2	5.1
Mustard Greens	(Mustarda mutin)	131.6	13.2	1.8	2961.6	777.8	0.4	0.5	4.1	1.1	0.9	951.3	0	1256.4	0.4	65.8	1
Fruit and fruit products																	
Coconut Flesh	(Nuu Laloir)	18116	168.9	1714.4	0	153.5	3.6	1	58.9	15.4	2.6	1330.5	0	716.4	6.1	1637.6	56.3
Breast Milk																	
Breast milk	Breast milk	2420.6	39.1	145.2	1862	149	0.8	1.3	16.1	6.7	0.3	316.5	3.6	1042.7	0	130.3	4.5
Total		**72562**	**2470.4**	**2181.2**	**65532**	**6499.2**	**38.2**	**47.7**	**807.1**	**205.6**	**115.4**	**27436**	**164.9**	**43698**	**60.4**	**21630**	**340.2**
Target amount for the household		**72562**	**1213.9**	**1836.6**	**20300**	**1505**	**34.3**	**35**	**441**	**154**	**39.2**	**11550**	**67.9**	**30800**	**60.3**	**6202**	**212.1**

*Appendix Table 11: The percentage (%) of each nutrient target provided by the edible portion of foods selected by the software for the Weekly Nutritious Household Diet in **DILI** Municipality*

Food Name	Food Name (Tetun)	Energy	Protein	Fat	Vitamin A	Vitamin C	Vitamin B1	Vitamin B2	Niacin	Pantothenic acid	Vitamin B6	Folic acid	Vitamin B12	Calcium	Iron	Magnesium	Zinc
Grains and grain-based products																	
White Rice	(Foos Mutin)	49.2	54.5	3.2	0	0	17.3	16.9	53.8	73.2	35.3	5.1	0	2.6	4.9	57.4	51.3
Legumes, nuts and seeds																	
Adzuki/Rice Bean	(Fore masin/ Fore lotuk)	0.3	1	0	0	0	0.9	0.4	0.4	0.6	0.6	3.4	0	0.1	0.3	1.3	1.5
Red Kidney Bean	(Koto mean)	6.1	25	0.9	0	2.6	16.2	6	18.3	5	10.8	39.2	0	3.2	8.4	25.3	18
White Beans	(Koto mutin)	1.9	7.5	0.3	0.3	0	10.7	1.3	1.5	1.3	5.3	14.1	0	1	1.9	12.3	7.3
Tofu	(Tahu)	3.4	21.7	8.5	0	0	7.6	4.6	16.9	1.5	4.1	4.2	0	11.1	14.5	54	12.3
Meat and offal																	
Liver	(Naan aten)	0.2	1.5	0.2	77.1	0.8	0.4	7.9	2.8	2.8	1	1.9	124.6	0	2.2	0.3	2.2
Beef	(Naan kuda)	0.5	5.2	0.7	0	0.2	1.1	0.8	3.1	0	2.9	0	13.1	0.1	4.7	1.2	4.1
Fish, seafood, amphibians and invertebrates																	
Small dried fish	(Ikan tri)	0.1	0.7	0.1	0	0	0	0.1	0.6	0.1	0.1	0	2.4	0.8	0.1	0.3	0.3
Mussles/Clams	(Ramis)	1.6	18.5	1.6	13.8	0	0.6	1.7	19.7	7.5	0.5	0.7	97.3	1.9	10.3	4.7	3.6
Vegetables and vegetable products																	
Cassava Leaves	(Aifarina tahan)	7.6	45.6	1.6	191.4	328.4	39.3	81.3	44.1	24.3	206.3	134.9	0	102.6	38.5	149.7	28.2
Spinach	(Bayang)	0.7	3.9	0.1	16.4	28.1	3.4	7	3.8	2.1	17.6	11.5	0	8.8	3.3	12.8	2.4
Mustard Greens	(Mustarda mutin)	0.2	1.1	0.1	14.6	51.7	1.2	1.5	0.9	0.7	2.3	8.2	0	4.1	0.7	1.1	0.5
Fruit and fruit products																	
Coconut Flesh	(Nuu Laloir)	25	13.9	93.3	0	10.2	10.4	2.9	13.3	10	6.5	11.5	0	2.3	10.2	26.4	26.5
Breast Milk																	
Breast milk	Breast milk	3.3	3.2	7.9	9.2	9.9	2.3	3.7	3.7	4.4	0.9	2.7	5.3	3.4	0	2.1	2.1
Total		**100**	**203.5**	**118.8**	**322.8**	**431.8**	**111.3**	**136.3**	**183**	**133.5**	**294.3**	**237.5**	**242.8**	**141.9**	**100.1**	**348.8**	**160.4**

*Appendix Table 12: Weekly content and cost of the modelled nutritious diet in **ERMERA** Municipality by Household Member*

	White Rice	Adzuki /Rice Bean	Black Bean	Kidney Bean	Tofu	Liver	Dried meat	Small dried fish	Egg (local)	Cassava leaves	Taro leaves	Dried Coconut	Vegetable Oil	Breast Milk	Total
	(Foos Mutin)	(Fore masin/ Fore lotuk)	(Fore tali musan/ metan)	(Koto mean)	(Tahu)	(Naan aten)	(Naan maran (karau))	(Ikan tri)	(Manu tolun timor)	(Aifarin a tahan)	(Talas tahan)	(Nuu Maran)	(Mina importa	Breast milk	
The WEEKLY quantities of foods in grams (g) selected by the software for the household nutritious diet															
12-23-month-old Child	477	147	0	0	71	0	0	22	0	0	1917	146	0	3724	6504
6-7-year-old Child	1578	0	129	0	0	10	0	0	0	0	1762	611	0	0	4091
Adolescent Girl	2520	0	0	0	1287	0	617	0	838	0	4860	0	270	0	10392
Lactating Woman	2418	0	0	648	1210	17	0	45	0	2235	5744	722	0	0	13039
Adult Man	2891	0	255	0	0	21	0	0	0	0	3874	1070	0	0	8111
Total edible weight	9883	147	385	648	2568	48	617	67	838	2235	18157	2549	270	3724	42137
Total weight	**9883**	**147**	**385**	**648**	**2568**	**48**	**617**	**67**	**963**	**2629**	**30262**	**2549**	**270**	**3724**	**54761**
The WEEKLY number of servings of the foods selected by the software for the household nutritious diet															
12-23-month-old Child	7	7	0	0	4	0	0	1	0	0	18	5	0	7	
6-7-year-old Child	14	0	4	0	0	1	0	0	0	0	10	11	0	0	
Adolescent Girl	14	0	0	0	22	0	14	0	7	0	17	0	9	0	
Lactating Woman	14	0	0	12	21	1	0	1	0	9	21	9	0	0	
Adult Man	15	0	4	0	0	1	0	0	0	0	12	11	0	0	
Total Servings	**64**	**7**	**8**	**12**	**47**	**3**	**14**	**2**	**7**	**9**	**78**	**36**	**9**	**7**	
WEEKLY Cost of the Household Nutritious Diet (USD):															
12-23-month-old Child	0.33	0.28	0	0	0.11	0	0	0.11	0	0	0.96	0.06	0	0	1.85
6-7-year-old Child	1.1	0	0.26	0	0	0.08	0	0	0	0	0.88	0.24	0	0	2.57
Adolescent Girl	1.76	0	0	0	2.06	0	6.17	0	4.53	0	2.43	0	0.51	0	17.46
Lactating Woman	1.69	0	0	1.49	1.94	0.14	0	0.22	0	1.84	2.87	0.29	0	0	10.48
Adult Man	2.02	0	0.51	0	0	0.16	0	0	0	0	1.94	0.43	0	0	5.06
Total Cost of the Diet	**6.92**	**0.28**	**0.77**	**1.49**	**4.11**	**0.38**	**6.17**	**0.33**	**4.53**	**1.84**	**9.08**	**1.02**	**0.51**	**0**	**37.42**

