

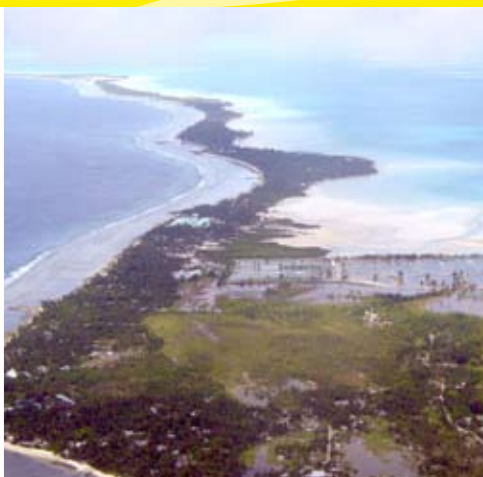


Pacific Centre



# KIRIBATI

## Analysis of the 2006 Household Income and Expenditure Survey



A Report on the Estimation of Basic Needs Poverty Lines,  
and the Incidence and Characteristics of Poverty in Kiribati

Kiribati National Statistics Office and UNDP Pacific Centre, Suva, Fiji  
March 2010



# Kiribati

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## Acknowledgements

This analysis of the 2006 Kiribati household income and expenditure survey has been undertaken with the support of technical assistance provided by the UNDP Pacific Centre in Fiji. The report builds on preliminary analysis undertaken by the Republic Statistician in the Kiribati National Statistics Office, who guided the analysis and who provided strong support and technical inputs to the production of this report. Information on the survey methodology and data processing was provided by the Regional Statistics Programme of the Secretariat of the Pacific Community (SPC). It was a pleasure to work with the staff of the Kiribati National Statistics Office and the analysis has benefited from their insights, technical support and dedication.

Valuable inputs and comments have also been provided on working drafts of the paper by UN colleagues in Fiji and at the UNDP Pacific Centre, especially Carol Flore.

However, none of those who have contributed their advice and insights are responsible for any errors in the analysis presented here.

It is hoped that the analysis contained in this report will stimulate national policy makers in Kiribati and users in the international community to seek more detailed analysis to be conducted on specific issues relating, inter alia, to food consumption patterns, specific areas of expenditure including health and education, gender, children in poverty and the nature of poverty at the three sub-regional levels identified in the report. The further and more detailed analysis of broader socio-economic issues in Kiribati which can be done using the survey data will add policy substance to the key poverty indicators. It will also assist in developing the various conclusions and hypotheses relating to poverty in Kiribati which are covered in this report.

This report was funded through contributions from the Government of Norway and the UNDP Pacific Centre in Fiji. It is part of a series of crisis response Poverty and Social Impact Assessment (PSIA) initiatives aimed at generating policy responses to protect human development gains and to stimulate a broader policy dialogue. The Poverty Group at UNDP manages the PSIA initiative and provides technical guidance to country teams conducting the analysis.

David Abbott  
Pacific Regional Macroeconomic and Poverty Reduction Advisor  
UNDP Pacific Centre

March 2010

## Foreword

I am very pleased and honoured to present this National Report on Poverty and Hardship Indicators for Kiribati based on an analysis of the 2006 household income and expenditure survey. This is the first time that Kiribati has compiled a set of such indicators and it is very timely as the government and the economy struggle to overcome the challenges posed by the recent rapid increases in food and fuel prices, and the loss of employment and revenues that have occurred as a consequence of the global economic recession over the past two years.

An estimation of National Food and Basic Needs Poverty Lines for Kiribati enables the government to gain a better understanding of the numbers, location and characteristics of those living below the national poverty line for Kiribati. The incidence of poverty as measured by national basic-needs poverty lines is a measure of hardship being experienced by households and families as they try to meet a minimum standard of living. This report includes discussions of poverty in Kiribati within the broader Pacific region, but its primary focus is to assess and define poverty within the context of the basic cost of a minimum standard of living in Kiribati and its designated sub-regions of South Tarawa (the urban centre), Rest of the Gilberts Group (the rural areas) and the Line and Phoenix Islands (Linnix). The analysis also makes an assessment of the impact of the recent global economic recession on the people of Kiribati.

Our Kiribati National Development Plan 2008-11 recognises that poverty and hardship are now emerging issues and this report will assist us to address these issues more effectively. Accordingly, it would seem that an increasing number of families in Kiribati are facing hardship and poverty. The report and its findings are an important guide to government policy-makers and community leaders alike in planning and formulating appropriate policies that could improve the lives and well-being of our people, especially those living below the national poverty line.

The challenge for Kiribati is to design and implement, with the support of our development partners, appropriate policy responses to deal with the increasing levels of hardship and poverty that are now arising in the country and to ensure that the aspirations of the people of Kiribati for better standards of living are met.

The Government of the Republic of Kiribati would like to thank the UNDP Pacific Centre for its support to the National Statistics Office in the production of this report and to the Secretariat of the Pacific Community for the conduct of the household survey. It is our hope that this, the first full report on poverty in Kiribati, will be part of a continuing series of such reports to assess poverty and gauge the progress of Kiribati in addressing the needs of its people. To this end, the continued assistance of UNDP Pacific Centre and of other development partners will be essential.

Te Mauri, Te Raoi ao Te Tabomoa.



Honourable Natan Teewe  
Minister of Finance and Economic Development

March 2010



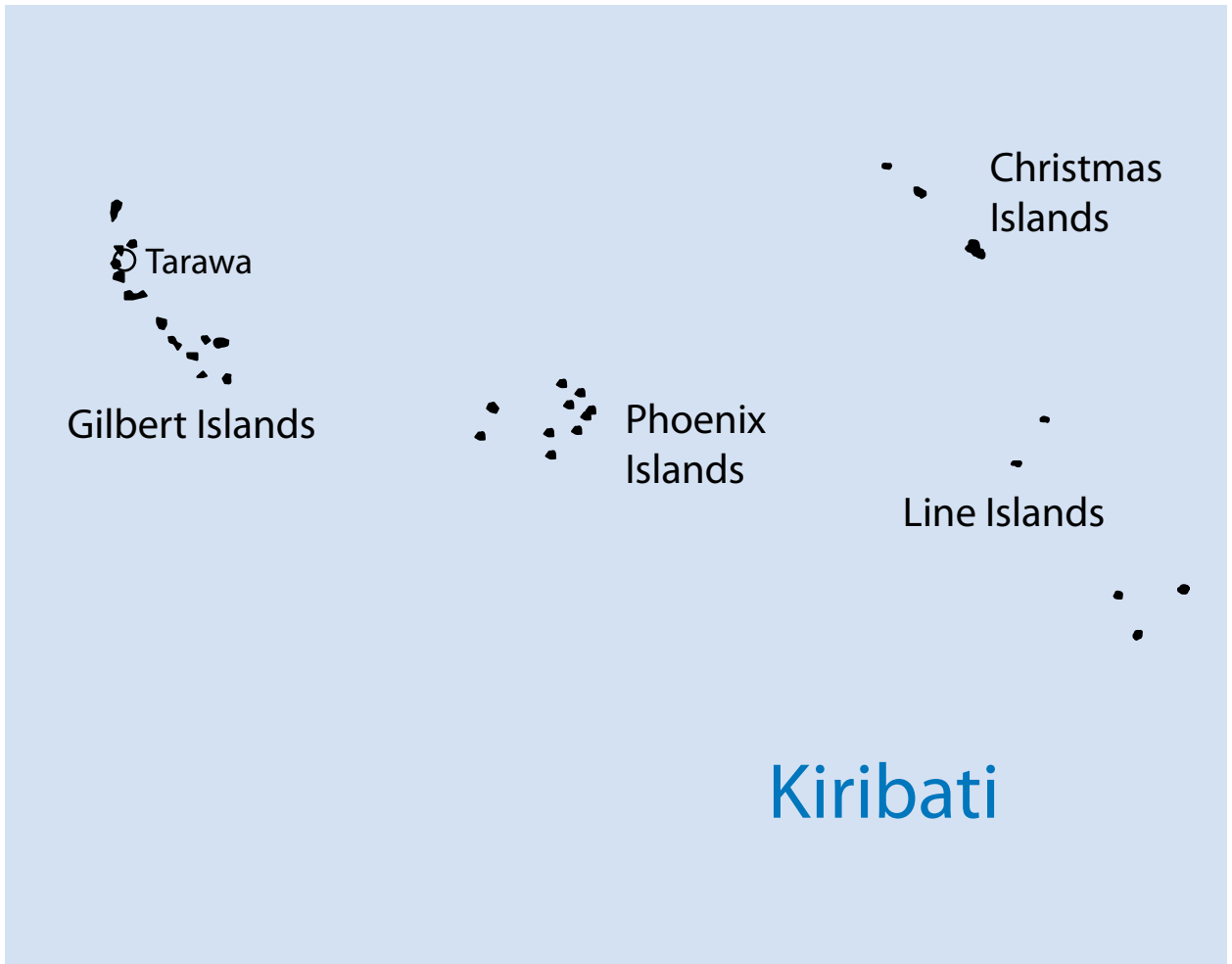
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## Abbreviations

ABS	Australian Bureau of Statistics	NCD	Non-communicable Disease
ADB	Asian Development Bank	NDS	National Development Strategies
a.e.	Adult equivalent	NGO	Non Government Organisation
BNPL	Basic Needs Poverty Line	NSO	National Statistics Office
CPI	Consumer Price Index	PACER	Pacific Agreement on Closer Economic Relations
CSO	Civil Society Organisation	PAH	Participatory Assessment of Hardship
CVI	Composite Vulnerability Index	p.c.a.e	per capita adult equivalent
EEZ	Exclusive Economic Zone	PFTAC	Pacific Financial Technical Assistance Centre
EU	European Union	PGI	Poverty Gap Index
FAO	Food and Agriculture Organization of the United Nations	PHDR	Pacific Human Development Report
FPL	Food Poverty Line	PIC	Pacific Island Country
FSM	Federated States of Micronesia	PICTA	Pacific Islands Trade Agreement
GDP	Gross Domestic Product	PNG	Papua New Guinea
GNP	Gross National Product	PPP	Purchasing Power Parity
HCI	Head Count Index	PPS	Probability Proportional to Size
HDI	Human Development Index	PRS	Poverty Reduction Strategies
HDR	Human Development Report	RERF	Revenue Equalisation Reserve Fund
HH	Household	SOE	State Owned Enterprise
HHH	Head of household	SPC	Secretariat of the Pacific Community
HIES	Household Income and Expenditure Survey	SPGI	Squared Poverty Gap Index
HPI	Human Poverty Index	STI	Sexually Transmitted Infections
IMF	International Monetary Fund	UN	United Nations
IP	Incidence of Poverty	UNDP	United Nations Development Programme
LFPR	Labour Force Participation Rate	UNFPA	United Nations Population Fund
Linnix	Line and Phoenix Islands	WHO	World Health Organization
L3D	Lowest Three Deciles	WTO	World Trade Organisation
MDG	Millennium Development Goals		







## ■ ■ ■ Executive Summary

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### Introduction

1. Poverty as measured by national poverty lines is a relative measure of hardship. It assesses the basic costs of a minimum standard of living, made up of food and non-food basic needs in a particular society. Using the poverty line as a benchmark the number of households and/or the proportion of the population that are deemed not to be able to meet these basic needs can be measured. The basket of goods that make up the basic-needs for individual households, and the costs associated with these, are likely to differ across the country between the urban and rural areas. It is therefore necessary to analyse the data from each part of the country to provide an understanding of the relative costs and standards of living of households and people living in different locations.
2. Poverty analysis is primarily concerned therefore with identifying within each society those households and individuals that are least well-off or most disadvantaged, where they live and what characteristics they might have that set them apart from those that are better-off. In order to be able to develop targeted pro-poor poverty reduction or poverty alleviation strategies it is necessary to try to understand why some are poor and others are not. Is the lack of education a common characteristic? Is the age, gender or employment status of the head of household a common factor? By analysing data from household income and expenditure surveys it is possible to begin to gain a better understanding of these poverty issues and the characteristics of both poor and non-poor households. Through better understanding, better policies can be developed in order to reduce hardship and poverty.

### Purpose of the Paper

3. The purpose of this paper is therefore to provide estimates of National Food and Basic Needs Poverty Lines for Kiribati based on an analysis of the household data from the 2006 Household Income and Expenditure Survey (HIES). For the purpose of the analysis the country has been divided into three sub-regions; South Tarawa (the urban centre), the Rest of the Gilbert Islands (the rural areas) and the Line and Phoenix Islands. National and sub-regional level poverty lines have been estimated and the incidence of poverty in each of the sub-regions has been measured.
4. The HIES contains a wealth of information. This paper analyses the expenditure data to estimate the incidence of poverty and the Head Count Index (HCI)<sup>1</sup> by comparing food and basic needs poverty lines to recorded levels of expenditure.
5. It also provides an analysis of the broad characteristics of low-expenditure households in terms of their socio-economic status, demographics and level of household access to basic services. Together with the poverty indicators these provide a good indication of which households are the most disadvantaged in Kiribati, what common characteristics they might share and why they might be in this situation. Such information will be useful for government to define targeted policies and interventions to assist in alleviating their poverty and hardship.
6. Poverty, as measured by national and sub-regional basic-needs poverty lines, may be regarded as measures of hardship between households living in similar sub-regions. It assesses the basic costs of a minimum standard of living in a particular society, or a particular sub-region, and measures the number of households and proportion of the population that are deemed to be unable to meet these basic needs. Every country experiences some

<sup>1</sup> The Head Count Ratio is not the same as the Poverty Indicator in Millennium Development Goal 1. The MDG 1 indicator, based on US\$1 per day, is not yet available for Kiribati, or any other Pacific Islands Countries, as estimates of the Purchasing Power Parity exchange rates required to calculate the MDG indicator have not yet been finalised by SPC and the Australian Bureau of Statistics (ABS). The MDG 1 indicator, when available, will enable direct comparisons of 'absolute' poverty levels to be made between countries. National poverty lines, which are used in this analysis, enable assessments of relative poverty within countries.

incidence of poverty, but the levels of incidence measured by national poverty lines are not directly comparable across countries<sup>2</sup>.

7. Thus, two countries may have similar levels of incidence of poverty or hardship as measured in relation to their respective national or sub-regional basic-needs poverty lines but have very different standards of living at the poverty line. For example in the USA a household of six persons would be deemed below the national basic-needs poverty line if their annual HH income was less than about US\$30,000. In Kiribati a HH with six persons would be deemed to be below the poverty line if the average HH income/expenditure was less than about A\$6,000.
8. For the analysis of hardship and poverty in Kiribati the household income and expenditure data from the 2006 HIES has been used to estimate Food and Basic Needs Poverty Lines. These then provide the basis for estimating the poverty and hardship experienced by the poorest households across the three regions of the country. From these, incidence levels, depth and severity of poverty have also been measured. Estimates have also been made of Gini coefficients on levels of inequality in expenditure by households. An analysis of the characteristics of the poorest 30% (bottom three deciles, L3D) of households has also been assessed.
9. In this report a HH falling below the food poverty line is deemed to be in a state of “absolute” poverty whereby the household’s income/expenditure (including own food production) is insufficient to meet even the costs of a minimum level of nutrition. A household with income/expenditure at or below the basic needs poverty line is deemed to be in “relative” poverty compared to other HH in the country. The HH will not have sufficient income/expenditure to meet an estimated minimum standard of living relative to the basic needs poverty line.
10. The measurement of the incidence of absolute poverty across a number of countries is usually done through the estimation of the “US\$1 per day<sup>3</sup>” purchasing power parity (PPP) value used in Goal 1 of the Millennium Development Goals (MDGs). Presently this measure of poverty cannot be estimated since PPP indices for Pacific Island countries are not yet available.