*Appendix Table 13: Weekly quantity of each nutrient provided by the edible portions of foods included in the Weekly Nutritious Household Diet in **ERMERA** Municipality*

Food Name	Food Name Tetun	Energy (kcal)	Protein (g)	Fat (g)	Vitamin A (µg RE)	Vitamin C (mg)	Vitamin B1 (mg)	Vitamin B2 (mg)	Niacin (mg NE)	Pantothenic acid (mg)	Vitamin B6 (mg)	Folic acid (µg DFE)	Vitamin B12 (µg)	Calcium (mg)	Iron (mg)	Magnesium (mg)	Zinc (mg)
Grains and grain-based products																	
White Rice	(Foos Mutin)	35679	662.2	59.3	0	0	5.9	5.9	237.2	112.7	13.8	593	0	790.7	3	3558	108.7
Legumes, nuts and seeds																	
Adzuki/Rice Bean	(Fore masin/ Fore lotuk)	483.1	29.2	0.8	1.5	0	0.7	0.3	3.9	2.2	0.5	913.3	0	96.9	0.4	186.5	7.4
Black Bean	(Fore tali musan/ Fore metan)	1311.2	83.1	5.5	0	0	3.5	0.7	7.5	3.5	1.1	1707.3	0	473	1	657.5	14
Kidney Bean	(Koto mean)	2170.6	149	8.4	0	19.4	2.7	1	39.7	3.8	2.1	2222.5	0	479.5	2.5	771.1	18.8
Tofu	(Tahu)	1951.7	208	123.3	0	0	2.1	1.3	59.1	1.8	1.3	385.2	0	2696.4	6.9	2645	20.5
Meat and offal																	
Liver	(Naan aten)	57.6	8.8	1.7	7290.7	5.3	0.1	1.3	5.8	2	0.2	104.1	39.4	2.4	0.6	7.3	2.2
Dried meat	(Naan maran (karau))	1616.7	330.7	22.2	0	0	0.4	3.1	145	2.1	5.7	111.1	21.6	185.1	6.5	407.3	30.9
Fish, seafood, amphibians and invertebrates																	
Small dried fish	(Ikan tri)	225.9	39.5	6.3	0	0	0.1	0.2	12.9	1	0.3	18.9	8.1	1146.3	0.4	94.4	3.5
Eggs and egg products																	
Egg (local)	(Manu tolun timor)	1323.9	111.4	97.2	1780.7	0	1.5	3.4	28.5	11.7	1.3	419	21.7	502.8	3.5	88.6	17
Vegetables and vegetable products																	
Cassava leaves	(Aifarina tahan)	826.9	82.7	4.5	5799.5	737.5	2	4.2	29.1	5.6	12.1	2324.3	0	4715.6	3.5	1385.6	8.9
Taro leaves	(Talas tahan)	6718.2	671.8	36.3	47118	5991.9	16.3	34.5	236	45.4	98	18884	0	38312	28.1	11258	72.6
Fruit and fruit products																	
Dried Coconut	(Nuu Maran)	15448	151.2	1437.8	0	7.6	2	2	22.9	4.3	2	665.3	0	815.7	4.3	1886.4	38.2
Oils and fats																	
Vegetable Oil	(Mina importa)	2328.7	0	270.1	0	0	0	0	0	0	0	0	0	0	0	0	0
Breast Milk																	
Breast milk	Breast milk	2420.6	39.1	145.2	1862	149	0.8	1.3	16.1	6.7	0.3	316.5	3.6	1042.7	0	130.3	4.5
Total		**72562**	**2566.7**	**2218.6**	**63853**	**6910.8**	**38**	**59.3**	**843.7**	**202.8**	**138.7**	**28664**	**94.4**	**51259**	**60.6**	**23076**	**347.3**
Target amount for the household		**72562**	**1213.9**	**1836.6**	**20300**	**1505**	**34.3**	**35**	**441**	**154**	**39.2**	**11550**	**67.9**	**30800**	**60.3**	**6202**	**212.1**

Appendix Table 14: The percentage (%) of each nutrient target provided by the edible portion of foods selected by the software for the Weekly Nutritious Household Diet in ERMERA Municipality

Food Name	Food Name Tetun	Energy	Protein	Fat	Vitamin A	Vitamin C	Vitamin B1	Vitamin B2	Niacin	Pantothenic acid	Vitamin B6	Folic acid	Vitamin B12	Calcium	Iron	Magnesium	Zinc
Grains and grain-based products																	
White Rice	(Foos Mutin)	49.2	54.5	3.2	0	0	17.3	16.9	53.8	73.2	35.3	5.1	0	2.6	4.9	57.4	51.3
Legumes, nuts and seeds																	
Adzuki/Rice Bean	(Fore masin/ Fore lotuk)	0.7	2.4	0	0	0	2	0.9	0.9	1.4	1.3	7.9	0	0.3	0.6	3	3.5
Black Bean	(Fore tali musan/ Fore metan)	1.8	6.8	0.3	0	0	10.1	2.1	1.7	2.2	2.8	14.8	0	1.5	1.6	10.6	6.6
Kidney Bean	(Koto mean)	3	12.3	0.5	0	1.3	7.9	3	9	2.4	5.3	19.2	0	1.6	4.1	12.4	8.9
Tofu	(Tahu)	2.7	17.1	6.7	0	0	6	3.7	13.4	1.2	3.3	3.3	0	8.8	11.5	42.6	9.7
Meat and offal																	
Liver	(Naan aten)	0.1	0.7	0.1	35.9	0.4	0.2	3.7	1.3	1.3	0.5	0.9	58	0	1	0.1	1
Dried meat	(Naan maran (karau))	2.2	27.2	1.2	0	0	1.1	8.8	32.9	1.4	14.5	1	31.8	0.6	10.7	6.6	14.5
Fish, seafood, amphibians and invertebrates																	
Small dried fish	(Ikan tri)	0.3	3.3	0.3	0	0	0.2	0.5	2.9	0.7	0.7	0.2	11.9	3.7	0.7	1.5	1.7
Eggs and egg products																	
Egg (local)	(Manu tolun timor)	1.8	9.2	5.3	8.8	0	4.4	9.6	6.5	7.6	3.2	3.6	32	1.6	5.7	1.4	8
Vegetables and vegetable products																	
Cassava leaves	(Aifarina tahan)	1.1	6.8	0.2	28.6	49	5.9	12.1	6.6	3.6	30.8	20.1	0	15.3	5.7	22.3	4.2
Taro leaves	(Talas tahan)	9.3	55.3	2	232.1	398.1	47.6	98.6	53.5	29.5	250.1	163.5	0	124.4	46.6	181.5	34.2
Fruit and fruit products																	
Dried Coconut	(Nuu Maran)	21.3	12.5	78.3	0	0.5	5.9	5.8	5.2	2.8	5.2	5.8	0	2.6	7.2	30.4	18
Oils and fats																	
Vegetable Oil	(Mina importa)	3.2	0	14.7	0	0	0	0	0	0	0	0	0	0	0	0	0
Breast Milk																	
Breast milk	Breast milk	3.3	3.2	7.9	9.2	9.9	2.3	3.7	3.7	4.4	0.9	2.7	5.3	3.4	0	2.1	2.1
Total		**100**	**211.4**	**120.8**	**314.5**	**459.2**	**110.9**	**169.4**	**191.3**	**131.7**	**353.9**	**248.2**	**139**	**166.4**	**100.5**	**372.1**	**163.7**

*Appendix Table 15: Weekly content and cost of the modelled nutritious diet in **MANUFAHI** Municipality by Household Member*

	Maize	White Rice	Candle nut	Tofu	Pigeon Pea	Liver	Dried Meat	Egg (local)	Cassava leaves	Dried Coconut	Vegetable Oil	Breast milk	Total
	(Batar Maran-fulin)	(Foos Mutin)	(Kami)	(Tahu)	(Tunis)	(Naan aten)	(Naan maran (karau))	(Manu tolun timor)	(Aifarina tahan)	(Nuu Maran)	(Mina importa)	Breast milk	
The WEEKLY quantities of foods in grams (g) selected by the software for the household nutritious diet													
12-23-month-old Child	55	477	63	477	266	3	0	0	1164	0	0	3724	6228
6-7-year-old Child	322	1578	197	0	0	10	0	0	1605	316	0	0	4029
Adolescent Girl	0	2520	0	1287	0	21	811	682	3796	0	283	0	9400
Lactating Woman	915	2418	0	1210	0	56	449	0	5744	513	0	0	11304
Adult Man	898	2891	0	641	0	21	0	0	2705	688	0	0	7842
Total edible weight	2190	9883	260	3614	266	111	1260	682	15014	1517	283	3724	38803
Total weight	4659	9883	277	3614	266	111	1260	784	17663	1517	283	3724	44041
The WEEKLY number of servings of the foods selected by the software for the household nutritious diet													
12-23-month-old Child	1	7	11	21	12	0	0	0	11	0	0	7	
6-7-year-old Child	3	14	22	0	0	1	0	0	10	6	0	0	
Adolescent Girl	0	14	0	22	0	1	18	6	14	0	10	0	
Lactating Woman	6	14	0	21	0	1	11	0	21	6	0	0	
Adult Man	5	15	0	10	0	1	0	0	9	7	0	0	
Total Servings	15	64	33	74	12	4	29	6	65	19	10	7	
WEEKLY Cost of the Household Nutritious Diet (USD):													
12-23-month-old Child	0.02	0.38	0.03	0.43	0.27	0.02	0	0	0.68	0	0	0	1.84
6-7-year-old Child	0.14	1.26	0.11	0	0	0.06	0	0	0.94	0.09	0	0	2.61
Adolescent Girl	0	2.02	0	1.16	0	0.12	5.92	4.39	2.23	0	0.54	0	16.38
Lactating Woman	0.39	1.93	0	1.09	0	0.34	3.28	0	3.38	0.15	0	0	10.56
Adult Man	0.38	2.31	0	0.58	0	0.12	0	0	1.59	0.21	0	0	5.19
Total Cost of the Diet	**0.93**	**7.91**	**0.14**	**3.25**	**0.27**	**0.66**	**9.2**	**4.39**	**8.83**	**0.46**	**0.54**	**0**	**36.57**

*Appendix Table 16: Weekly quantity of each nutrient provided by the edible portions of foods included in the Weekly Nutritious Household Diet in **MANUFAHI** Municipality*

Food Name	Food Name	Energy (kcal)	Protein (g)	Fat (g)	Vitamin A (µg RE)	Vitamin C (mg)	Vitamin B1 (mg)	Vitamin B2 (mg)	Niacin (mg NE)	Pantothenic acid (mg)	Vitamin B6 (mg)	Folic acid (µg DFE)	Vitamin B12 (µg)	Calcium (mg)	Iron (mg)	Magnesium (mg)	Zinc (mg)
Grains and grain-based products																	
Maize	(Batar Maran-fulin)	7642.3	200.4	90	0	0	7.7	2.2	44.9	12.3	4.4	569.3	0	410.1	3.4	1792.1	33.9
White Rice	(Foos Mutin - importa)	35679	662.2	59.3	0	0	5.9	5.9	237.2	112.7	13.8	593	0	790.7	3	3558	108.7
Legumes, nuts and seeds																	
Candlenut	(Kami)	1531.2	52	135.7	0	2.6	0.5	2	24.4	1.2	0.3	153.4	0	691.5	0.5	769.5	7.5
Tofu	(Tahu)	2746.8	292.8	173.5	0	0	2.9	1.8	83.1	2.5	1.8	542.1	0	3795	9.8	3722.7	28.9
Pigeon Pea	(Tunis)	847.7	58.5	3.2	8	0	0.8	0.7	14.6	1.2	0.5	802.6	0	276.4	0.6	332.2	7.7
Meat and offal																	
Liver	(Naan aten)	131.7	20	4	16678	12.2	0.1	2.9	13.2	4.7	0.4	238	90.1	5.5	1.4	16.6	5
Dried Meat	(Naan maran (karau)	3300.4	675.2	45.3	0	0	0.8	6.3	296	4.3	11.6	226.7	44.1	377.9	13.2	831.4	63
Eggs and egg products																	
Egg (local)	(Manu tolun timor)	1078.1	90.8	79.2	1450.1	0	1.2	2.7	23.2	9.6	1	341.2	17.7	409.4	2.8	72.1	13.9
Vegetables and vegetable products																	
Cassava leaves	(Aifarina tahan)	5555.1	555.5	30	38961	4954.6	13.5	28.5	195.2	37.5	81.1	15615	0	31679	23.3	9308.6	60.1
Fruit and fruit products																	
Dried Coconut	(Nuu Maran)	9193.1	90	855.6	0	4.6	1.2	1.2	13.7	2.6	1.2	395.9	0	485.4	2.6	1122.6	22.8
Oils and fats																	
Vegetable Oil	(Mina importa)	2436.1	0	282.6	0	0	0	0	0	0	0	0	0	0	0	0	0
Breast Milk																	
Breast milk	Breast milk	2420.6	39.1	145.2	1862	149	0.8	1.3	16.1	6.7	0.3	316.5	3.6	1042.7	0	130.3	4.5
Total		**72562**	**2736.3**	**1903.6**	**58959**	**5122.9**	**35.4**	**55.7**	**961.5**	**195.2**	**116.5**	**19793**	**155.5**	**39964**	**60.4**	**21656**	**355.9**
Target amount for the household		**72562**	**1213.9**	**1836.6**	**20300**	**1505**	**34.3**	**35**	**441**	**154**	**39.2**	**11550**	**67.9**	**30800**	**60.3**	**6202**	**212.1**

Appendix Table 17: The percentage (%) of each nutrient target provided by the edible portion of foods selected by the software for the Weekly Nutritious Household Diet in MANUFAHI Municipality