### Food and Basic Needs Poverty Lines

11. The Food Poverty Lines (FPL) for Kiribati and households/families in the three sub-regions have been estimated from the actual food expenditure patterns recorded in survey diaries for households in the lowest four-deciles of expenditure, measured in per-capita adult-equivalent terms. An FPL measures the cost of a minimally nutritious diet, based on an average adult daily food-energy intake of around 2100 calories<sup>4</sup>.
12. To estimate the cost of the FPL in Kiribati, CPI prices were used to measure the costs of purchased items. The actual values recorded in the diaries were used to estimate the notional costs of items that were produced for home consumption (subsistence production). This is important because in the rural areas and in the Linnix particularly, subsistence production accounts for around 43% and sixty-percent respectively of food consumed by the poorest households. In comparison, in South Tarawa subsistence production accounts for only about one-third of food consumed by those in the bottom thirty percent of households.
13. The weighted average household FPL in 2006 for the country as a whole is estimated to be A\$63.54 (A\$9.07 per capita adult equivalent (p.c.a.e.) per week. For South Tarawa, which had the highest food costs, the weekly household food poverty line was estimated to be A\$104.42, (A\$10.97 p.c.a.e. per week). In other parts of the

<sup>2</sup> In developed countries, relative poverty is defined as a measure that is related to distributional issues. To estimate poverty, researchers will usually define a poverty line as a proportion of median (or mean) income. By this concept, whenever median (mean) incomes increase, relative poverty increases as well. It is a way to highlight inequality in the distribution of income. Absolute poverty on the contrary usually refers to the level of poverty obtained when the poverty line is defined in relation to a consumption basket.

<sup>3</sup> The US1-per-day PPP in 1993 prices has recently been revised by the World Bank to be US\$1.25 per day PPP in 2005 prices. The equivalent of this report’s “relative” poverty is estimated at US\$2.50 per day PPP in 2005 prices.

<sup>4</sup> This is the minimum food-energy intake recommended by the Food and Agricultural Organisation of the UN, and the World Health Organisation.

country the corresponding figures were A\$84.39 (A\$10.99 p.c.a.e.) in the Line Islands and A\$48.32 (A\$7.74 p.c.a.e.) in the rural Gilberts.

14. The Basic Needs Poverty Line (BNPL), which includes an allowance for essential non-food expenditure has been estimated as a national average household expenditure of A\$112.80 per household (A\$16.09 p.c.a.e.) per week. South Tarawa has the highest BNPL at A\$230.57 for an average size family in the lowest three expenditure deciles, followed by the Line islands at A\$156.53 per household per week. The BNPL for the rural Gilberts was considerably lower, at A\$83.81 for an average low-income HH. The lower rural BNPL derives from the lower food costs, much of rural food is home grown, and the lower demand for non-food expenditure in remote communities where opportunities for such expenditure are limited.

A\$ per capita adult equivalent per week	Food Poverty Line	Estimated Non-Food Expenditure	Basic Needs Poverty Line	Weekly cost per HH in L3D
	A	B	C = A+B	D
National average	9.07	7.03	16.09	112.80
South Tarawa	10.97	13.25	24.22	230.57
Rest of Gilberts	7.74	5.60	13.34	83.31
Line & Phoenix	10.99	9.39	20.38	156.53

15. The per capita adult equivalent costs of the BNPL are estimated at A\$24.22 for South Tarawa, A\$20.38 for the Line Islands and A\$13.34 for the rural Gilberts.
16. The amounts actually reported by households as being spent on non-food essentials varies between the sub-regions. On South Tarawa poor households (bottom three deciles) reported spending just about as much on non-food items each week as they spent on food. In the Line islands food represented 60% of weekly expenditure, and non-food 40%. In the rest of the Gilberts poor households reported spending approximately 53% of weekly expenditure on food and 47% on non food items. These differences are common in other Pacific countries where non-food items feature much more prominently in the urban centres. Indeed in Kiribati the differences are in fact rather less than seen elsewhere in the sub-region and reflect the lack of availability of the wide range of personal services that are usually found in urban centres.
17. For the purposes of calculating the BNPL the average actual amount of expenditure incurred by households in the lowest three deciles was taken as the basis for non-food basic needs. Applying these actual expenditure amounts to the FPL gives the non-food basic-needs component as illustrated in Table ES1. This table also summarises the weekly per capita adult equivalent poverty lines and the average cost per bottom-three-decile household in adult equivalent terms.

### Incidence of Poverty

18. The Incidence of Poverty has been estimated by calculating: a) the proportion of households, and b) the proportion of population, which reported weekly adult equivalent per capita expenditure less than the relevant food or basic needs poverty lines, see Section 7.3 and Table ES2.
19. The average incidence of basic needs poverty, as measured by the Head Count Index (HCI) over all households nationally, is estimated at 17.0%, accounting for 21.8% of the population. Within the national average, South Tarawa recorded the highest incidence of basic needs poverty of 18.3% of households and 24.2% of the population. In contrast in the Line Islands the data indicates a very low level of basic needs poverty incidence affecting only 6.8% of households and 8.9% of the population. In the rural Gilberts an estimated 17.9% of households and 22.0% of the population fell below the level of the BNPL.

Proportion of HH and Population with Weekly Per Capita AE Expenditure less than the Basic Needs Poverty Line		
%	Households	Population
	Basic Needs	Basic Needs
National average	17.0	21.8
South Tarawa	18.3	24.2
Rest of Gilberts	17.9	22.0
Line & Phoenix	6.8	8.9

20. These relative levels of national basic needs poverty compare favourably with other countries around the region.
21. With the sharp rises in food and fuel prices that have occurred over the last eighteen months many households are becoming increasingly vulnerable to falling below the poverty lines. It is estimated that an additional 5.6% and 12.1% of the population would fall into poverty with increases in the BNPL of 10% and 20% respectively. This is discussed further in Section 7.4.

### Depth and Severity of Poverty

22. The Poverty Gap Index (PGI), measuring the depth of poverty<sup>5</sup> in Kiribati has been estimated at a national average of 7.2. This is lower for example than Fiji (11.2) and FSM (9.3) and suggests that those HH falling below the BNPL have on average, expenditure about seven percent below the level of the poverty line. In other words the real incomes of these HH would need to rise by about seven percent for them to move above the poverty line. In South Tarawa the index was 8.5 and 9.8 in the rural Gilberts indicating that the poor are slightly further away from the BNPL in these two locations compared with the index of only 2.0 in the Line Islands where the overall incidence of basic-needs poverty is estimated to be very low.
23. The Squared Poverty Gap Index (SPGI), which measures the severity of poverty<sup>6</sup> being experienced, is estimated at 3.5 nationally. This is a lower poverty severity index than estimated in FSM 4.0, and is less than the recent estimate for Fiji, 5.1. In South Tarawa the SPGI is estimated at 3.4, with a higher index of 4.7 in the rural Gilberts. This suggests that Kiribati experiences a somewhat lower level of poverty severity than other regional countries; in other words the distribution of those households falling below the basic-needs poverty line is skewed (or biased) towards the poverty line itself rather than away from it. The PGI and SPGI indices reflect the fact that there is a significant variation in expenditure levels between the poor and non-poor households. Measured in per capita adult equivalent terms, the average weekly household expenditure for all HH was 7.5 times higher in those households in the highest decile compared to those in the lowest decile, see Section 7.5. In the rural Gilberts this ratio was even higher, at 8.1 times. This reflects the big differences that occur on the outer islands between those who are in formal employment (teachers, nurses, police etc) compared to those who are primarily engaged in the informal and subsistence sectors.

### Income Distribution and Inequality

24. The Gini Coefficient is a measure of income/expenditure inequality where a higher index, maximum 1.0, would signify total inequality, and an index of zero would indicate total equality. At the national level the Gini Coefficient in 2006 was estimated at 0.39, with South Tarawa and the Line Islands being slightly lower at 0.35 and 0.34 respectively and the rural Gilberts slightly higher, 0.42, see Section 8. These Gini coefficients are broadly in line with those estimated for other Pacific countries; in global terms they do however indicate that the levels of inequality being experienced in Pacific countries generally are much higher than many might have been expected. A "reasonable" level of equality would be signified by a Gini of between 0.30 and 0.35, so therefore Kiribati is bordering on an unreasonable level of inequality.

<sup>5</sup> PGI: An index of the percentage by which the average expenditure of poor households falls below the BNPL, thus in Kiribati the average expenditure of poor households is 7.2% below the BNPL.

<sup>6</sup> SGI: An index based on the PGI which by "squaring" the amount that a household's expenditure is below the BNPL gives additional weight to the poorest households; the higher the index the greater the severity of poverty experienced.

## Who are the Poor and What are Their Characteristics?

### Gender and Hardship

25. The gender of the head of household appears to play a small but important role in determining the likelihood of a household being in poverty in Kiribati. Nationally just under one-in-five HH was headed by a female, however on South Tarawa the proportion was one-in-four amongst those HH in the bottom three deciles. The HIES analysis therefore suggests that female-headed households are slightly over-represented in the lowest three expenditure deciles in both South Tarawa and in the rest of the Gilberts. Not however in the Line Islands where 10.8% of HH were female-headed but only 7.9% of HH in the lowest three deciles were headed by females.
26. At the other end of the scale female HH households accounted for 27.8% of all HH in the top quintile in South Tarawa, but only 18.3% in the top quintile in the rural Gilberts. The status of females is discussed further in Section 9.2.



### Children in Hardship

27. The survey indicated that there were a total of 32,791 children less than 15 years in the country, representing 38% of the total estimated population, with an average of 2.3 children per household. In the lowest three deciles the number of children per HH was significantly higher at 2.7 nationally and 3.6 on South Tarawa.
28. Overall female headed households were responsible for 18% of all children (approximately 6000 in total), however almost one-third of these children (2000) were living in poor households; thus children living in female headed HH had a significantly higher chance of being poor.
29. A similar situation exists for those children reported as living in HH headed by the elderly. In total approximately 3500 children, 10.7% of the total, were reported as living in households headed by a person of 60 years or over. However almost 55% of these children were also living in HH in the lowest three deciles.

### Educational Attainment of Head of Household

30. At the national level some 13.7% of household heads reported having had no schooling at all. In the poorest three deciles the reported rate was 16.5% and in the bottom quintile it averaged 17.9%. Even amongst HH in the highest quintile the proportion of households with no education was 8.3%, similar to that found in the lowest deciles elsewhere. These are amongst the highest rates of no-schooling found in the whole Pacific region and are a clear cause for concern.
31. Amongst the adult population as a whole the situation was similar, 12.3% of all those of 15 years and over reported having completed no level of education. In the lowest three deciles the rate was 14.3% and in the bottom quintile 15.9%. The gross and net enrolment rates at primary school have been reported as being close to one-hundred percent for many years (2005 MDG Report); these HIES figures therefore suggest that many must have dropped-out during their schooling and thus never completed primary.
32. Those achieving only primary level accounted for 43.8% of all household heads, and accounted for 35.8% for the adult population as a whole. Amongst those in the lowest three deciles 57.8% had only primary education and of all those adults in the lowest three deciles 44.6% had only achieved primary level. Those completing senior secondary school or higher accounted for only 22% of those in the lowest three deciles but 44% of those

in the highest quintile, section 9.6. Thus there would appear therefore to be a clear link between the poorest households and the lack of educational achievement.

### Source of Energy for Cooking

33. Over three-quarters of households in the rural Gilberts and Line Islands rely on wood fires for cooking. This extends across and across all expenditure deciles. Only in the top quintile in the rural Gilberts and Line islands is kerosene an alternative cooking fuel where it is used by 22% and 37% of top quintile HH respectively. On South Tarawa however kerosene is the most widely used cooking fuel with approximately three-quarters of all HH across deciles using this source. Almost twenty-five percent of those HH in the bottom quintile still use wood as the primary cooking fuel. This is becoming increasingly difficult on South Tarawa as the tree cover is gradually being depleted; this then causes already poor HH to purchase kerosene to meet their cooking needs. Although power is widely available on South Tarawa virtually no HHs reported using electricity for cooking although about ninety-percent reported relying on electricity for lighting, Section 9.7. For many poor HH the cost of purchased power, either electricity or kerosene, is a deterrent to its use. For those in the outer islands firewood is generally easily accessible, but for those in Tarawa this is no longer the case.

### Access to Safe Water

34. Access to both safe water and sanitation facilities are important factors in ensuring good health for children. Access to these two is therefore a key issue in considering poverty and hardship alleviation. For low decile HH on South Tarawa access to water supplies is split between piped supplies and public/HH wells, approximately 40% each source, and public/HH water tanks, approximately 20%. For HH in the higher deciles the preferred source is a HH water tank which gives greater control over the source and its quality. Wells and piped supplies on Tarawa are generally regarded as not being entirely safe and there are therefore significant risks for many HH in the type of access available to them, Section 9.8.

### Access to Sanitation

35. Across the country approximately one-third of HH in the bottom three deciles have no HH sanitation system; a further quarter relies on traditional HH pits or over water closets. Thus less than half of all poor HH have access to a safe sanitation system. The use of these unsafe systems is especially problematic on South Tarawa where overcrowding and the use of the beach and lagoon beaches presents very significant health risks for all, but especially for children.

### Conclusions

The estimate that around one-in-five households and almost one-in-four of the population of Kiribati may be living below the national minimum cost of living or basic needs poverty line may come as a surprise to many.

36. However poverty in the Kiribati context does not mean hunger or destitution in the traditional sense of understanding. It means rather that many households are struggling to meet their basic living expenses on a daily or weekly basis, particularly those expenses that require cash payments. Families constantly have to make choices on a daily or weekly basis between the competing demands for household expenditure and the limited availability of cash income to meet that expenditure; trade-offs are made between one bill and another, food or fees. Households deemed to be experiencing basic-needs poverty are therefore facing hardship on a daily basis. They struggle to pay bills and to purchase adequate and suitably nutritious food. They might need to borrow regularly from informal loan providers ("loan-sharks") who charge very high interest rates for small unsecured loans to meet family commitments and community obligations. They are thus frequently, and occasionally constantly, in debt.



37. Drift of populations to the urban centre of South Tarawa, especially amongst young men, leads to higher levels of unemployment and growing numbers of people living in poor quality housing conditions and squatter-type settlements, without adequate access to safe water and sanitation. These all contribute to a deteriorating social environment and to increasing problems with poor health, especially for children.
38. Many of the poor live in low-quality housing without proper access to water, sanitation and other basic services. Poor housing conditions lead to poor health, poor employment prospects, and poor education attainment. Children may miss school due to ill-health or because school fees or associated costs have not been paid. Adults are frequently poorly educated and thus unable to get anything but the lowest paid and often casual employment, if such employment is even available. The cycle of poverty can therefore be perpetuated.
39. This analysis seeks to provide government with clearer, evidence-based indications of the extent and nature of poverty in Kiribati. It suggests policy issues and possible policy options to address these. Increased opportunities for employment or economic opportunity, not only in the urban centres but also in the rural areas, together with improved basic education are amongst the most critical.
40. The following Table ES3 summarises the key MDG poverty indicators derived from the HIES.

<b>Table ES3</b>				
<b>Millennium Development Goal Indicators</b>				
	National	South Tarawa	Rest of Gilberts	Line & Phoenix
1.1 Proportion of Population below Basic Needs Poverty Lines % (Note 1)	21.8	24.2	22.0	8.9
Proportion of Population vulnerable to falling into poverty; per capita expenditure <10% above BNPL %	5.6	7.4	3.4	7.0
1.2 Proportion of households with per capita expenditure below the minimum level of dietary energy consumption (FPL) %	5.3	2.2	6.0	0.5
1.3 Poverty Gap Index (PGI) - Depth of Poverty	7.2	8.5	9.9	2.0
Squared PGI - Severity of Poverty	3.5	3.4	4.7	0.6
1.4 Share of poorest quintile (20%) in consumption by region %	7.8	11.2	7.8	11.4
Ratio of Share of poorest quintile (20%) to highest quintile	4.7	2.7	4.7	2.9
HH Gini Coefficient: (0 = perfect equality 1 = perfect inequality)	0.39	0.35	0.42	0.34

Note 1: Proportion of Population below US\$1 (PPP) per day not yet available, awaiting PPP indices to be finalised.

## National Poverty Lines and Estimates of the Incidence in of Poverty in Kiribati

### 1. Purpose of Paper

1. The purpose of this paper is to provide up-to-date estimates of National Food and Basic Needs Poverty Lines and the incidence of poverty for Kiribati based on an analysis of the household data from the 2006 Household Income and Expenditure Survey (HIES). The paper also assesses the possible poverty and social impacts of the global economic downturn as it may affect the people of Kiribati.
2. This is the first detailed analysis of hardship and poverty to be conducted for Kiribati. An earlier analysis based on the 1996 HIES provided some preliminary estimates of poverty, but the data source for these is not now considered to be sufficiently robust for them to be compared with the latest estimates.
3. The 2006 HIES contains a wealth of information on household income and expenditure and on household characteristics enabling a picture to be developed of the overall status of either well-being or hardship being experienced by the people of Kiribati. Specifically this paper analyses the expenditure data to estimate the incidence of poverty and the Head Count Index (HCI)<sup>7</sup> by comparing food and basic needs poverty lines to recorded levels of expenditure. The analysis uses the “Cost of Basic Needs” methodology which is explained in the following sections.
4. The report also provides an analysis of the broad characteristics of low-expenditure households (those in the lowest quintile and bottom thirty-percent of weekly per capita adult equivalent expenditure); this analysis assesses the socio-economic status of these households, their demographics and levels of household access to basic services. Together with the poverty indicators these provide a good indication of which households are the most disadvantaged in Kiribati; what common characteristics they might share; and why they might be in this situation. Such information will be useful for the government to define targeted policies and interventions to assist in alleviating their poverty and hardship.
5. Specifically the paper will:
  - Discuss the definition and context of poverty in the Pacific and Kiribati in particular, Section 3;
  - Outline the poverty analysis methodology used and provide an overview of some of the key household and socio-economic indicators from the HIES, Section 4;
  - Estimate food and basic needs poverty lines for households<sup>8</sup> in Kiribati as a whole and each of the three sub-regions: South Tarawa, Rest of the Gilbert Islands (rural households) and the Line and Phoenix Islands (Linnix); Sections 5 & 6;
  - Provide indications of the incidence of poverty amongst households in the sub- regions, estimates of the depth and severity of poverty by sub-region, and estimates of the vulnerability of HH falling below the poverty lines in the face of rising prices and declining real incomes; Section 7;
  - Estimate the extent of inequality in income (or expenditure) amongst households, Section 8;
  - An outline of some of the characteristics of poor households; section 9; and
  - Provide a summary of key policy issues arising from the analysis, section 10.
6. This report is the first detailed quantitative analysis of poverty and hardship in Kiribati. It therefore provides a benchmark against which progress in reducing poverty can be measured for the future. It provides the Kiribati

<sup>7</sup> The Head Count Ratio is not the same as the Poverty Indicator in Millennium Development Goal 1. The MDG 1 indicator, based on US\$1 per day, is not yet available for Kiribati, or any many other Pacific Islands Countries, as estimates of the Purchasing Power Parity exchange rates required to calculate the MDG indicator have not yet been finalised by SPC and the Australian Bureau of Statistics (ABS). The MDG 1 indicator, when available, will enable direct comparisons of “absolute” poverty levels to be made between countries. National poverty lines, which are used in this analysis, enable assessments of relative poverty within countries.

<sup>8</sup> The survey defined households as units “where normal family or household living arrangements are exercised”; and therefore excludes institutional housing such as schools, hospitals etc.

government and its development partners with new insights into the human development status of the country and should assist in the development of policies and projects aimed at raising the level of well-being of the people.

## ■ ■ ■ 2. Introduction

### 2.1 Background

7. Kiribati is a small Pacific nation with a total population of around 90,000 (2005 Census). The country consists of 33 atolls and reef islands, of which twenty-one are permanently inhabited, spread across an exclusive economic zone (EEZ) of 3.5 million sq.km, the largest in the Pacific. Being coral atolls and reef islands the soil is generally very poor and infertile making agriculture difficult. The total land area is only 726 sq. km., of which over half (388 sq km) is on Kiritimati (Christmas Island) situated some 1200 km south of Hawai'i and over 2,000 km. to the east of the capital on Tarawa.
 
8. The main subsistence tree-crops are coconuts and toddy, breadfruit, pandanus and bananas. In many islands the giant swamp taro, locally known as Babai is grown in large man-made pits that need to be carefully tended and mulched. Pumpkin, sweet potato and other hardy ground crops can also be grown. Small livestock, chickens and pigs are also kept as a source of food. There is little potential for any large scale agriculture. The marine environment of the islands provides the primary source of protein in reef and ocean fish, as well as shell fish and other crustaceans found on the reef flats. The atoll lagoons have provided opportunities for small businesses in harvesting aquarium fish, and there have been projects for seeding giant clams and the production of seaweed for the pharmaceutical industry. These ventures have had varying degrees of success being impacted by difficulties of transport, storm damage, lack of skills and training and general sustainability.
9. The climate is tropical with a highly saline atmosphere from the close proximity of the ocean to every part of every island. This can cause severe damage to electrical and mechanical equipment and infrastructure and creates a very high-maintenance cost environment. For this reason traditional housing, rather than modern construction, is often preferred since this can be repaired easily and cheaply. Having only a small land area on each island, no high-ground and a very fragile eco-system the country is extremely vulnerable to the impacts of climate change, especially to rising sea-levels, and droughts. However being so close to the equator Kiribati is largely spared the affects of cyclones. Man-made pollution, lack of adequate waste management, unsustainable depletion of the underground water lens and coastal erosion (both natural and man-made) are other serious environmental concerns.

### 2.2 Population and Human Development

10. The population of Kiribati is almost entirely Micronesian with a small number of Tuvaluans, Nauruans and Europeans. The social system is based on the typical Pacific community and family structures seen elsewhere in the region. Most islands have three or more villages and these may be divided by religion and traditional, sometimes long-standing, inter-village rivalries. In general the northern islands of the main Gilberts Group are predominantly catholic, while the southern islands are predominantly protestant, but there is also a strong presence of many other religious groups and organisations throughout the country.

11. Between the two most recent census (2000 & 2005) the population growth rate was just under 2% per annum; population densities were generally quite low on the outer islands averaging about 270 persons p.sq.km in the northern Gilberts and about 130 p.sq.km in the central and southern islands. However on South Tarawa the capital, the population density is over 2500 p.sq.km. Overcrowding on Tarawa, a lack of adequate infrastructure and services, and a lack of proper urban planning therefore creates a very poor social environment for many families in the capital.
12. There has been a steady migration of population from the outer islands of the Gilberts group to Tarawa (north and south) and to the Line Islands, as well as, increasingly, to overseas destinations. The six most southerly of the Gilbert Islands and three in the north/central group have all seen absolute declines in their populations over the period since 1990. Until relatively recently overseas outmigration from Kiribati, other than for qualified seafarers, has been quite limited and has not provided as much of a “safety-valve” for young people as it has in many other Pacific countries. As a consequence unemployment and under-employment has become a major issue in the domestic economy. As noted in the following analysis “unemployment” as defined in the HIES was reported as being around 38% across the country.
13. The pattern of out-migration is changing however and the recently established Recognised Seasonal Employer Scheme (RSE) in New Zealand and the similar scheme being established by Australia are providing new employment opportunities. Kiribati, like its neighbour Tuvalu, is recognised as a source of highly competent seafarers who are employed on foreign merchant vessels. However the current global economic downturn, the high cost of employing seafarers from remote Pacific locations, and concerns about the declining standards of education in Kiribati (and Tuvalu) threaten to undermine this very important source of employment.
14. The human development status of Kiribati is relatively weak and has showed little improvement; between 1998 and 2008 the Pacific Human Development Index<sup>9</sup> (HDI) for Kiribati improved only slightly from 0.515 to 0.606, pushing the country down one position to 12th behind Vanuatu, with only Solomon Islands and PNG having a worse HDI. On the Pacific Human Poverty Index<sup>10</sup> (HPI) Kiribati fared even worse with its position falling three places behind FSM, Marshall Islands and Vanuatu, again with only Solomon Islands and PNG below it in the rankings. Thus over recent years Kiribati has fallen behind in both the human development and human poverty indices. It remains on the list of least developed countries.
15. In 2007 Kiribati produced its first national MDG Report. This reported mixed progress towards achieving the eight goals. Although positive gains were being achieved in levels of primary education enrolment, in gender equity in education and in some of the health indicators, it was estimated that overall the country was off-track in its progress towards five of the eight goals. The current Kiribati Development Plan 2008-11, while not explicitly targeting the MDGs, nevertheless integrates many of the MDG indicators into its monitoring and evaluation framework and gives priority to the health, education and environment sectors.

### 2.3 Economic Performance

16. According to the government’s latest revised/preliminary estimates of Gross Domestic Product (GDP)<sup>11</sup> the Kiribati economy showed steady, if unspectacular, growth averaging 3.8% per annum in the decade to 2000, giving an increase in real per capita GDP of about 2.1% per annum. Over the period since, from 2001 to 2009, growth slowed to an average of only about 1.0% per annum, meaning that GDP per capita was declining slowly in real terms by approximately 0.8% per annum. Thus overall the performance of the Kiribati domestic economy has weakened in recent years.

<sup>9</sup> A composite index of GDP per capita, life expectancy at birth, adult literacy and school enrolment levels

<sup>10</sup> A composite index of the HDI plus indicators of access to safe water, access to health services, primary enrolment levels, the chance of not surviving past forty years and the proportion of underweight children.

<sup>11</sup> Draft revised National Accounts Estimates, PTFAC & Kiribati National Statistics Office, 2010

17. The most recent estimates of GDP have for the first time attempted to fully capture the contribution of both monetary and non-monetary subsistence activities to the economy. These are now estimated to account for about 25% of total GDP and, together with other related adjustments, have resulted in an increase in the estimated current price GDP for 2009 from A\$96.4 million to A\$155.9 million. In the old estimates for 2008 the “Informal Sector” was estimated to be valued at A\$5.6 million, while in the revised estimates, largely based on data from the HIES, the value of the Informal Sector has now been estimated at A\$57.0 million. Current price GDP per capita for 2009 has been estimated at A\$1622, and at A\$1453 in constant 2006 prices. The public sector continues to dominate the domestic economy, however, providing almost two thirds of all paid employment and close to half the monetary GDP.

18. Kiribati has a very open economy with its trade in goods and services being almost equivalent to the value of GDP. The openness of the Kiribati economy and its integration with the global economy is also demonstrated by the fact that an average of about forty-percent of gross national income (GNI; estimated at A\$211.7 million in 2007) comes from external sources; predominantly fishing licence fees, seafarers’ remittances, development assistance, and revenue from the country’s Revenue Equalisation Reserve Fund (RERF). This last is the country’s stock of national wealth, a sovereign wealth fund originally built from the revenues of phosphate mining on Banaba Island during the British colonial period. The fund is invested globally and managed by investment professionals in London on behalf of the government. Revenues from the RERF provide around 25% of the recurrent budget.



19. The size of the recurrent budget has increased steadily in recent years and is currently equivalent to about 50% of GDP. Within the total budget wages and salaries have gradually captured a larger share of expenditure, increasing from an average of about 40% of total recurrent expenditure in 1999/2001 to over 50% in 2006/2008.

20. There are approximately thirty public enterprises in various states of operational functionality and only a very few operate profitably. These enterprises are a significant drain on the budget and the economy as a whole; their generally inefficient and subsidized operations inhibit the development of competitive private sector alternatives and impose a significant cost burden on the consumer. Subsidies and grants to these state-owned enterprises and other agencies, including payments on the senior citizens benefit scheme account for about 15% of the recurrent budget. Debt service payments are budgeted to take approximately 2.5% of recurrent expenditure in 2009. Together these two expenditure categories plus wages and salaries account for two-thirds of the recurrent budget leaving only one-third of resources to meet programme delivery costs.

21. Over the period since 2001 the government has come to rely ever more heavily on annual drawdowns from the RERF to support the budget. In the last two years the RERF has contributed approximately 25% of recurrent revenue. In the present investment environment these levels of drawdown are considered unsustainable and incompatible with the objective of maintaining the real value of the underlying principal.

22. Fishing licence fees are another important source of government revenue although the industry makes little direct contribution to the domestic economy. Although volatile from year to year these licence revenues have, on average, contributed around 20% to government’s annual recurrent revenues. In the face of the global economic situation the future size and direction of these licence fees is unclear; one argument is that they will stay buoyant

as people opt for “cheap” tuna, while an opposing view is that demand for tuna will fall along with economic activity generally. It is understood that so far licence revenues have indeed remained buoyant. The number of fishery mother-ships (average of eight vessels everyday throughout August 2009) and the frequency with which purse seine vessels have been observed transshipping catches in Tarawa lagoon would seem to support this.

23. The government is moving towards ratifying the Pacific Islands Free Trade Agreement (PICTA) and its sister agreement the Pacific Closer Economic Relations Agreement (PACER). Compliance with these agreements requires a restructuring of the Kiribati tax and tariff regime, this is currently being formulated for implementation in 2010. The primary objective would be to broaden the tax and tariff base away from specific trade taxes to a system based on consumption tax. This would be a move towards eventual WTO compliance.
24. Kiribati uses the Australian dollar as its national currency. It does not have a reserve bank; its only major commercial bank is a subsidiary of ANZ Bank Pty. The government retains a 25% shareholding in the Bank of Kiribati. The government therefore has no independent monetary policy and no control over its external exchange rate. The financial sector of the economy is very underdeveloped. The Kiribati Provident Fund, the Development Bank of Kiribati and the Kiribati Insurance Corporation comprise the main players in the financial sector. There are also small “Village Banks” which operate at the community level.
25. Kiribati has a very substantial trade deficit, having virtually no commodity exports. Its trade deficit is offset by flows of factor income from abroad (RERF, seafarers, remittances and fishing licence fees) and development assistance. There is very little foreign direct investment. The country is virtually totally reliant on imports of fuel for all transport and power generation requirements. On the outer islands there is some use of solar power for lighting but this is not significant in total, see section 9.
26. The principal economic resources available to Kiribati are the fish stocks in its large EEZ and its small but important tourism sector, primarily focused on the Line Islands. Beyond this the opportunities for generating additional economic growth are limited. Seaweed cultivation has been successful but has experienced problems with transport, storms damage and lack of management skills. Agriculture development is severely constrained by the lack of land, although there could be some scope for niche-market coconut products if quality and markets could be developed.
27. In recent years Tarawa has become a transshipment port for purse-seine fishing vessels unloading catches to mother-ships. This has provided a boost to the local economy on Tarawa, but has also had some unfortunate social consequences and poses serious health risks around HIV/AIDS and other STIs.

#### **2.4 Impact of the Global Economic and Financial Crisis**

28. Kiribati has been, and is still being adversely impacted by the affects of the global fuel and food price increases of early 2008. Consumer price inflation was very high in the second half of 2008 reaching an annual rate of 18.6% in the fourth-quarter of 2008. Through to the second quarter of 2009 the annual rate was still high at 13.2%. Although global food prices fell in the second half of 2008 these falls were not translated into commensurate reductions in consumer prices in Kiribati. The retail prices of many basic foods have now appeared to plateau at much higher levels than previously. At end June 2009 for example the retail price of rice was double that of December 2007, and the prices of sugar and flour, two other of the most purchased items by poor households, were two-thirds and one-third respectively above the end 2007 levels.
29. Formal offshore employment is presently estimated at around nine-hundred persons, significantly down on the number at the beginning of 2008. In mid-2009 the number of seafarers on foreign merchant vessels, the largest group of workers, was approximately 720, this is a decline of almost 200 on the average 2008 level, a

fall of 20%. Moreover the average number of seafarers in 2008 was itself some 15% below the average level of 2004/05. The numbers engaged as fishing vessel and cruise ship crew have also declined as one of the principal Japanese fishing companies has cut back its operations and as cruise ship operators have cut back their voyages consequent on the fall in demand. The cut back in cruise ship operations is also reportedly having a serious impact on the island of Tabueran in the Line Islands. At its peak in 2003 there were approximately three visits per month to the island by cruise vessels originating in Hawaii, a total of more than 120,000 visitors landing during the course of the year. Although the number of vessel visits had dropped to around one per month by 2007 and early 2008, by the end of the year the visits had stopped completely. The people of this remote island have now lost their primary source of income, its return is uncertain.