Food Name	Food Name	Energy	Protein	Fat	Vitamin A	Vitamin C	Vitamin B1	Vitamin B2	Niacin	Pantothenic acid	Vitamin B6	Folic acid	Vitamin B12	Calcium	Iron	Magnesium	Zinc
Grains and grain-based products																	
Maize	(Batar Maran-fulin)	10.5	16.5	4.9	0	0	22.3	6.3	10.2	8	11.2	4.9	0	1.3	5.6	28.9	16
White Rice	(Foos Mutin - importa)	49.2	54.5	3.2	0	0	17.3	16.9	53.8	73.2	35.3	5.1	0	2.6	4.9	57.4	51.3
Legumes, nuts and seeds																	
Candlenut	(Kami)	2.1	4.3	7.4	0	0.2	1.6	5.8	5.5	0.8	0.7	1.3	0	2.2	0.8	12.4	3.6
Tofu	(Tahu)	3.8	24.1	9.4	0	0	8.4	5.2	18.8	1.6	4.6	4.7	0	12.3	16.2	60	13.6
Pigeon Pea	(Tunis)	1.2	4.8	0.2	0	0	2.2	2	3.3	0.8	1.4	6.9	0	0.9	1	5.4	3.6
Meat and offal																	
Liver	(Naan aten)	0.2	1.7	0.2	82.2	0.8	0.4	8.4	3	3	1.1	2.1	132.7	0	2.3	0.3	2.3
Dried Meat	(Naan maran (karau))	4.5	55.6	2.5	0	0	2.2	18	67.1	2.8	29.6	2	64.9	1.2	21.9	13.4	29.7
Eggs and egg products																	
Egg (local)	(Manu tolun timor)	1.5	7.5	4.3	7.1	0	3.6	7.8	5.3	6.2	2.6	3	26	1.3	4.7	1.2	6.5
Vegetables and vegetable products																	
Cassava leaves	(Aifarina tahan)	7.7	45.8	1.6	191.9	329.2	39.4	81.5	44.3	24.4	206.8	135.2	0	102.9	38.6	150.1	28.3
Fruit and fruit products																	
Dried Coconut	(Nuu Maran)	12.7	7.4	46.6	0	0.3	3.5	3.5	3.1	1.7	3.1	3.4	0	1.6	4.3	18.1	10.7
Oils and fats																	
Vegetable Oil	(Mina importa)	3.4	0	15.4	0	0	0	0	0	0	0	0	0	0	0	0	0
Breast Milk																	
Breast milk	Breast milk	3.3	3.2	7.9	9.2	9.9	2.3	3.7	3.7	4.4	0.9	2.7	5.3	3.4	0	2.1	2.1
Total	Total	**100**	**225.4**	**103.7**	**290.4**	**340.4**	**103.3**	**159**	**218**	**126.8**	**297.2**	**171.4**	**229**	**129.8**	**100.1**	**349.2**	**167.8**

*Appendix Table 18: Weekly content and cost of the modelled nutritious diet in **OECUSSE** Municipality by Household Member*

	White Rice	Black Bean	Velvet Beans	Tofu	Liver	Dried Meat	Egg (local)	Cassava Leaves	Kangkong/Water Spinach	Dried Coconut	Vegetable Oil	Breast milk	Total
	(Foos Mutin)	(Fore tali musan/ metan)	(Lehe musan)	(Tahu)	(Naan aten)	(Naan maran (karau))	(Manu tolun timor)	(Aifarina tahan)	(Kanko)	(Nuu Maran)	(Mina importa)	Breast milk	
The WEEKLY quantities of foods in grams (g) selected by the software for the household nutritious diet													
12-23-month-old Child	477	3	347	430	3	0	0	775	0	49	0	3724	5808
6-7-year-old Child	1578	0	348	0	10	0	0	1710	0	475	0	0	4121
Adolescent Girl	2520	0	0	1287	0	617	838	4860	0	0	270	0	10392
Lactating Woman	2418	0	1030	1210	21	82	0	5744	1297	523	0	0	12323
Adult Man	2891	0	962	0	21	0	0	2691	0	700	0	0	7265
Total edible weight	9883	3	2687	2927	55	699	838	15779	1297	1747	270	3724	39910
Total weight	9883	3	2687	2927	55	699	963	18564	1491	1747	270	3724	43013
The WEEKLY number of servings of the foods selected by the software for the household nutritious diet													
12-23-month-old Child	7	0	16	19	0	0	0	8	0	2	0	7	
6-7-year-old Child	14	0	10	0	1	0	0	10	0	9	0	0	
Adolescent Girl	14	0	0	22	0	14	7	17	0	0	9	0	
Lactating Woman	14	0	18	21	1	2	0	21	5	7	0	0	
Adult Man	15	0	14	0	1	0	0	9	0	7	0	0	
Total Servings	64	0	58	62	3	16	7	65	5	25	9	7	
WEEKLY Cost of the Household Nutritious Diet (USD):													
12-23-month-old Child	0.33	0	0.17	0.47	0.02	0	0	0.55	0	0.01	0	0	1.57
6-7-year-old Child	1.1	0	0.17	0	0.06	0	0	1.21	0	0.14	0	0	2.69
Adolescent Girl	1.76	0	0	1.42	0	8.82	5.49	3.43	0	0	0.59	0	21.52
Lactating Woman	1.69	0	0.52	1.33	0.12	1.17	0	4.05	1.19	0.16	0	0	10.23
Adult Man	2.02	0	0.48	0	0.12	0	0	1.9	0	0.21	0	0	4.74
Total Cost of the Diet	**6.92**	**0**	**1.34**	**3.22**	**0.33**	**9.99**	**5.49**	**11.14**	**1.19**	**0.52**	**0.59**	**0**	**40.75**

Appendix Table 19: Weekly quantity of each nutrient provided by the edible portions of foods included in the Weekly Nutritious Household Diet in OECUSSE Municipality

Food Name	Food Name (Tetun)	Energy (kcal)	Protein (g)	Fat (g)	Vitamin A (µg RE)	Vitamin C (mg)	Vitamin B1 (mg)	Vitamin B2 (mg)	Niacin (mg NE)	Pantothenic acid (mg)	Vitamin B6 (mg)	Folic acid (µg DFE)	Vitamin B12 (µg)	Calcium (mg)	Iron (mg)	Magnesium (mg)	Zinc (mg)
Grains and grain-based products																	
White Rice	(Foos Mutin)	35679	662.2	59.3	0	0	5.9	5.9	237.2	112.7	13.8	593	0	790.7	3	3558	108.7
Legumes, nuts and seeds																	
Black Bean	(Fore tali musan/ metan)	11.1	0.7	0	0	0	0	0	0.1	0	0	14.4	0	4	0	5.6	0.1
Velvet Beans	(Lehe musan)	9914.1	634.1	104.8	67.2	107.5	10.2	4.6	157.2	32.8	11.3	12520	0	2418.1	11	2982.3	99.4
Tofu	(Tahu)	2224.6	237.1	140.5	0	0	2.3	1.5	67.3	2	1.5	439.1	0	3073.4	7.9	3014.9	23.4
Meat and offal																	
Liver	(Naan aten)	65.2	9.9	2	8259.4	6	0.1	1.5	6.5	2.3	0.2	117.9	44.6	2.7	0.7	8.2	2.5
Dried Meat	(Naan maran (karau))	1830.6	374.5	25.2	0	0	0.4	3.5	164.2	2.4	6.4	125.8	24.5	209.6	7.3	461.1	34.9
Eggs and egg products																	
Egg (local)	(Manu tolun timor)	1323.9	111.4	97.2	1780.7	0	1.5	3.4	28.5	11.7	1.3	419	21.7	502.8	3.5	88.6	17
Vegetables and vegetable products																	
Cassava Leaves	(Aifarina tahan)	5838.4	583.8	31.6	40948	5207.2	14.2	30	205.1	39.4	85.2	16411	0	33295	24.5	9783.3	63.1
Kangkong/Water Spinach	(Kanko)	337.2	38.5	6.4	5302.4	274.7	0.4	1.2	18.2	2.1	2.6	2515.8	0	1163.1	1.5	671.9	11.7
Fruit and fruit products																	
Dried Coconut	(Nuu Maran)	10589	103.6	985.5	0	5.2	1.4	1.4	15.7	3	1.4	456.1	0	559.2	3	1293	26.2
Oils and fats																	
Vegetable Oil	(Mina importa)	2328.7	0	270.1	0	0	0	0	0	0	0	0	0	0	0	0	0
Breast Milk																	
Breast milk	Breast milk	2420.6	39.1	145.2	1862	149	0.8	1.3	16.1	6.7	0.3	316.5	3.6	1042.7	0	130.3	4.5
Total		**72562**	**2795**	**1867.8**	**58219**	**5749.6**	**37.3**	**54.1**	**916.1**	**215.1**	**124**	**33928**	**94.4**	**43061**	**62.3**	**21997**	**391.5**
Target amount for the household		**72562**	**1213.9**	**1836.6**	**20300**	**1505**	**34.3**	**35**	**441**	**154**	**39.2**	**11550**	**67.9**	**30800**	**60.3**	**6202**	**212.1**