30. In 2008 seafarer and other remittances from workers offshore are estimated to have amounted to between A\$12–15 million; this will have declined in line with the number of seafarers and others and will have a direct impact on the incomes of families in Kiribati.
31. The impacts of the global economic and financial crisis have therefore begun to affect Kiribati in diverse ways through multiple transmission channels:
  - The cost of fuel imports all but doubled between 2007 and 2008 putting a severe strain on the government's budget to provide additional subsidies to the domestic shipping operations and the power generator;
  - The increased cost of fuel also: a) put up the operating costs of local fishing businesses adding to the price of fish in the market; and b) increased the transport costs of the people living on South Tarawa particularly;
  - The sharp rises in the prices of key basic food items in the diets of poor households (notably rice flour and sugar) during 2008, and which have remained high since, has been especially hard on the poorest and most vulnerable in the urban centre of Tarawa;
  - The decline in world trade and the lay-up of a number of merchant shipping vessels has reduced the number of I-Kiribati seafarers and had consequently led to a decline in remittances; the loss of remittances is felt immediately by those households in which employment has been lost;
  - The termination of cruise vessel visits to Tabueran Island has completely removed the source of income and livelihood from the people of this very remote island in the Line Island group; problems with the international air-service through Kiritimati island, although not directly the result of the global economic situation, have exacerbated the loss of the cruise vessels and have reduced the tourist numbers to Kiritimati also;
  - The reduction in employment on-board cruise and foreign fishing vessels is further reducing employment prospects for I-Kiribati;
  - The fall in value of the RERF as a consequence of the financial crisis has raised questions regarding the sustainability of the government's current drawdown policy in support of the recurrent budget;
  - Slow growth in the economy, being experienced even before the impacts of the global slowdown, is likely to lead to a fall in government revenues during 2009 and into 2010; this will add pressure to the budget and will present the government with serious challenges in trying to ensure a sustainable budget balance.
32. The government's options are limited. A major fiscal stimulus package along the lines of those being implemented in larger countries is not possible within the framework of the current fiscal situation. The government has no recourse to external funding, other than from its regular donors and international finance agencies, and the scope for additional domestic resource mobilization for public investment is very limited. In any event there are considerable lead times in mobilizing major investment projects and there are very large import leakages. It may be possible to bring-forward some already planned donor-funded investments but these are unlikely to be sufficient to make a material difference in the short-term.
33. Labour-intensive small-works projects would be more appropriate in putting income into the hands of households most affected by the economic situation. Such works could involve school classroom and health

clinic maintenance; repairing guttering on public buildings, perhaps even on private housing; repairs to village roads and causeways. Such projects could be mobilized quickly by island councils in village communities and would not require the provision of much in the way of heavy equipment or costly imports. It would however create employment and income and lead to infrastructure improvements.

34. A determined programme of public enterprise restructuring would also yield significant cost savings and create opportunities for new private sector investment. The inevitable initial social costs arising from such restructuring could be supported by development partners.
35. Some countries in the region have begun to implement social protection measures, often with development partner support, targeting to reduce the burden of education related costs on poor households. This approach might also offer an opportunity for Kiribati to provide pro-poor transfers which would act as a form of fiscal stimulus.
36. Many households are already experiencing the socio-economic costs of lost jobs, declining remittances and falling real incomes. The following analysis establishes a set of poverty benchmarks based on the 2006 household income and expenditure survey. These benchmarks help to define the most vulnerable households in Kiribati and assist in highlighting possible policy options to target the most vulnerable and to mitigate the impacts of the economic slowdown.



### ■ ■ ■ 3. Defining Hardship and Poverty in the Kiribati Context

#### 3.1 Introduction

37. Traditional Kiribati society, as with Pacific societies generally, embraces caring for and sharing with the extended family. As a result, there has been a strong belief that poverty could not and should not be a part of normal life in the region. The idea that poverty might be present in some form is not, therefore, something that until recently, many Pacific Islanders, and particularly their governments, have been prepared to accept. There has, however, been a growing acknowledgement that the increasing monetisation of Pacific societies and the weakening in traditional social safety nets, has led to an greater awareness of hardship, if not actual “poverty” in peoples’ lives.
38. The recent food and fuel price rises have brought these issues into sharper focus and have acted as a catalyst in raising awareness of poverty and hardship as serious issues for policy debate.
39. With its poor growth record and likely declining real incomes, the people of Kiribati have been hard hit by the rapidly increasing cost of living in the country. The situation is adversely affecting the overall living standards of those without regular cash incomes and especially the most vulnerable. However, whilst many families are not especially well-off in financial or material terms, their strong family and community ties have traditionally provided social safety nets for the most disadvantaged and vulnerable.
40. The changes in socio-economic structures being brought about by the spread of “globalisation” in its broadest sense, and the impact these changes are having on the ability of households to continue to lead traditional lifestyles, are now leading to poverty and hardship, as now defined and understood in the Pacific, (see Section 3.3 following), being increasingly accepted as concerns by governments and the development community. Some countries in the Pacific region, including Fiji Islands, Papua New Guinea (PNG), and Timor-Leste, have already



fully embraced the need to deal with increasing levels of hardship and poverty and the consequent societal implications. Other countries, though perhaps not yet fully acknowledging hardship and poverty as serious issues, are nevertheless accepting that there are growing numbers of disadvantaged people who are being left behind as economic and social structures change in response to both external and internal developments.

41. Moreover, poverty and hardship should be seen as issues that are best dealt with before they become serious. This has become especially relevant in the past year or so as the impact of rising fuel and food prices have begun to have serious implications for both governments and households alike. Almost everyone, throughout the region, has begun to experience declines in their real incomes as price rises have not been matched by increased earnings. As a consequence many more people have begun to experience hardship as they try to balance their daily living needs with their often very limited income resources and access to food gardens, especially in the urban centres.
42. To be fully accepted poverty and hardship have to be defined in ways which are more easily understood in Pacific societies. Poverty means different things to different people at different times and in different places. This has given rise to much misunderstanding and confusion. Poverty can be either absolute, where families struggle to even provide adequate food for themselves, as in the MDG1 indicator of US\$1 per day, or it can be relative, where people are disadvantaged compared to their neighbours in terms of individual national, or localised poverty lines, and where they struggle to meet the needs of a minimum standard of living in their own society.
43. Poverty and hardship may be caused by a sudden change in personal/household circumstances as a result of a natural disaster or a conflict situation. This would have been the case with many of those people displaced in Solomon Islands during “the tensions” of the period from 1999 through 2002. The tsunamis of 2006 and 2009 in Solomon Islands’ Western Province, Tonga and Samoa and the floods in Fiji early in 2009 would also have caused many households to experience hardship. It may also be personal due to such causes as unemployment, sickness, death or disability; in some countries HIV/AIDS and NCDs are amongst the greatest causes of these latter problems. In yet other situations it can be the result of discrimination or specific policy choices as in the case of Fiji where the leases on many sugar-cane farms have not been renewed and farmers have lost their livelihoods.



44. Most discussions of poverty centre on its most extreme manifestations: absolute poverty and destitution. There are, however, many other ways in which people can be poor or can suffer hardship. Indeed people can be reasonably well fed and moderately healthy but still live in relative poverty and suffer varying degrees of hardship. Their incomes or subsistence production might be just sufficient to meet their food needs but they may struggle to meet other basic-needs expenditure. Additionally, they might lack access to basic services, such as water and sanitation or health and education facilities, freedom of choice, or socio-economic opportunities. This “poverty of opportunity”<sup>12</sup> is just as important in defining the extent of poverty and hardship in a society as the lack of income. In fact, often the conditions and circumstances that give rise to poverty of opportunity (poor access to, or standards of, service delivery, poor governance, poor education and health, limited employment opportunities, and social exclusion) are the underlying causes of income poverty.

<sup>12</sup> First used in the Pacific context in the UNDP 1999 Pacific Human Development Report, defined as “the inability of people to lead the kind of lives they aspire to.”

45. It is recognised that defining poverty by level of cash income or expenditure alone might not be appropriate in the Pacific. Most economies and households include high levels of subsistence production and consumption of own-produced food. The current analysis takes account of this subsistence production/consumption by valuing it as part of both income and expenditure, thus providing a better picture of overall well-being, see Section 4.2.
46. Household survey data on subsistence production also provides a sounder basis for estimating the non-monetary sector in national accounts. Historically in many countries, including in Kiribati, calculating the value of such subsistence production in the national income (gross domestic product) has not been complete; it may have been inadequately assessed in GDP estimates or occasionally it has been missing almost entirely.
47. Often in the past data from censuses and HIES has not been collected with the analysis of poverty and hardship in mind, or has not been fully analysed for poverty indicators and the socio-cultural aspects of the data may have been ignored. This is now changing. There is a growing recognition of the importance of the data generated by HIES, both in terms of the information it can provide on poverty, and also the importance of accurately capturing subsistence production and consumption for national accounts purposes.
48. As a result of the Millennium Declaration endorsed at the UN Summit in 2000 and the subsequent adoption of Millennium Development Goals (MDGs) at the World Summit in 2000, there has been a growing awareness of the need to increase both understanding and knowledge of the extent of poverty and hardship in society. The integration of the MDGs as part of a core hardship alleviation and poverty reduction focus in national development priorities and strategies is an overarching goal of all the agencies that have contributed to this analysis.
49. A summary of the key MDG1 indicators derived from the HIES is at Table 1.

Table 1				
Millennium Development Goal Indicators				
	National	South Tarawa	Rest of Gilberts	Line & Phoenix
1.1 Proportion of Population below Basic Needs Poverty Lines % (Note 1)	21.8	24.2	22.0	8.9
Proportion of Population vulnerable to falling into poverty; per capita expenditure <10% above BNPL %	5.6	7.4	3.4	7.0
1.2 Proportion of households with per capita expenditure below the minimum level of dietary energy consumption (FPL) %	5.3	2.2	6.0	0.5
1.3 Poverty Gap Index (PGI) - Depth of Poverty	7.2	8.5	9.9	2.0
Squared PGI - Severity of Poverty	3.5	3.4	4.7	0.6
1.4 Share of poorest quintile (20%) in consumption by region %	7.8	11.2	7.8	11.4
Ratio of Share of poorest quintile (20%) to highest quintile	4.7	2.7	4.7	2.9
HH Gini Coefficient: (0 = perfect equality 1 = perfect inequality)	0.39	0.35	0.42	0.34

Note 1: Proportion of Population below US\$1 (PPP) per day not yet available, awaiting PPP indices to be finalised.

### 3.2 Poverty = Hardship: A Pacific Definition of Poverty

50. After extensive consultations through a series of Participatory Assessments of Hardship (PAH) conducted by ADB<sup>13</sup> in ten PICs (including Kiribati) over 2001 – 2005, a working definition of Pacific poverty, or perhaps more correctly "Hardship", was defined in Human Development terms as:

*An inadequate level of sustainable human development, manifested by:*

- *a lack of access to basic services such as health care, education and clean water;*
- *a lack of opportunities to participate fully in the socio-economic life of the community; and*
- *a lack of access to productive resources and income generation support systems (rural credit ,capital, markets, skill)*

<sup>13</sup> RETAs 6002 , 6047 and 6157 covering FSM, Kiribati, Fiji, PNG, RMI, Samoa, Solomon Islands, Tonga ,Tuvalu and Vanuatu

*to meet the basic needs of the household, and/or customary obligations to the extended family, village community and/or the church.*

51. The findings of the participatory assessments highlighted hardship and poverty as real issues in the lives of many people in both urban and rural areas, and on outer islands and atolls. The concerns of the people showed remarkable consistency not only between the urban and rural areas within each country, but also across the countries of the region as a whole. In other words, despite the wide differences in geography and resource endowments among the atolls of Micronesia and parts of Polynesia, and the high islands of Melanesia and most of Polynesia, the concerns of the people themselves were very similar.
52. The causes of hardship and poverty centre around the lack of regular and sufficient cash income; poor access to or the poor quality of basic services; and the lack of skills to meet opportunities and challenges as they become available. These are the challenges which face governments and policy makers in framing national, sector and community level interventions aimed at alleviating the causes of hardship and poverty and achieving the MDGs.
53. During the PAH in Kiribati nine communities were consulted throughout the country, including Tarawa, the Line Islands and the rural Gilberts. The general perception of the focus and community groups consulted was that **absolute poverty** did not exist in their respective communities; food was available and everybody was taken care of. There was however an acceptance that **hardship** most certainly did exist as households struggled to meet the competing needs for an acceptable standard of living. Hardship was due to limited economic opportunities to earn income and provide for the individual and needs of the whole family. In general basic services and infrastructure were available in all sample communities, but it was noted that in some the quality of service delivery was poor particularly relating to water supply, sanitation, roads, transportation, power, communication and access to market. A weakening in the traditional way of life and loss of traditional skills were also major causes of hardship identified by all sample communities.
54. The people defined as experiencing hardship were mainly single mothers with limited income sources, elderly people without support, families with low income and living in crowded conditions, children with low education, unemployed youth, and people with disabilities, see Box 1. Hardship was determined to exist in both rural and urban areas although it was most commonly experienced in the urban centres where demands for cash and social tensions were greatest. Hardship in the rural areas was mostly due to limited access to basic services such as a safe and accessible water supply, transport to deliver cargoes, power, communications and links to markets to sell produce or fish-catches for income. Hardship in the urban areas meanwhile was focused on low income, overcrowding, criminality, drinking, congested living conditions, depletion of natural resources and dependency on money.

### Box 1 Most Disadvantaged Communities

- **Large families with low income or without regular income source**
- Individuals who are **unemployed and with low education** (e.g., not encouraged by parents)
- Those **without assets and properties** (e.g., land, concrete house, vehicle, money)
- **Employed people who have visitors/relatives not contributing to the households**
- People who are not hardworking or productive
- Those **with poor health** and not living a sensible life (e.g., being malnourished, or having disabilities)
- Widows with several children
- Elderly people without children
- Orphans
- Children with alcoholic parents
- People with poor home environment
- Without permanent homes
- Those who drink and smoke
- People who are paid to cultivate bwaibwai and catch fish for others
- Without access to bank loans
- "Those who don't attend church"

55. To address these various causes of hardship communities identified priority measures for consideration: (i) creation of income generation activities particularly for unemployed youth, low income single parents and overcrowded/large households; (ii) improve access to basic services and infrastructure particularly water supply, sanitation, roads and transport, power and communications in both urban and outer islands; and (iii) improve quality of education and health services. A particular priority for the outer islands was creation of stronger links with markets to sell produce or fish-catches on Tarawa or overseas for higher income. Another priority was capacity building to facilitate active participation of communities in development initiatives particularly to strengthen skills (both technical and traditional) to generate income and support subsistence livelihoods, improve household management and leadership and decision making skills by women and youth groups.
56. The analysis of the HIES confirms that these perceived needs can be backed by the available data. Access to safe water supply and sanitation are lacking for many low-income households on South Tarawa and the outer islands. Most poor HH are also large households with an average of nearly four children per household. These HH therefore need to spend a significant amount of their limited cash resources on meeting the costs associated with education; fees, books and school supplies, uniforms, lunches etc. Many poor HH are also amongst the “working poor”; the HH may have one or often more employed persons in the HH but these are often in low-wage or part-time jobs where the income is insufficient to meet the basic needs of the extended family group in the HH.