*Appendix Table 20: The percentage (%) of each nutrient target provided by the edible portion of foods selected by the software for the Weekly Nutritious Household Diet in **OECUSSE** Municipality*

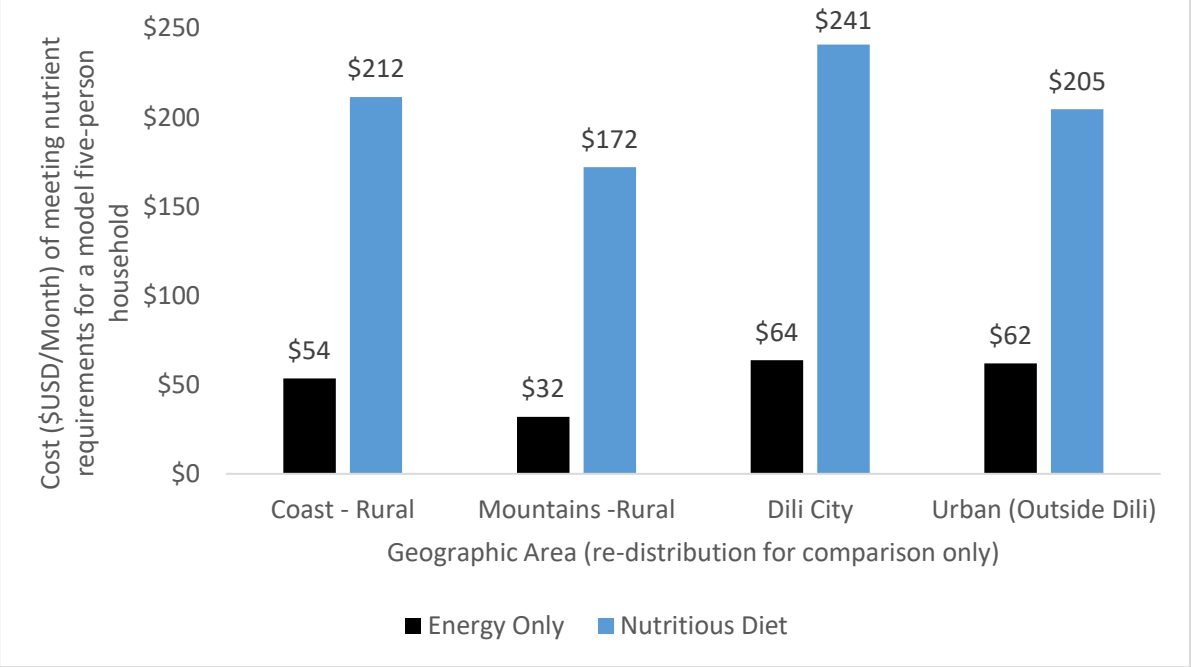
Food Name	Food Name (Tetun)	Energy	Protein	Fat	Vitamin A	Vitamin C	Vitamin B1	Vitamin B2	Niacin	Pantothenic acid	Vitamin B6	Folic acid	Vitamin B12	Calcium	Iron	Magnesium	Zinc
Grains and grain-based products																	
White Rice	(Foos Mutin)	49.2	54.5	3.2	0	0	17.3	16.9	53.8	73.2	35.3	5.1	0	2.6	4.9	57.4	51.3
Legumes, nuts and seeds																	
Black Bean	(Fore tali musan/metan)	0	0.1	0	0	0	0.1	0	0	0	0	0.1	0	0	0	0.1	0.1
Velvet Beans	(Lehe musan)	13.7	52.2	5.7	0.3	7.1	29.8	13	35.6	21.3	28.8	108.4	0	7.9	18.3	48.1	46.9
Tofu	(Tahu)	3.1	19.5	7.7	0	0	6.8	4.2	15.3	1.3	3.7	3.8	0	10	13.1	48.6	11
Meat and offal																	
Liver	(Naan aten)	0.1	0.8	0.1	40.7	0.4	0.2	4.2	1.5	1.5	0.5	1	65.7	0	1.1	0.1	1.2
Dried Meat	(Naan maran (karau))	2.5	30.8	1.4	0	0	1.2	10	37.2	1.5	16.4	1.1	36	0.7	12.2	7.4	16.5
Eggs and egg products																	
Egg (local)	(Manu tolun timor)	1.8	9.2	5.3	8.8	0	4.4	9.6	6.5	7.6	3.2	3.6	32	1.6	5.7	1.4	8
Vegetables and vegetable products																	
Cassava Leaves	(Aifarina tahan)	8	48.1	1.7	201.7	346	41.4	85.7	46.5	25.6	217.4	142.1	0	108.1	40.5	157.7	29.8
Kangkong /Water Spinach	(Kanko)	0.5	3.2	0.3	26.1	18.2	1.1	3.3	4.1	1.3	6.6	21.8	0	3.8	2.4	10.8	5.5
Fruit and fruit products																	
Dried Coconut	(Nuu Maran)	14.6	8.5	53.7	0	0.3	4.1	4	3.6	1.9	3.6	3.9	0	1.8	4.9	20.8	12.4
Oils and fats																	
Vegetable Oil	(Mina importa)	3.2	0	14.7	0	0	0	0	0	0	0	0	0	0	0	0	0
Breast Milk																	
Breast milk	Breast milk	3.3	3.2	7.9	9.2	9.9	2.3	3.7	3.7	4.4	0.9	2.7	5.3	3.4	0	2.1	2.1
Total		**100**	**230.2**	**101.7**	**286.8**	**382**	**108.7**	**154.6**	**207.7**	**139.7**	**316.4**	**293.8**	**139**	**139.8**	**103.2**	**354.7**	**184.6**

Appendix Table 21: Limiting nutrients by household member and municipality in the CotD modelled Nutritious diet.

Limiting nutrients in the CotD analysis are defined as nutrients for which requirements would be difficult to meet for all or some household members using locally available foods without exceeding the energy threshold.

Municipality	Target Group	Vit A	B1	B2	B5	B12	Cal	Iron	Zinc
Baucau	Breastfeeding Child (12-23 months)		1			1	1	1	1
	Primary School Child (6-7 years)		1	1			1	1	
	Adolescent girl (14-15 years)		1					1	
	Lactating adult woman		1			1		1	
	Adult man		1	1		1	1	1	
Bobonaro	Breastfeeding Child (12-23 months)	1	1				1		
	Primary School Child (6-7 years)	1	1				1		
	Adolescent girl (14-15 years)		1				1	1	
	Lactating adult woman		1		1		1	1	
	Adult man	1	1				1		
Dili	Breastfeeding Child (12-23 months)		1	1			1	1	1
	Primary School Child (6-7 years)						1		
	Adolescent girl (14-15 years)								
	Lactating adult woman								
	Adult man		1	1			1	1	
Ermera	Breastfeeding Child (12-23 months)					1		1	1
	Primary School Child (6-7 years)		1			1	1		
	Adolescent girl (14-15 years)							1	
	Lactating adult woman		1			1		1	
	Adult man								
Manufahi	Breastfeeding Child (12-23 months)		1			1		1	1
	Primary School Child (6-7 years)		1			1	1		
	Adolescent girl (14-15 years)						1	1	
	Lactating adult woman		1		1			1	
	Adult man		1			1	1	1	
Oecusse	Breastfeeding Child (12-23 months)		1			1	1	1	
	Primary School Child (6-7 years)		1			1	1		
	Adolescent girl (14-15 years)					1		1	
	Lactating adult woman					1		1	
	Adult man		1			1	1		