### 3.3 Defining the National Poverty Line

57. For Pacific Island Countries (PICs) data for estimating national basic needs poverty lines at the household level are becoming available as more household surveys and analyses are undertaken. Poverty as measured by national basic-needs poverty lines is a relative measure of hardship. It assesses the basic per capita costs of a minimum standard of living in a particular country/society, or sub-region within a society, and measures the number of households and the proportion of the population that are deemed unable to meet these needs. Poverty is measured at the household level; it is not generally possible to disaggregate poverty on an intra-household basis. Thus if the average per capita expenditure/income of a household falls below the basic-needs poverty line then all members of that household are deemed to be equally poor. Similarly if a household has an average per capita income/expenditure above the poverty line then none of the members of that household are considered to be poor. Culture, demographics and many other factors affect the actual distribution of wealth and access to food and resources within each HH; however such detail is not available from broad-based HIES.
58. Every country experiences some incidence of relative poverty, this is true of developed as well as developing countries. However the nature of relative poverty as measured by national poverty lines is not directly comparable across countries. Thus, two countries may have similar levels in the incidence of relative poverty as measured by their respective national (domestic) poverty lines, but have very different levels of overall costs and general standards of living. The measurement of absolute poverty, enabling cross-country comparisons of the extent of poverty, is usually done through the estimation of the US\$1 per day PPP value used in Goal 1 of the MDGs (this is currently estimated to be about US\$1.50 per day in 2008 PPP terms). Presently this measure of poverty cannot be estimated for Pacific Island countries since PPP indices are not yet available; however estimates should be available by end the 2009.
59. National Basic Needs Poverty Lines (BNPL) comprises two components; food and non-food basic needs. The food component can be estimated from the cost of a minimally-nutritious, low-cost diet which delivers a minimum of around 2100/2200 calories (Kcal) per day plus adequate additional nutrition to provide a sound and balanced, but basic, diet. It can also be calculated from an analysis of the actual expenditure patterns of low-income households as recorded in the household survey itself. To the food component is added an amount for essential non-food expenditure (e.g. housing, transport, education, health, clothing, utilities) which is required to

provide an overall basic-needs standard of living. Households which have adult equivalent per capita incomes or expenditure below the basic needs poverty line are then deemed to be living in poverty. This is explained in the next section.

60. The estimation of poverty lines and the incidence, depth and severity of poverty in society is not an exact science. There is considerable academic as well as empirical debate about the “best” methodology for measuring poverty in society. Box 2 summarises the view of the World Bank, one of the leaders in the debate on global poverty, its measurement and the development of policies and strategies to alleviate the hardship experienced by those who are poor. The “Cost of Basic Needs” method, as outlined by the World Bank, has been used in undertaking this analysis for Kiribati. This same method has also been used for similar analyses in other PICs<sup>14</sup> and elsewhere in the world. It provides a sound and well-tested methodology.

### 3.4 Estimating the Poverty Line for Kiribati

61. Following the “Cost of Basic Needs” methodology, the estimation of poverty lines and, from them, the extent or Incidence of Poverty (IP) in Kiribati has been a four step process:
- a) calculating the Food Poverty Line (FPL);
  - b) estimating a non-food basic-needs component;
  - c) combining the FPL with the non-food basic needs component to give an estimate of the Basic Needs Poverty Line (BNPL); and finally,
  - d) estimating the Incidence of Poverty against the BNPL benchmark from the HIES data; the Head Count Index (HCI) and other poverty indicators.
62. The Basic Needs Poverty Line is made up of two components, the cost of food and an amount of expenditure for essential non-food basic needs. It is therefore intended to represent the **minimum expenditure** per week, month or year that is required by an individual, household or family; firstly, to provide a basic, low-cost, minimally nutritious diet, (measured in terms of the minimum daily calorie intake required for basic human survival, which is internationally benchmarked at an average of around 2100/2200 calories/day per adult per capita<sup>15</sup>), termed the “**Food Poverty Line**” (FPL). Secondly, an additional amount which is required to meet the costs of purchasing essential **non-food basic needs** (e.g. housing/shelter, clothing, utilities, school fees and other education related costs, health, and transport) and to meet family/community/church obligations. Most of these non-food costs require cash payments and are often the underlying cause of the greatest financial hardship.
63. Together the FPL and the non-food component make up the benchmark “**Basic Needs Poverty Line**” (BNPL). The **Incidence of Poverty** is then measured against the BNPL by estimating the proportion of households and/or population that have an expenditure (including the value of subsistence production consumed) less than the BNPL value, referred to as the Head Count Index. Households with per capita adult equivalent<sup>16</sup> expenditure (p.c.a.e) below the FPL are deemed to be in absolute or “severe” poverty since their expenditure is below that required to meet basic food needs. Those with expenditure below the BNPL are deemed to be in “basic-needs” poverty.
64. In the Pacific region as a whole and in Kiribati in particular, many households, especially those in the rural areas, are able to provide a high proportion of their daily food needs from their own subsistence production (Tables 8 & 9). However, their ability to generate cash income for non-food basic needs is often very limited, albeit that

<sup>14</sup> Poverty analyses are now available for FSM, Palau, Tuvalu, Fiji, Solomon Islands, Cook Islands, Vanuatu, Samoa and Tonga. These were supported variously by UNDP Pacific Centre, ADB Regional Poverty Programme and World Bank for PNG.

<sup>15</sup> This is the FAO/WHO recommended daily minimum adult calorie intake for a moderately active adult.

<sup>16</sup> Adult equivalents are derived from “equivalence factors” where children under the age of 15 years are counted as half an adult, thus a household with two adults and two children under 15 would be equivalent to 3 adult equivalents. This methodology has been adopted to take account of: a) economies of scale in household operations and, b) the downward bias in income that would otherwise occur in households with larger numbers children.

in the rural areas the need for non-food expenditure may itself be lower due to lack of access to services. This, as the following analysis will illustrate, means that low rates of incidence of absolute/severe poverty (income/expenditure below the food poverty line) are seen along side higher levels of basic needs poverty.

### Box 2 What makes a good poverty line?

We define a poverty line as the monetary cost of achieving a standard of living above which one is not deemed to be poor. A poverty comparison assesses which of two distributions (of an agreed indicator of living standards among members of a group) has more poverty on average. The groups can be regions or sectors of a country, the same population at different dates, or the same population observed with and without a policy change. A special case of a poverty comparison is a poverty profile, in which groups of households defined by some common characteristic (such as where they live) are compared at one date.

The guiding principle in making a poverty comparison to inform policy is that it should be consistent with the policy objective. When that objective is to reduce poverty by increasing people's command over basic consumption needs, any two individuals (at one date or at different dates) with the same command over those needs should be treated identically. This requires that the poverty line should have a fixed purchasing power over relevant commodities.

#### **The cost-of-basic-needs method**

The cost-of-basic-needs method bases poverty lines on purchasing power over basic consumption needs. This achieves the desired consistency for the purposes of Bank Poverty Assessments. But putting this method into practice with imperfect data can be difficult. Once "basic needs" are defined, we need to be able to measure their cost over time and location. Setting basic needs requires an inherent value judgment, which often leads to disagreements. Also price data are often inadequate.

World Bank, 1994

65. The depth and severity of poverty between households and population is then estimated by using the Poverty Gap Index (PGI) and the Squared Poverty Gap Index (SPGI), Section 7.5. Estimates of inequality are made using and Gini Coefficients, Section 8.
66. From the work done to date it is estimated that, on average across the Pacific region (but excluding PNG where the rate is much higher), approximately one-in-four households have per capita expenditure/incomes below what would be considered as the basic needs poverty line in their respective countries. On this measure the proportion of the population being in poverty is estimated to be highest in PNG (53%, 2006), Fiji (34.4%, 2002/03), Funafuti, Tuvalu (27.6%, 2005), Port Vila, Vanuatu (27.2%, 2006) and Honiara, Solomon Islands (32.2% 2006) compared with the lowest in Tonga (22.3%, 2001) and Samoa (20.3%, 2002). In general the proportion of the population falling below the respective national poverty lines is somewhat higher than the proportion of households falling below the poverty lines due to the larger size of poor HH. On average about 30% of the population of the region (excluding PNG) falls below the respective national poverty lines.
67. There are of course wide differences in what are regarded as the minimum acceptable standards of living in countries across the region; the minimum acceptable standard of living in Palau, for example, with its US\$ and Asian tourism-based economy is considerably higher than the minimum standard of living that would be acceptable in say Solomon Islands. However in both countries the proportion of the population falling below the respective minimums are similar, and in each case those deemed to fall below the basic needs poverty line are regarded as being disadvantaged and worthy of targeted assistance.

## ■ ■ ■ 4. The Household Income and Expenditure Survey

### 4.1 Introduction & Survey Methodology

68. The 2006 Kiribati HIES was conducted in October/November 2006. The final survey comprised data from a total of 1161 households made up of samples<sup>17</sup> of 230 HH in South Tarawa (4.4% of all HH), 706 in the Rest of the Gilberts group (9.5%), and 225 HH in the Line Islands (16.7%).
69. The survey results indicated a total estimated population of 86,307 persons in 13999 households throughout the country. The population was made-up of an estimated 39,271 on South Tarawa, 38,641 in the rest of the Gilberts and 8,395 in the Line and Phoenix Islands.
70. Information was collected on both household income and expenditure, and included information on the production and consumption of home produced foods and other commodities. In the survey the value of subsistence production/consumption was estimated on the basis of householders' valuations of what the items might be worth if sold locally. However since there are no markets outside South Tarawa there is no established rural price mechanism and produce is often exchanged or given as gifts rather than sold. This tends to result in variations in estimated values and an average "rural" price for subsistence production has been estimated in consultation with staff of the NSO. Items purchased in stores or in Tarawa markets have been valued at the CPI price or actual market price. On this basis "farm-gate" rural prices for subsistence items have been estimated at between one-half and one-third of the Tarawa market prices. This is consistent with similar adjustments made in other regional countries.
71. The survey also collected information on household demographics, employment/activity, education attainment, and household characteristics including access to water and sanitation, and energy utilisation for cooking and lighting. These all provide indicators of the characteristics of poor households.
72. Whether data on income or expenditure is used as the basis for the calculation of the poverty line and incidence of poverty depends primarily on the perceived accuracy and reliability of the two data sources. In most cases expenditure data is usually more comprehensive and is generally regarded as the more reliable, see Box 3. For Kiribati the aggregate recorded income figure was some 7.5% less than that given by the expenditure records. Since the household diary and other expenditure records are more detailed, and are used as the basis for assessing the food and non-food expenditure components, expenditure has been taken as the basis for the poverty analysis.
73. The analysis of the 2006 HIES for Kiribati therefore uses per capita adult equivalent household expenditure as the basis for the estimation of the poverty lines, levels of poverty incidence and other poverty related indicators. All analysis in this paper, unless otherwise indicated, is therefore based on a **household's per capita adult equivalent weekly expenditure** as recorded by the survey. This is consistent with the approach taken for the most other Pacific poverty analyses.
74. The detailed calculation of poverty lines and the estimation of poverty incidence have therefore been conducted on the basis of: a) per capita household expenditure and, b) the proportion of households and population deemed to have per capita expenditure below the food and basic needs poverty line levels. Households have been split into deciles ranked according to the level of per capita adult equivalent expenditure. For the broader analysis of poverty characteristics and vulnerability, the lowest three deciles (L3D) of households ranked in this manner have been used as the basis for more detailed scrutiny.

<sup>17</sup> A stratified probability proportional to size (PPS) sample selection methodology was used based on national enumeration areas. Full details are available in the main survey report; Household Income and Expenditure Survey 2006, Analysis Report, National Statistics Office, Tarawa, Kiribati.

### Box 3: National Poverty Lines; Income or Consumption

There are two basic ingredients in measuring poverty. The first is a poverty line that refers to a benchmark level of consumption (or income) that enables a person to attain a threshold standard of living. A person whose consumption is below this benchmark level does not attain the threshold standard of living and is thereby defined as poor. The poverty line is said to be absolute, as opposed to relative, when the threshold standard of living is held fixed both over time and space. Given that absolute poverty lines, and the poverty measures derived from these, are widely believed to be the appropriate bases on which to inform antipoverty policies in developing countries, the discussion focuses on these.

The second ingredient in measuring poverty is a survey that collects data on income and/or consumption levels from a sample of household's representative of a given population. The choice of income or consumption as an indicator of household welfare is often determined by the availability of data. Where choice is available, researchers have normally preferred consumption to income on the basis that the former is a better indicator of permanent income and standard of living of people due to consumption smoothing through savings and insurance opportunities. It has also been argued that it is easier to collect information from respondents on consumption than on income. Once a poverty line has been set and survey data are available, it is a simple matter to determine how many households or people are poor.'

Unfortunately, the setting of poverty lines always involves some element of subjective methodological choice. The poverty line refers to a minimum level of living necessary for physical and social development of a person. A minimum level of living defined in monetary terms comprises both food and non-food components of consumption. An objective approach could, in principle, be adopted for computing minimum food expenditure, the dominant component in the total consumption bundle of the poor. However, non-food expenditure is clearly affected by social needs and the minimum on this count obviously differs from one society (or region) to another. .... it is difficult to consider even the physical component of minimum needs entirely on an objective basis. Despite such problems, recent literature has grown substantially to define the absolute poverty line on a reasonably, although not completely, objective basis.

Once the poverty line is defined, data are required on size distribution of income or consumption to compute the number and proportion of the population below the poverty line. Household income or consumption expenditure surveys are the principle source of such data..... ADB 2004b, pp 7 & 8

Poverty lines are defined either in terms of income or consumption. In practice, this choice is restricted by the availability of household survey data since most countries collect data on either household income or consumption. A few countries ... collect data on both income and consumption. Income is a better measure of opportunity for consumption than actual consumption in the case of households that save. But consumption might be a better measure of opportunity for poor households that save little or in fact dis-save. Most practitioners also prefer to define poverty in terms of total consumption expenditure because income data collection faces a wider range of measurement problems. Consumption is less affected by short-term fluctuations due to the consumption smoothing opportunities available to a household. Hence, total consumption expenditure is thought to be a better indicator of the permanent income of a household, particularly in an agrarian economy..... ADB 2004b, p 41

## 4.2 Overview of HIES Results

### 4.2.1 Household Size and Composition

75. In the survey the overall national average household size was reported as 6.2 (5.0 adult equivalent, a.e). However, for poor, very-low-expenditure (bottom-two-decile) households the average HH size was 7.1 (5.8 a.e.), see Table 2.

Ranked by HH per capita adult equivalent expenditure deciles	National		South Tarawa		Rest of Gilberts		Line & Phoenix	
	All Persons	Adult Equivalent	All Persons	Adult Equivalent	All Persons	Adult Equivalent	All Persons	Adult Equivalent
Average all Households	6.2	5.0	7.5	6.1	5.2	4.2	6.2	5.0
Lowest Quintile	7.1	5.8	10.0	8.2	6.4	5.2	8.0	6.4
Lowest Three Deciles	7.0	5.7	9.5	7.7	6.2	5.0	7.7	6.1
Highest Quintile	4.7	3.8	4.8	3.8	3.6	2.9	4.3	3.5
Total Population; survey est	86307	69912	39271	31987	38641	31207	8395	6719



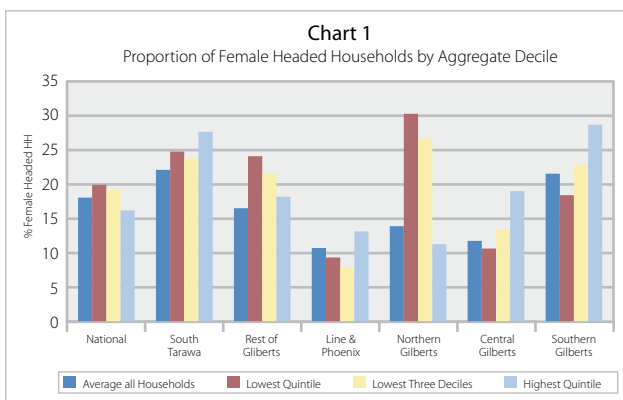
The largest average household size was to be found in South Tarawa where the lowest quintile HH had an average of 10.0 persons (8.2 a.e), implying an average of 3.6 children per HH. The lowest HH size was in the rural areas of the rest of the Gilberts group where the size of the HH in the lowest quintile was 6.4 (5.2 a.e.). The table illustrates that over all three sub-regions the size of household declines as household expenditure increases, such that the national average HH size in the highest quintile was 4.7 (3.8 a.e), and even on South Tarawa the size of HH in the highest quintile was only 4.8 (3.8 a.e), implying only 2.0 children per HH; less than half the size of HH in the lowest quintile. This inverse relationship between HH size and HH expenditure is consistent with the situation found in other parts of the Pacific region. However it is perhaps especially marked in South Tarawa. Low-expenditure, poor HH tend to be the largest and therefore most disadvantaged.

76. The proportions of female headed households by sub-region are shown in Table 3 and Chart 1. Overall, approximately one-fifth of households were reported as being headed by women, a high of 22.2% of households on South Tarawa and a low of 10.8% in Linnix. Amongst the poorest HH on South Tarawa and the rest of the Gilberts the proportion of female HH was almost one-quarter. Chart 1 includes additional detail of the proportion of female HHH across the three sub-regions of the rest of the Gilberts group. This indicates that there are some noticeable differences in the proportion of HH headed by females with 30% of the poorest HH in the Northern Gilberts being headed by females. The poverty status of these households is discussed further in Section 9.2 below.

#### 4.2.2 Household Expenditure

77. Average weekly household expenditure by sub-region is summarised in Table 4 and shown by decile in Appendix Table A1. This table also indicates average weekly per capita adult equivalent expenditure as recorded by the survey. At the national level average p.c.a.e expenditure for the top quintile was over seven times greater than that of HH in the lowest quintile. The widest gap between the top and bottom quintiles was in the rural areas where the ratio was 8.1. This captures the wide difference between those who were in formal employment, and thus earning relatively high cash incomes, and those who were in the informal or subsistence sectors where opportunities for earning income were low. The national average weekly HH expenditure amounted to A\$181.46, equivalent to A\$36.39 p.c.a.e.

Ranked by HH per capita adult equivalent expenditure deciles	National	South Tarawa	Rest of Gilberts	Line & Phoenix
Average all Households	18.1	22.2	16.6	10.8
Lowest Quintile	20.0	24.9	24.2	9.3
Lowest Three Deciles	19.3	23.9	21.6	7.9
Highest Quintile	16.2	27.8	18.3	13.2



A\$ per week				
Ranked by HH per capita adult equivalent expenditure deciles	National	South Tarawa	Rest of Gilberts	Line & Phoenix
Average all Households	181.46	252.87	120.15	240.51
Lowest Quintile	70.66	145.69	46.92	136.29
Lowest Three Deciles	84.11	157.35	57.07	148.11
Highest Quintile	332.33	379.30	222.29	381.57
A\$ per capita adult equivalent per week				
Average all Households	36.33	41.46	28.52	48.22
Lowest Quintile	12.06	18.24	9.22	21.19
Lowest Three Deciles	14.83	21.01	11.59	24.40
Highest Quintile	91.02	101.29	74.88	106.28
Ratio H20/L20	7.5	5.6	8.1	5.0

78. For households in the lowest quintile average weekly household expenditure amounted to only A\$70.66, equivalent to only A\$12.06 p.c.a.e., or about one-third of that of the average HH. In South Tarawa average weekly HH expenditure for the lowest quintile was A\$145.69 compared to A\$252.87 across all HH, however the gap widens at the per capita level with average per capita adult equivalent expenditure being equal to A\$41.46 compared with only A\$18.24 for the lowest quintile. This reflects the significantly greater HH size for the poorest HH. With the recent steep increases in the cost of basic food items, especially impacting the poor on South Tarawa, it is likely that many households are now experiencing significant increases in their levels of hardship and poverty.

79. Food and non-food expenditure is shown in Tables 5 and 6 (and Appendix Tables A2 & A3). These show a familiar pattern of non-food expenditure increasing as a proportion of total expenditure as total expenditure itself increases. It is also significantly higher in the urban area of South Tarawa compared to the rural parts of the country. Thus, the figures show that for households in South Tarawa the average p.c.a.e weekly food expenditure amounted to A\$17.46 while in the rural Gilberts weekly food expenditure amounted to A\$14.88 p.c.a.e. For HH in the Line Islands average weekly food expenditure amounted to A\$24.80. For those in the lowest three deciles the corresponding figures were A\$10.33 p.c.a.e. in South Tarawa, A\$6.18 p.c.a.e. in rural Gilberts and A\$15.01 p.c.a.e. in the Line Islands. These amounts reflect the local shop and market prices, as well as the proportion of own food produced.

80. For non-food items households averaged weekly expenditure amounted to A\$19.32 p.c.a.e. For those HH in the lowest three deciles non-food expenditure amounted to only \$6.79 p.c.a.e. per week. Around the country South Tarawa had the highest average non-food expenditure of A\$24.00 p.c.a.e per week, the Line Islands came next with a weekly expenditure of A\$23.42 p.c.a.e. and the rural Gilberts was the lowest at only A\$13.64 p.c.a.e. per week. Amongst the poorest and most vulnerable HH in the lowest three deciles weekly non-food expenditure in South Tarawa amounted to A\$10.69 p.c.a.e., A\$9.39 p.c.a.e. in the Line Islands and to only A\$5.42 p.c.a.e in the rural Gilberts.

81. This is a pattern seen throughout the sub-region; in rural areas the amount of non-food expenditure is lower in both absolute and relative terms reflecting the limited availability of services in the rural areas. Urban living inevitably involves greater non-food expenditure; many rural or small-island based households will not have power, water or communications bills to pay. They will often spend less on transport and housing costs. Thus their need for non-food expenditure is less. Moreover, since rural cash incomes are lower the resources available to meet non-food expenditure is also less.

Table 5				
Weekly Household Food Expenditure				
A\$ per week				
Ranked by HH per capita adult equivalent expenditure deciles	National	South Tarawa	Rest of Gilberts	Line & Phoenix
Average all Households	84.98	106.48	62.71	123.71
Lowest Quintile	38.28	75.02	24.44	74.95
Lowest Three Deciles	45.64	77.94	30.33	90.29
Highest Quintile	132.40	129.34	106.87	169.23
A\$ per capita adult equivalent per week				
Average all Households	17.02	17.46	14.88	24.80
Lowest Quintile	6.53	9.33	4.82	11.66
Lowest Three Deciles	8.04	10.33	6.18	15.01
Highest Quintile	36.03	34.27	36.10	47.57

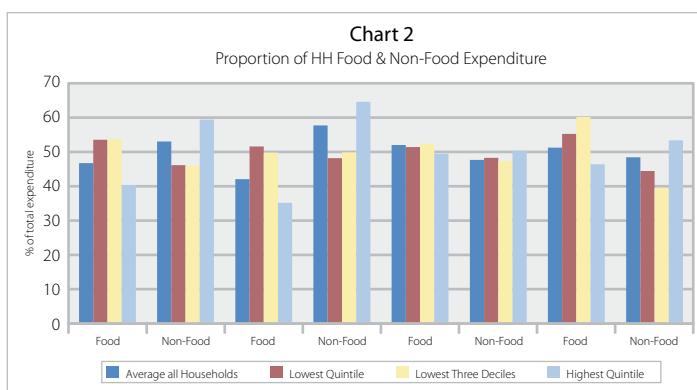
Table 6				
Weekly Household Non-Food Expenditure				
A\$ per week				
Ranked by HH per capita adult equivalent expenditure deciles	National	South Tarawa	Rest of Gilberts	Line & Phoenix
Average all Households	96.48	146.39	57.45	116.80
Lowest Quintile	32.38	70.67	22.48	61.35
Lowest Three Deciles	38.47	79.40	26.74	57.82
Highest Quintile	199.93	249.96	115.42	212.34
A\$ per capita adult equivalent per week				
Average all Households	19.32	24.00	13.64	23.42
Lowest Quintile	5.53	8.91	4.41	9.53
Lowest Three Deciles	6.79	10.69	5.42	9.39
Highest Quintile	54.99	67.02	38.78	58.71

82. Given that everyone requires a minimum intake level of food energy each day, the low value of food expenditure in the rural Gilberts reflects the lower value or “farm-gate” price attaching to own produced food in rural environments.

**Table 7**  
**Proportion of Household Food & Non-Food Expenditure**

	National		South Tarawa		Rest of Gilberts		Line & Phoenix	
	Food	Non-Food	Food	Non-Food	Food	Non-Food	Food	Non-Food
% of total expenditure								
Average all Households	46.8	53.2	42.1	57.9	52.2	47.8	51.4	48.6
Lowest Quintile	53.7	46.3	51.7	48.3	51.6	48.4	55.5	44.5
Lowest Three Deciles	54.0	46.0	49.9	50.1	52.5	47.5	60.4	39.6
Highest Quintile	40.4	59.6	35.2	64.8	49.6	50.4	46.5	53.5
Food:Non-Food Ratio L3D		0.85		1.00		0.90		0.65

83. Table 7 and Chart 2 bring the expenditure patterns together and illustrate the proportion of food and non-food expenditure by sub-region and expenditure decile. For South Tarawa HH in the lowest three deciles the balance between food and non-food expenditure is fairly even, approximately 50% on each. For those HH in the rest of the Gilberts the balance is slightly in favour of food, 52.5%, while in the Line Islands food accounts for 60% of total expenditure. Compared to the situation in other countries the variations in the food:non-food proportions between the urban and rural areas are lower in Kiribati.

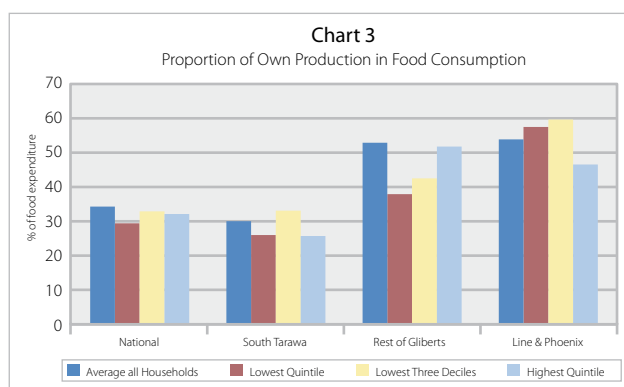


**Table 8**  
**Food Purchases & Home Production for Own Consumption**

A\$ per capita adult equivalent per HH per week

Ranked by HH per capita adult equivalent expenditure deciles	National		South Tarawa		Rest of Gilberts		Line & Phoenix	
	Purchased	Own Production	Purchased	Own Production	Purchased	Own Production	Purchased	Own Production
Average all Households	11.15	5.87	12.18	5.28	6.97	7.92	11.36	13.44
Lowest Quintile	4.60	1.93	6.89	2.44	2.98	1.84	4.93	6.74
Lowest Three Deciles	5.39	2.66	6.89	3.44	3.53	2.64	6.00	9.01
Highest Quintile	24.40	11.63	25.41	8.86	17.31	18.79	25.32	22.25

84. The patterns of food purchases and food produced for own consumption are shown in Tables 8 and 9 and Chart 3. Further details of food production and consumption by decile are provided in Appendix Tables A4 to A5. The importance of subsistence agriculture in the economy is shown clearly in these tables. Chart 3 illustrates the proportion of own production in total food consumed from Table 9. Maintaining healthy subsistence agriculture is essential for food security in the event of a natural disaster or a disruption to shipping and transport services.



85. Consumption of own production, averaging 54.2% of all food consumed and 60% of food consumed by those HH in the lowest three deciles, is highest in the Line Islands where shipping services are generally least frequent. In the rural Gilberts as a whole the proportion of own-produced food averages just over 50% but is only just over 40% for HH in the lowest three deciles. However the L3D average figure is brought down by the sub-regional data for the Southern Gilberts where the survey indicates only one-quarter of food consumption comes from own production. For HH in the lowest three deciles in the Northern and Central Gilberts the proportion of own-food consumed was 56.5% and 46% respectively. This is more in line with, but still generally less than, the share of own production in food consumption seen in the rural parts of other regional countries. In Tuvalu for example the proportion of own production in food consumption was almost two-thirds for outer island HH in the lowest three deciles. Thus in the rural areas of Kiribati own production accounts for just over half of all food consumed compared with only about one-third for food consumed by HH on South Tarawa.

<b>Proportion of Own Production in Food Consumption</b>				
% of total food consumed				
Ranked by HH per capita adult equivalent expenditure deciles	National	South Tarawa	Rest of Gilberts	Line & Phoenix
Average all Households	34.5	30.2	53.2	54.2
Lowest Quintile	29.6	26.2	38.1	57.8
Lowest Three Deciles	33.0	33.3	42.8	60.0
Highest Quintile	32.3	25.9	52.0	46.8

86. These are relatively high levels of imported food dependency, and suggest a weakness in the level of food security. This is especially the case for the Southern Gilberts. Outmigration of working age males from some islands has led to an increase in dependency rates such that there are insufficient numbers of young men to undertake much of the traditional work associated with subsistence livelihoods. Collecting toddy and other tree crops, de-husking coconuts, fishing, tending the babai pits and collecting materials for and maintaining traditional houses all require heavy labour which may no longer be available to meet all the needs of the family and community.

## 5. The Food Poverty Line

### 5.1 Low-Cost Diets

87. The first step in measuring poverty is the calculation of the Food Poverty Line (FPL), see Box 4 for a definition. Two methods are typically used to derive food poverty lines: either using a “model diet” or using actual food expenditure and consumption patterns of the lowest three decile households as recorded in the daily expenditure diaries. The one method can be used to validate the results of the other since they approach the same issue, a basic diet, from different perspectives. The model diets approach from the nutrition perspective, while the other approaches from actual consumption patterns. From the estimate of FPL we need to be comfortable that actual food expenditure could meet basic nutrition needs, see Box 4.

#### **Box 4:** **The Food Poverty Line**

The food component of the poverty line is almost universally anchored to nutritional requirements for good health. This does not generate a unique monetary poverty line, since many bundles of food goods yield the same nutrition. In practice, a diet is chosen which accords with prevailing consumption patterns, about which one might expect to arrive at a consensus in most settings. Ravallion 1998

88. For Kiribati food poverty lines were derived from the actual food expenditure and consumption patterns of households in the lowest three deciles of p.c.a.e. expenditure, as recorded in the daily expenditure diaries. Comparative analyses in other Pacific countries has shown that while there is generally little difference in using the “model menu” approach and the actual food expenditure the former tends, on average, to give a higher

cost than the actual food expenditure from the household diaries. Since the model menus address not just the calorie value of the diet but the broader nutritional parameters this is to be expected. Using the model menu method would therefore also tend to push up the estimated level of poverty.

89. Separate FPLs have been estimated for the three sub-regions, and a weighted average for the national level. This approach gives a good reflection of local consumption preferences even though these may not provide an “optimal” diet in nutrition terms. This has become the preferred approach and has been used in other regional poverty analyses.
90. The principal items of expenditure, including items of own production consumed, are summarised in Appendix Tables B1 through B4. The method of derivation of the FPL from this data is described in detail in the following section, see also Box 5.

### 5.2 The Food Poverty Lines

91. The food expenditure from the diaries of HH in the lowest three deciles in each of the sub-regions was analysed, Appendix Tables B1 through B4. It was observed that: a) around 90% of food expenditure/consumption (including both purchased items and own production) was accounted for by less than 30 or so items in each of the sub-regions; and b) only five items – rice, fish, sugar breadfruit and toddy - accounted for almost two-thirds of all food expenditure /consumption (including the value of own production consumed). The top ten items for each sub-region are illustrated in Charts 4, 5 & 6.

92. For the estimation of the FPL the top items of food expenditure/consumption accounting for over ninety percent of total food consumption for HH in the lowest three deciles, are shown in the respective Appendix Tables B1/B4 for each sub-region. To get the daily per capita a.e Kcal value and per capita a.e daily cost of these diary expenditure items as the basis for the calculation of the FPL, the following steps were taken:

- the reported diary food expenditure values were grossed up to the total recorded food expenditure from the

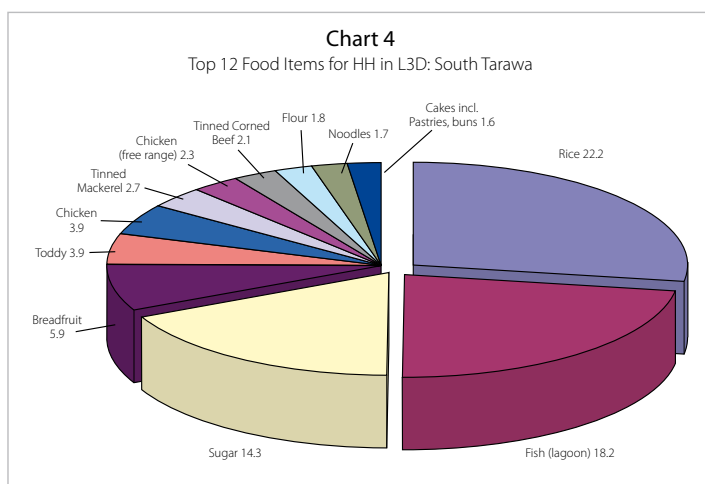
#### Box 5: Step one: the food component

To construct a poverty line using the cost-of-basic-need method, one begins by defining the “basic needs” food bundle. This is a normative judgment, though some judgments are more defensible than others. Nutritional requirements for good health are a widely accepted anchor for determining basic foods needs. A defensible approach is to set the food component of the poverty line according to the local cost of a bundle of food goods that meet the pre-determined minimum food-energy requirements in a way that is consistent with prevailing food tastes.