Appendix Table 22: Results of CotD re-analysis to estimate cost by geographic zone instead of municipality ***using non-representative data.***

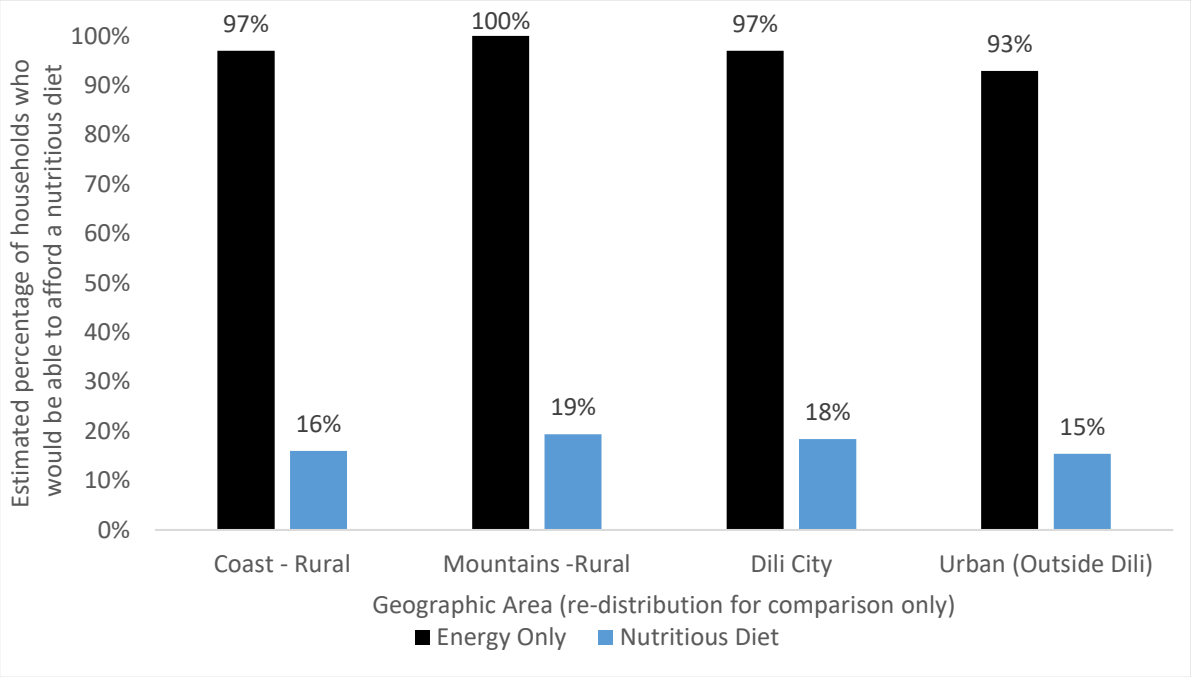


The results in appendix tables 5 and 6 have been provided for comparison only at the request of members of the technical working group in Timor-Leste. Here results are presented from a re-analysis of the market price data according to *geographic zones* (approved by the technical working group) rather than municipalities. For this re-analysis, each market location from the dataset (see appendix table 4) was allocated to one of four geographic zones; Coastal-rural, Mountains-rural, Dili City or Urban (outside Dili). Next, market food availability and food prices were averaged across each new geographic zone and new CotD analyses were run to estimate the cost of meeting a) Estimated energy needs only and b) Estimated energy needs and requirements for protein and 13 micronutrients for the model 5-person household. These results are presented in Appendix Table 5. The cost of the energy-only diet ranged from $32-$64 per month, similar to the original analysis (figure 12). Instead the redistributed nutritious diets cost $172-$241 per month. The costs of diets in Dili were similar to those presented in table 12 in section 3 as the sample of markets did not differ greatly. Likewise, the cost of diets in rural mountain areas were similar to the costs of diets in Bobonaro and Ermera municipalities which are quite mountainous. Differences were seen in the costs of meeting nutrient requirements in urban areas (outside of Dili), which was more expensive than some of the municipal averages, and in the cost of meeting nutrient requirements in coastal areas.

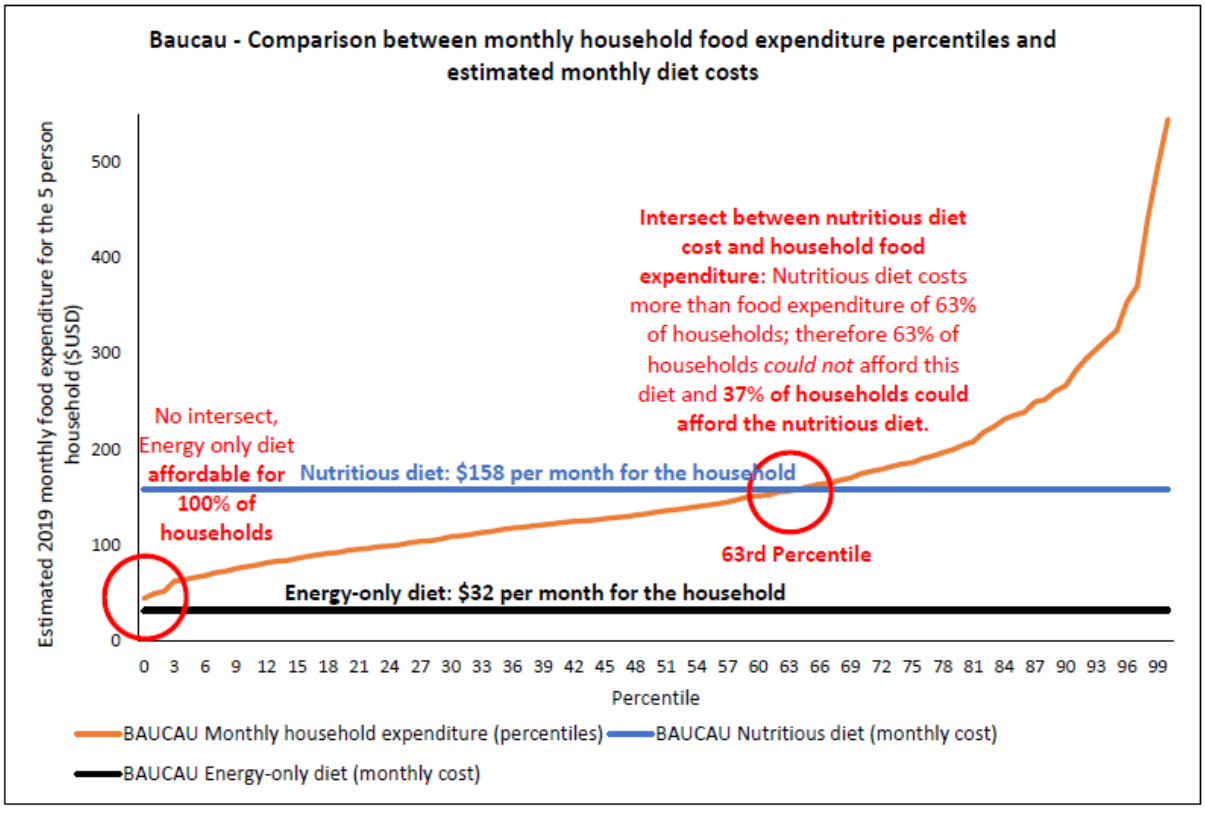
Next, these diet costs were compared to re-distributed household food-expenditure data (adjusted for inflation) from the 2014-2015 TL-SLS to estimate the percentage of households in each geographic zone that would be able to afford the two diets. The results show that 93-100% of households would be able to afford a diet that met energy needs only and 15-19% would be able to afford a nutritious diet. Compared with figure 18, less households would be able to afford nutritious diets according to the analysis considering geographic zones.