How should food-energy requirements be determined?

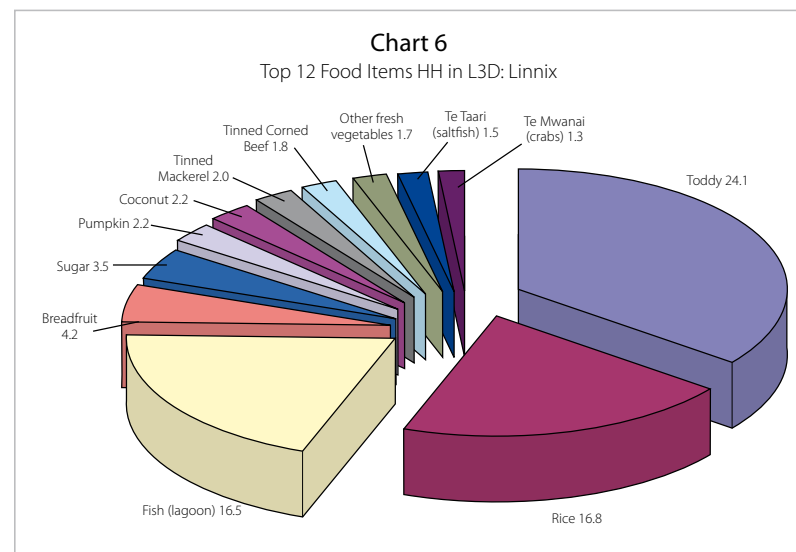
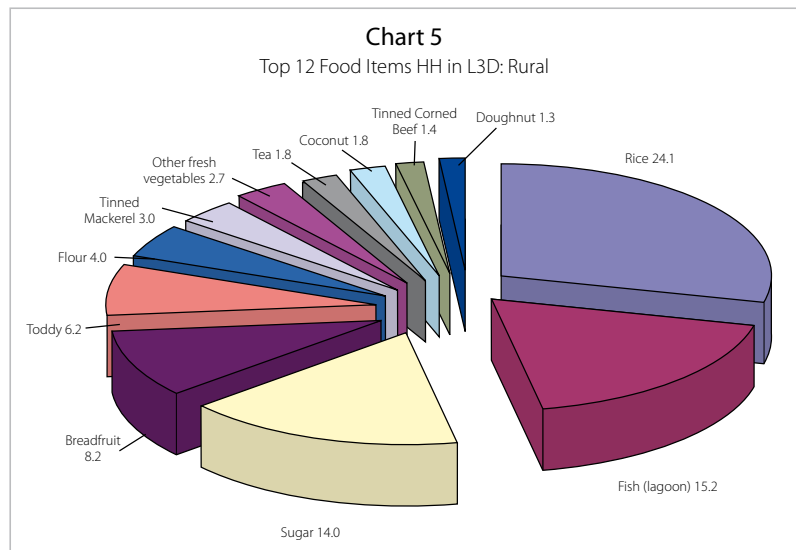
Nutritionists have estimated requirements for maintaining body weight when a person is resting, processing food and doing various activities. The food-energy requirements needed to maintain *each* person’s actual activity level should not be considered binding when setting poverty lines. The poorest are often underweight, which often constraints their activity levels. In such a setting, incorporating existing differences in activity levels (and indeed weights) into sub-group poverty lines need not be clearly anchored to a fixed standard of living. A better practise is to use the average food-energy requirement for each age group.

World Bank, 1994



survey diaries for the bottom three expenditure deciles by the appropriate factor to give a notional total food expenditure for these HH based on the listed items, column A;

- each item was priced using the state CPI for all purchased items, and the average observed diary prices/values for items of own production columns B;
- the CPI measurement unit is given at column C, and the Kcal (energy) value for each food item listed is taken from the South Pacific Food Composition Tables<sup>18</sup> at column D,
- the factor at column C is then used to estimate the implied unit volume consumed of each item in the diary, column E and the number of 100g Kcal units is estimated at column F;
- the annual and daily per capita adult equivalent Kcal consumption values represented by each item is then calculated, using column and E; columns H (annual), and I (daily) ; and finally
- the daily cost of each item according to its share in the overall daily food intake is estimated in columns J & K.



93. Summing the daily Kcal values of the expenditure patterns of each sub-region state (L) shows that South Tarawa HH reported notionally acquiring an average of 1734 kcal per capita a.e per day, rural HH 2077 kcal per capita a.e per day, and Linnix HH 2115 kcal per capita a.e per day. These estimated levels of Kcal consumption are all close to the required level of between 2100 and 2200 Kcal per day per adult.
94. In order to get to the minimum kcal daily food energy intake these values must be grossed-up to the equivalent of 2100/2200 Kcal by the ratio of the recorded Kcal value to the minimum (M). The notional estimated daily cost of the food items (M) is then grossed up also by the factor (L). This gives the adjusted daily cost of acquiring the minimum 2100/2200 kcal per day from the listed items (N).
95. Finally, the daily cost is converted to a weekly value to give the Food Poverty Line for the particular sub-region. Thus the cost of acquiring a minimum adult equivalent diet in South Tarawa is estimated at A\$1.57 p.c.a.e. per day

<sup>18</sup> The Pacific Islands Food Composition Tables, Second Edition, USP/FAO, 2004

and A\$10.97 per week; for the rural Gilberts HH the costs are estimated at A\$1.11 p.c.a.e. per day and A\$7.74 per week, and for Linnix HH A\$1.57 p.c.a.e. per day and A\$10.99 per week. Applying a weighted average across the three sub-regions gives a national average food poverty lines of A\$1.30 p.c.a.e. per day and A\$9.07 per week. These are the Food Poverty Lines used in the analysis, Table 10. The differences between the sub-regions in the level of the FPL represent the variations in the actual food expenditure patterns, the balance between purchased and own-produced items and the differences in the prices applied to calculate the cost of the diets.

A\$	Food Poverty Line		
	per capita ae per day	per capita ae per week	per HH per week average for HH in lowest three deciles
National average	1.30	9.07	63.54
South Tarawa	1.57	10.97	104.42
Rest of Gilberts	1.11	7.74	48.32
Line & Phoenix	1.57	10.99	84.39

96. Table 11 indicates that a HH in the lowest three expenditure deciles would need to “spend” considerably more on food living in South Tarawa, A\$104.42 per week, compared to a HH in the lowest three deciles in the rural areas, A\$48.32. This reflects the higher basic FPL in South Tarawa compared with the rural areas, as well as the larger HH size in Tarawa as indicated in Table 2 above.

## 6. The Basic Needs Poverty Line

### 6.1 Non-Food Basic Needs Expenditure

97. The FPL is the core of the BNPL calculation. However, in practice even a low-income or low-expenditure family cannot be expected to survive on food alone; there are always other minimum costs of basic needs for survival. Therefore an allowance for **non-food basic needs expenditure** is added to the value of the Food Poverty Line to arrive at the “Basic Needs Poverty Line”.
98. The allowance for basic non-food expenditure is estimated from the HIES based on the level or proportion of non-food costs reported by households at defined levels of total expenditure. The costs of non-food basic-needs might include expenditure for housing/shelter, essential transport and communications, school fees and other education related costs, medical expenses and clothing.

A\$ per capita adult equivalent per week	Food Poverty Line	Estimated Non-Food Expenditure	Basic Needs Poverty Line	Weekly cost per HH in L3D
	A	B	C = A+B	D
National average	9.07	7.03	16.09	112.80
South Tarawa	10.97	13.25	24.22	230.57
Rest of Gilberts	7.74	5.60	13.34	83.31
Line & Phoenix	10.99	9.39	20.38	156.53

99. There are a number of generally accepted methods of calculating non-food expenditures for the poverty lines. The World Bank suggests that a “non-food factor” should be applied to the Food Poverty Line based on the proportion of non-food expenditure actually incurred by households which have an average total income/expenditure equal to or less than the Food Poverty Line, see Box 6. This is intended to represent the bare minimum additional expenditure required to meet non-food basic needs. Households whose total income/expenditure is equal only to the Food Poverty Line have to choose very carefully between food and non-food items; any expenditure on non-food items can be seen as being an essential trade-off between basic food and basic non-food.
100. Alternative methods may be to calculate an absolute amount of non-food expenditure for a particular category of households. This could be for the lowest income/expenditure quintile, the lowest three or four deciles or for any particular decile as may be chosen. The higher-up the income deciles that the reference point is chosen, so the greater will be the level of non-food expenditure.

101. With the FPL the amount required is anchored in the food energy needs which are essentially the same for everyone. For non-food basic needs the variety is almost infinite since every HH is different, there is no similar normative “anchor”. The observed amount of expenditure thus becomes the anchor.
102. For this analysis, consistent with other analyses undertaken for Pacific Island countries, the average actual level of non-food expenditure for HH in the lowest three deciles has been taken as the basis for the non-food factor. The amounts of expenditure on basic non-food items from the survey indicate that the bottom-three deciles HH in South Tarawa would need to spend A\$13.25 p.c.a.e per week on non-food essentials. For the other sub-regions the amounts were A\$9.39 for Linnix and A\$5.60 for the rural Gilberts, see Table 11. Thus the pattern of higher non-food expenditure the greater the degree of urbanisation holds true.
103. The actual average non-food expenditure recorded by households with adult equivalent per capita expenditure in the lowest three expenditure deciles therefore provides the essential non-food basic needs component which is added to the food poverty line to give the Basic Needs Poverty Line (BNPL). The BNPL is calculated by adding this non-food

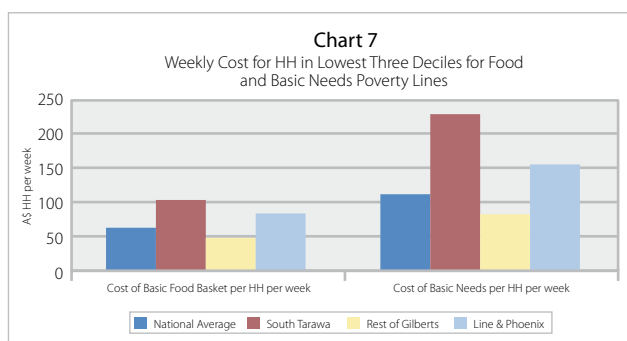
### Box 6 Step two: the non-food component

The next problem is making an allowance for nonfood consumption. In principle, one could proceed the same way for non-food goods—identify a normative bundle of such goods, and cost that bundle separately in each region, sector or date. However, anchoring the nonfood part of the poverty line is often difficult. There is even less agreement on the normative standard (comparable to food requirements). And comparable data on nonfood prices are rarely available. Consistency with the consumption behavior of those who are found to be “food poor” is a defensible guide. A “basic nonfood good” can be defined as one that a person wants enough to forgo a “basic food”. One can thus measure the nonfood component of the poverty line as the expected value of nonfood spending by a household that is just capable of affording the food component of the poverty line. This value constitutes the minimum allowance for nonfood goods consistent with being able to afford the bundle of food goods needed to reach food-energy requirements by prevailing diets. But again, that choice is a value judgment, and in some settings a more generous allowance might be considered appropriate. The key point is that the allowance should be equally “generous” for different groups if the poverty comparison is to be of use in guiding policies for fighting absolute poverty.

World Bank, 1994

## 6.2 Basic Needs Poverty Lines

104. Adding these non-food amounts to the respective sub-regional FPL gives the cost of meeting basic needs for South Tarawa as A\$24.22 p.c.a.e. per week, equivalent to A\$230.57 per household per week in adult equivalent terms; for the rural Gilberts the weekly amount required to meet basic needs on the outer islands is estimated at A\$13.34 p.c.a.e. per week, equivalent to A\$83.31 per household. In the Line islands the costs are almost as high as in Tarawa; A\$20.38 p.c.a.e per week, equivalent to A\$156.53 per household, see Table 11 and Chart 7. Chart 7 illustrates clearly the higher cost of providing food and non-food basic needs in the urban centre of South Tarawa and also, what is in effect, a quasi-urban environment in the Line Islands where communications and transport present particular problems. As in the case of the FPL the larger size of HH in Tarawa, especially those with the lowest expenditure deciles pushes up the total HH costs of meeting basic needs for the whole HH. These are the Basic Needs Poverty Lines that are used to estimate the level of poverty incidence in Kiribati in the next Section.





105. The need for higher basic needs non-food expenditure in the more urban centres is an extremely important factor in determining relative poverty. For instance, a rural household with a relatively high level of expenditure might be relatively poor with the same expenditure in an urban situation where there is a need to meet a wide range of non-food essentials, often unavailable in the rural areas. It is therefore important to remember that national, and more particularly sub-regional-based poverty lines, measure relative poverty in a specific set of local circumstances with particular food costs and specific non-food “essentials”. Benchmark poverty lines will therefore vary depending on these circumstances.

## 7. The Incidence and Depth of Poverty in Kiribati

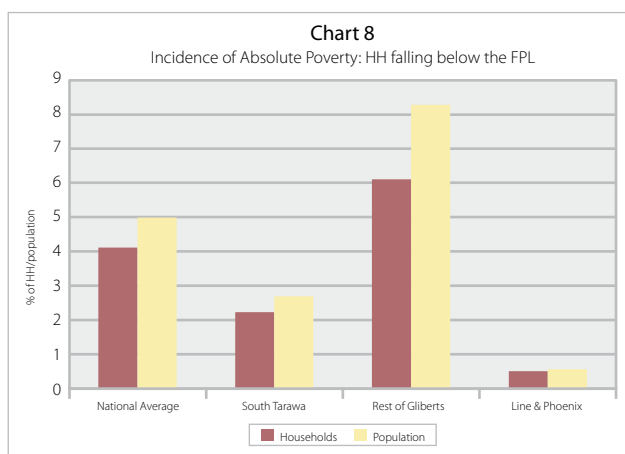
### 7.1 Head Count Ratio

106. On the basis of the per capita a.e. Food and Basic Needs Poverty Lines in Table 11, the incidence of poverty observed from the household per capita expenditure in the HIES data is summarised in Table 12: Incidence of Poverty for Population and Households. The incidence of poverty is measured by the “Head Count Index” which indicates the proportion of either households or population which had expenditure less than the relevant poverty line.

Proportion of HH and Population with Weekly PCAE Expenditure less than the Food Poverty Line		
%	Households	Population
National average	4.1	4.9
South Tarawa	2.2	2.6
Rest of Gilberts	6.0	8.2
Line & Phoenix	0.5	0.5

### 7.2 Incidence of Food Poverty

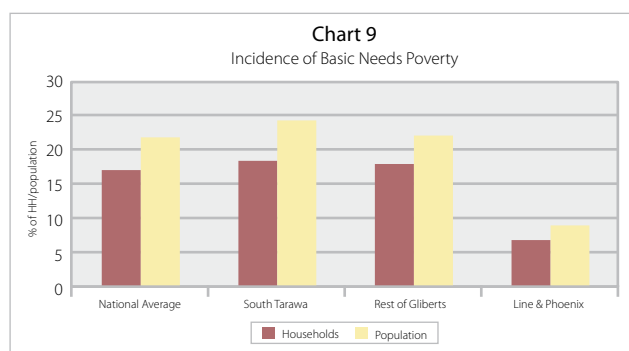
107. Table 12 and Chart 8 show that the level of food poverty, those households with per capita adult equivalent expenditure less than the Food Poverty Line (generally referred to as “absolute” or severe poverty), the poorest of the poor, is low. The data suggests that on average over the whole of Kiribati about 4% or one-in-twenty-five households, representing 5.0% of the population have expenditure which would be insufficient to meet basic food needs as defined by the food poverty line. In all areas, with the exception of the Southern Gilberts, the estimated rate of food poverty being experienced is in fact very low; at most 2.5%. However in the Southern Gilberts the survey results suggest that the rate could be as high as 11% or about one-in-nine households. This pushes up the national average rate. The Southern Gilberts are the most remote islands in the Gilberts Group and are generally amongst the smallest islands; they are vulnerable to drought and experience periodic problems with shipping and resupply. They have limited resources for own-production, as noted above, and if resupply is interrupted there can be serious issues of food security in these islands.