It is important to note that these figures should be interpreted with caution and used for comparison with the results in this report only and not to inform decision-making. This is because neither the sampling of market survey locations or the sampling of households within the TL-SLS were carried out to provide representation at the level of geographic-zones.

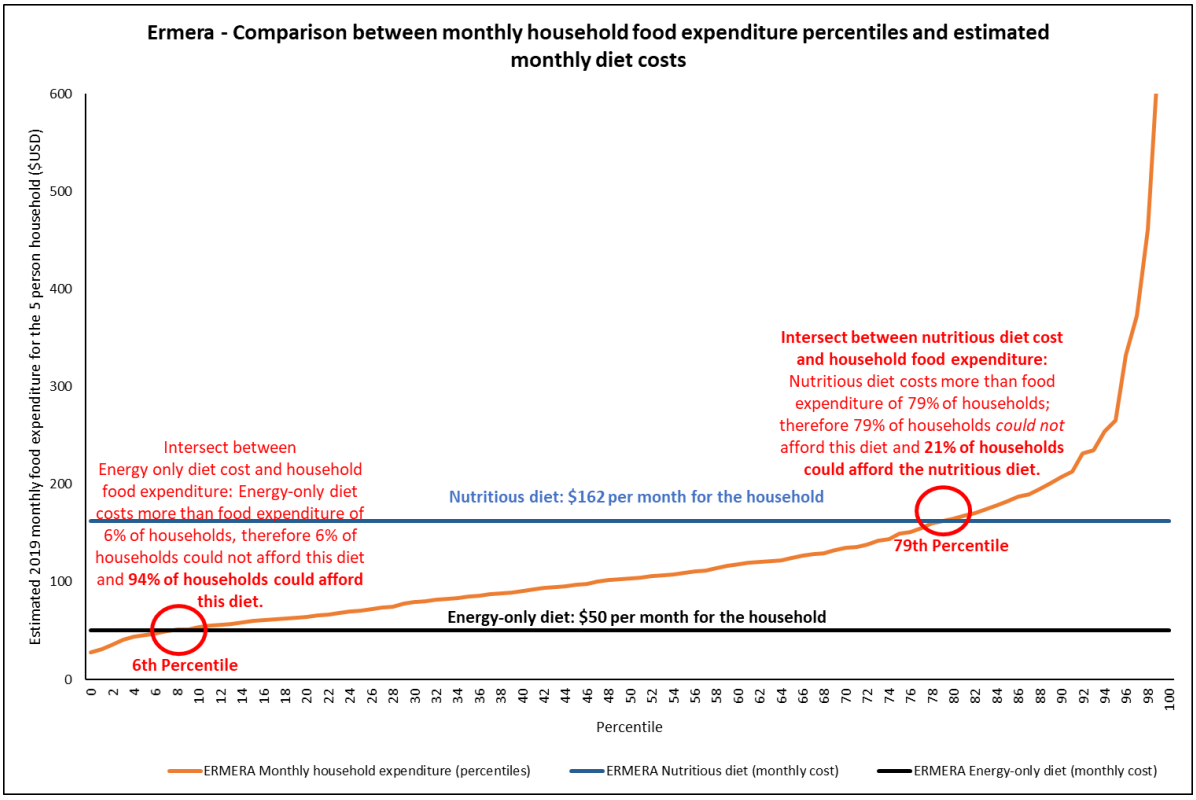
Appendix Table 23: Results of CotD re-analysis to estimate diet affordability by geographic zone instead of municipality ***using non-representative data.***



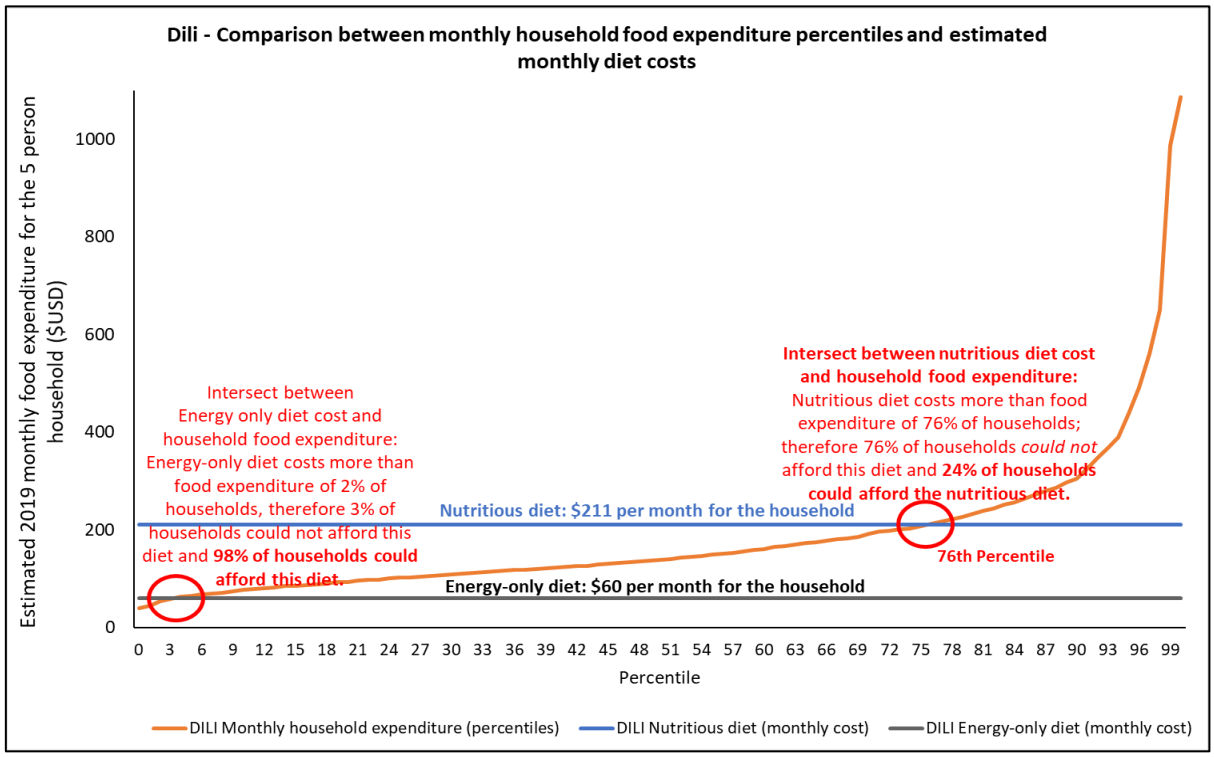
Appendix Table 24: Comparison of CotD estimated diet costs with the estimated 2019 household food expenditure to estimate the percentage of households that would be able to afford the energy-only and nutritious diets in BAUCAU



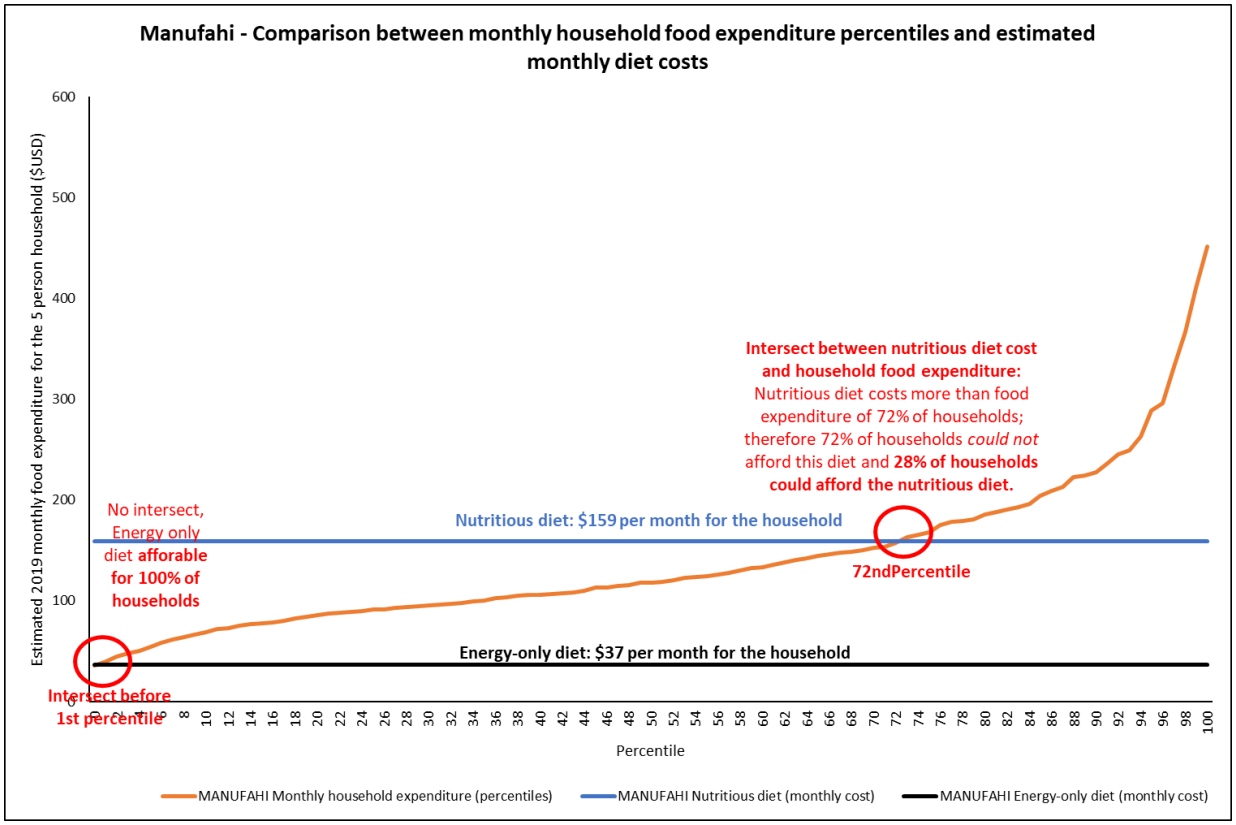
Appendix Table 26: Comparison of CotD estimated diet costs with the estimated 2019 household food expenditure to estimate the percentage of households that would be able to afford the energy-only and nutritious diets in ERMERA



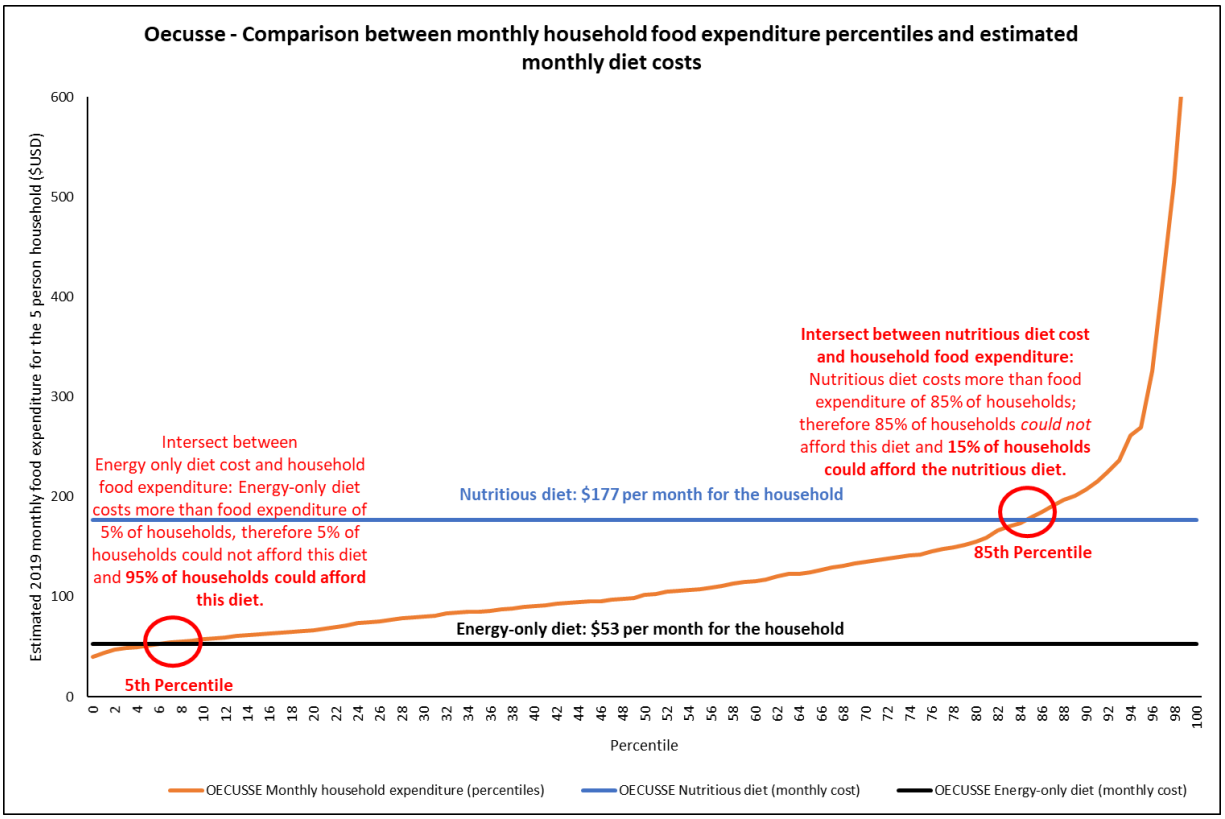
Appendix Table 27: Comparison of CotD estimated diet costs with the estimated 2019 household food expenditure to estimate the percentage of households that would be able to afford the energy-only and nutritious diets in DILI



Appendix Table 28: Comparison of CotD estimated diet costs with the estimated 2019 household food expenditure to estimate the percentage of households that would be able to afford the energy-only and nutritious diets in MANUFAHI



Appendix Table 29: Comparison of CotD estimated diet costs with the estimated 2019 household food expenditure to estimate the percentage of households that would be able to afford the energy-only and nutritious diets in OECUSSE



Appendix Table 30: Nutrient composition of Orange-Flesh Sweet Potato used for modelling in section 8

Food Name		SWEETPOTATO,ORANGE,W/SKIN,FRESH,RAW	Sweet potato, orange, raw
ORIGIN		HarvestPlus 4103	USDA
ENERGY	kcal/100g	123	86
PROTEIN	g/100g	2.3	1.57
WATER	mg/100g	67.4	67.4
FAT	mg/100g	0.1	0.05
CARBOHYDRATE	mg/100g	28.9	20.12
Ca	mg/100g	43	30
Fe	mg/100g	0.9	0.61
Zn	mg/100g	0.448	0.3
Vit C	ug/dietary folate equivalents/ 100g	3.4	2.4
B-1	ug/100g	0.112	0.08
B-2	ug/Retinol Equivalents/100g	0.088	0.06
B-3	ug/Retinol Activity Equivalents/100g	0.8	0.56
B-6	mg/100g	0.3	0.21
Fol	mg/day	16	11
B-12	mg/100g	0	0
VA RE	mg/100g	899.5	709
VA RAE	mg/100g	503.43	709

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Further Information:

WFP Timor Leste, UN House, Caicoli Street, Dili, Timor-Leste. Box No. 133

WFP.Dili@wfp.org, Tel: +670 3310503

https://www1.wfp.org/countries/timor-leste