108. However even those HH which are in theory experiencing food poverty may not necessarily be going hungry in practice. Rather, they are likely to be consuming a poor diet with inadequate nutrition and are thus more likely to experience health problems as a result, as indicated in Section 4.2 above. These health problems may then translate into lowered learning abilities in children at school and less likelihood of adults getting employment; a perpetuation of the cycle of hardship and poverty. The reported increases in non-communicable diseases, many of which are related to diet (diabetes, hypertension, and high blood-pressure), suggest that many households do indeed have a poor level of nutrition whilst at the same time having sufficient to eat.

### 7.3 Incidence of Basic Needs Poverty

109. The estimated incidence of basic needs poverty is also shown in Table 13 and Chart 9. Nationally it is estimated that 17.0% of households, representing 21.8% of the population, had weekly per capita a.e expenditure less than the basic needs poverty line. South Tarawa at 18.3% of HH (24.2% of the population) had the highest proportion of HH with per capita a.e expenditure below the BNPL. The rest of the Gilberts, representing the rural areas were very similar in aggregate with recorded basic needs poverty incidence of 17.9% and 22.0% of HH and population respectively. As with the indicated incidence of food poverty, the rate of basic needs poverty estimated for the Southern Gilberts was significantly higher than for the other Northern and Central Gilberts groups. In most parts of the Pacific region it has been observed that rural poverty tends to be lower than that estimated to exist in the urban centres. This follows, as already noted, from the lower “cost” and higher consumption of own produced food in the rural areas, together with the lower need for non-food expenditure since there are fewer goods and services available. The figures for the Southern Gilberts appear to be an extreme example of this general pattern, reflecting perhaps the particular problems and smallness, isolation and vulnerability that are experienced in these islands.



**Table 13**  
**Incidence of Poverty**

Proportion of HH and Population with Weekly PCAE Expenditure less than the Basic Needs Poverty Line

%	Households	Population
National average	17.0	21.8
South Tarawa	18.3	24.2
Rest of Gilberts	17.9	22.0
Line & Phoenix	6.8	8.9

110. Overall it is estimated that 2378 HH and comprising almost 19,000 people (9,115 or 48.5% being female) fell below the national basic needs poverty lines. In particular the population falling below the specific BNPL for South Tarawa numbered 9521 living in 926 HH and for the rural Gilberts 8514 persons living in 1324 HH. Thus although more HH fell below the rural BNPL the largest number of people falling below the poverty line was to be found on South Tarawa.
111. The figures of basic needs poverty incidence suggest that although South Tarawa is the national capital, and therefore the general centre of employment, there are, nevertheless, many households whose expenditure cannot cover the basic-needs costs of a reasonable, minimum standard of living. There are many who might be classified as working poor, especially those engaged in small private businesses and micro-enterprises where hourly rates are low. They may be in employment, either full or part-time, but their income and thus expenditure is insufficient to meet all the needs of their families.

### 7.4 Vulnerability of Households to Falling into Poverty

112. The recent rapid increases in the price of imported fuel and foods, notably rice and cereal products which, as already noted, feature prominently in the diets of households in Kiribati, will likely be causing many additional households and individuals with income/expenditure levels just above the poverty lines to be experiencing increasing degrees of hardship and difficulty in meeting their basic-needs expenditure. These households are therefore becoming increasingly vulnerable to falling into poverty.



113. With: a) the retail prices of rice, sugar and flour being double, two-thirds and one-third above their prices of end

2007, which together with local-caught fish comprise around sixty percent of the food purchases of low-income HH; b) the Kiribati retail price index in mid-2009 being almost 25% above its end 2006 level; and c) the low or zero rate of economic growth, it is estimated that poor HH and those vulnerable-to-poverty would have suffered significant declines in their levels of real income in the last eighteen months.

114. Based on an estimated increase in the poverty line of 10% (a fall in real income of 10%) it is estimated that the additional number of people vulnerable to falling below the BNPL would be 2907 on South Tarawa and 1325 in the rural Gilberts. These would represent an additional 7.4 percentage points and 3.4 percentage points of the population falling into poverty respectively. An additional 7.0% of the Linnix population would also fall below the poverty line. Together a ten percent fall in real incomes of the vulnerable would raise the national level of poverty incidence to 27.4% or by 5.6 percentage points. A twenty percent fall in real incomes would raise the national poverty level to 33.8%.
115. This level of vulnerability is very similar to that seen in other Pacific countries; on average it is estimated that a ten percent decline in real incomes would be associated with an increase of five percentage points in the level of basic needs poverty incidence. Thus across the region, with the recent sharp rises in food and fuel prices, and with a slowing in economic growth most Pacific countries would have experienced an increase in the poverty rate over the last eighteen months.

### 7.5 Depth and Severity of Poverty

116. The Head Count ratio discussed in the previous paragraphs does not give any indication of the seriousness of the poverty being experienced. For example are those households that are below the poverty line just below it, or are they well below? This analysis is referred to as the depth and severity of poverty.

117. The depth and severity of poverty are measured by the Poverty Gap Index<sup>19</sup> (PGI) and the Squared Poverty Gap Index (SPGI)<sup>20</sup> respectively, Table 14. The former is a measure of the depth of poverty being experienced by each household below the basic needs poverty line. The latter measures the severity of poverty by giving more weight to the poorest households whose poverty gap is greatest. The PGI is Indicator 2 of Target 1, Goal 1 of the MDGs.

	Poverty Gap Index (PGI)	Squared Poverty Gap Index (SPGI)
National average	7.2	3.5
South Tarawa	8.5	3.4
Rest of Gilberts	9.9	4.7

118. At the national level the PGI (depth of poverty) for Kiribati has been estimated at 7.2, which is lower for example than Fiji (11.2) and FSM (9.3). The PGI was highest in the rural Gilberts, index of 9.9, and lowest in the Line Islands, 2.0. The index for South Tarawa was 8.5. The indices suggest that households falling below the BNPL in the rural area and in Tarawa have expenditure that is, on average, around 8.5% below the basic needs poverty level. This means that the average poor HH would need to have a real increase in its income of about ten percent to move it above the poverty line.
119. The SPGI, which is a measure of the severity of poverty being experienced, is estimated at 3.5 nationally. This is lower than the recent estimate for Fiji, 5.1, similar to Tonga, 4.0 but above that for Samoa, 2.6. These indices suggest that Kiribati experiences a generally similar level of poverty depth and severity to other regional countries.

<sup>17</sup> The Poverty Gap Index gives an indication of how poor the poor are and reflects the depth of poverty. The formula calculates the mean distance below the basic needs poverty line as a proportion of the poverty line where the mean is taken over the whole population, counting the non-poor as having zero poverty gap. The PGI is an important indicator as recognised by its inclusion as a specific indicator in MDG1.

$$\text{Poverty Gap Index: } \frac{1}{N} \sum_{i=1}^m (\text{BNPL} - y_i) / \text{BNPL}$$

where: N = total number of households, m = number of households below basic needs poverty line; and  $y_i$  equals expenditure of each household.

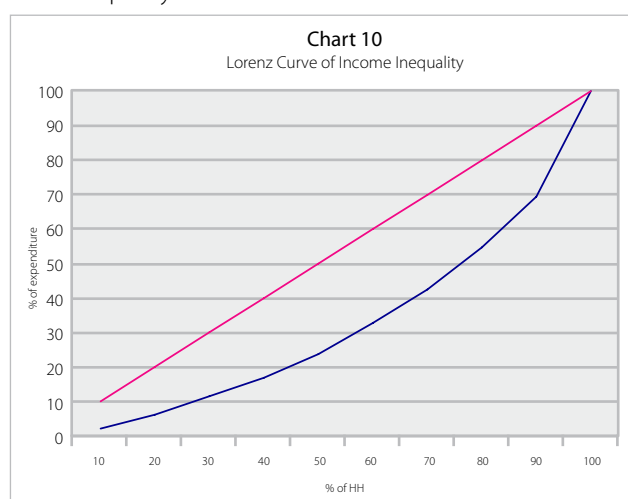
<sup>20</sup> Through the process of squaring the index the SPGI gives greater weight to those at the lowest consumption/income levels and thus better reflects the severity of the poverty gap. In both the PGI and SPGI, the higher the index the greater the depth and severity of poverty, respectively.

## 8. Income Distribution and Inequality

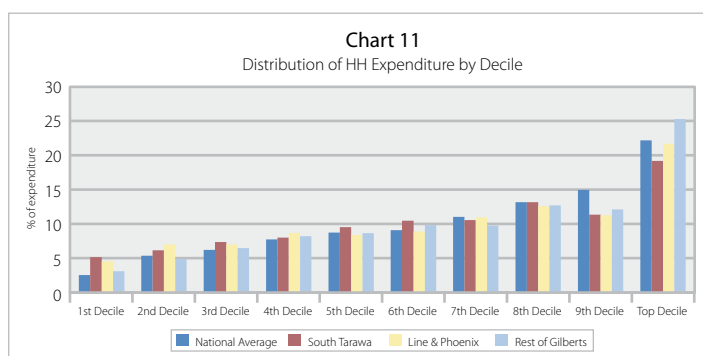
120. Levels of income distribution and inequality can be illustrated in a number of ways. Chart 10 plots the Lorenz Curve of total household expenditure and Table 15 summarises the Gini Coefficients (where a higher coefficient indicates greater inequality and a lower one represents great equality). The Lorenz Curves are a graphical representation of the Gini Coefficient in that the farther away the distribution from the centre line, the greater the degree of inequality.

HH Gini Coefficients	
National average	0.39
South Tarawa	0.35
Rest of Gilberts	0.42
Line & Phoenix	0.34

121. Figures for the Gini Coefficient indicate that the level of inequality in Kiribati is relatively low by Pacific standards with the national Gini being 0.39, and that for South Tarawa 0.35. The Gini was slightly higher for the rural Gilberts, 0.42, as there appears to be a big difference in the levels of expenditure between the Southern islands and the other parts of the Gilberts group.



122. Chart 11 and Appendix Table A6 show the share of expenditure incurred by each decile for the various sub-regions. On average over the whole of Kiribati, the poorest ten-percent of households incurred about 2.5% of all expenditure while the top decile of households incurred around one-fifth (22.0%). As the Chart illustrates there were some variations between the sub-regions: in South Tarawa HH in the bottom decile had 5% of the expenditure, while the bottom decile in the rural Gilberts only enjoyed 3% of total expenditure in the rural areas.



123. The ratio of the share of the bottom quintile to the top quintile of HH (MDG Indicator 3 of target 1, Goal 1) was 4.7 at both the national level and in the rural Gilberts. In South Tarawa the ratio was 2.7 with the Line Islands also being similar to this at 2.9.

## 9. Who Are the Poor and What are their Characteristics?

### 9.1 Location of the Rural Poor

124. The following tables and charts begin to analyse the characteristics of those HH deemed to be poor (those in the lowest two and three deciles of adult equivalent per capita expenditure), comparing them with the situation of non-poor average and top quintile households. Table 16 and Chart 13 illustrate the location of the low-expenditure poor by household and population across the sub-regions relative to the sub-regional share of total population.

125. It can be seen that some 50% of the poor reside in South Tarawa, which has an estimated 45% of the total population, thus there is a slightly higher chance of being poor and living on South Tarawa than in the rural Gilberts. The Line Islands have an estimated 9.7% of the total population but only 4% of the poor, thus there is less chance of being poor and living in the Line Group.

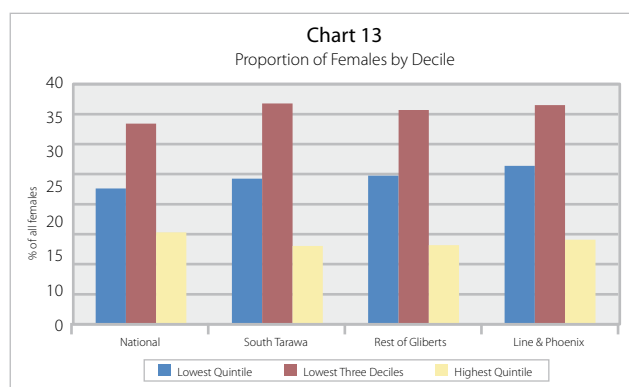
%	HH below BNPL	Proportion of Poor HH by region	Population below BNPL	Proportion of Poor Population by region
Total Number below BNPL	2378		18785	
South Tarawa	962	40.5	9522	50.7
Rest of Gilberts	1324	55.7	8514	45.3
Line & Phoenix	91	3.8	749	4.0

## 9.2 Gender

126. Chart 1 and Table 3 above indicated that on average females accounted for about one-in-five households in Kiribati. The highest proportion of female headed HH were found in both Tarawa and the rural Gilberts where the rate reached almost one-in-four amongst those HH in the lowest deciles. Thus it may be observed that such female headed HH are slightly more likely to be poor than average. On South Tarawa female HHH are also over-represented in the highest quintile, accounting for 27.8% of all HH, but are under-represented in the highest quintile in the rural Gilberts, only 18.3%. In the Line and Phoenix Islands female HHH are under-represented all round with only one-in-ten HH being headed by a female.
127. Female HH households do however appear to be particularly disadvantaged in the Northern Gilberts. According to the survey female headed HH accounted for only 13.9% of all HH in the north, but almost 30% of HH in the lowest three deciles were recorded as being headed by females.

128. Females are estimated to account for 48.5% of those falling below the BNPL. Table 17 and chart 13 illustrate the distribution of all females by sub-region and by decile. Further detail of working age females is provided in Appendix Table A7. From this table it is estimated that there are 12,074 working age females on South Tarawa and 10,383 in the rural Gilberts. Of the 7,900 females living in HH in the lowest three deciles, two-thirds are located in the rural Gilberts and only just over one-quarter on South Tarawa. Thus of the 10,383 working age females in the rural Gilberts approximately 50%, or around 5,000 are in the bottom three deciles, and are thus either poor or vulnerable to poverty in the current situation.

Ranked by HH per capita adult equivalent expenditure deciles	National	South Tarawa	Rest of Gilberts	Line & Phoenix
All Households	50.5	51.3	50.1	48.4
Lowest Quintile	22.6	24.3	24.8	26.4
Lowest Three Deciles	33.4	36.8	35.7	36.5
Highest Quintile	15.3	13.0	13.2	14.1



## 9.3 Children in Poverty

129. According to the survey, there were 32,791 children under the age of 15 years, accounting for 38.0% of the population. The distribution of children through the sub-regions is shown in Table 18 and Chart 14. Appendix Table A8 shows further detail of female children. It is estimated that there were an average of 2.3 children per household overall, however amongst HH in the bottom three deciles the numbers of children was 3.6 on South Tarawa, 3.1 per HH in Linnix and 2.5 in the rural Gilberts. In contrast the numbers of children per HH were much lower in the higher deciles.

130. Table 18 illustrates that across the three sub-regions between 36 to 38 % of children are living in HH in the lowest three deciles. These children will be amongst the most vulnerable and at risk from having a poor learning environment.

131. Disaggregating further the survey results indicate that approximately 10% of all children on South Tarawa live in HH headed by elderly persons over 60 years. Of the children living in these HH fifty percent are living in the lowest three deciles. Further it is estimated that 22.5% of all children live in female HHH and of these just under one third are in HH in the lowest three deciles. In the rural Gilberts 28.3% of children lived in HH headed by elderly persons and of these 61% of the children were in HH in the lowest three deciles. Thus it would seem that children left in the care of elderly relatives on the outer islands are very vulnerable to being in the poorest households.

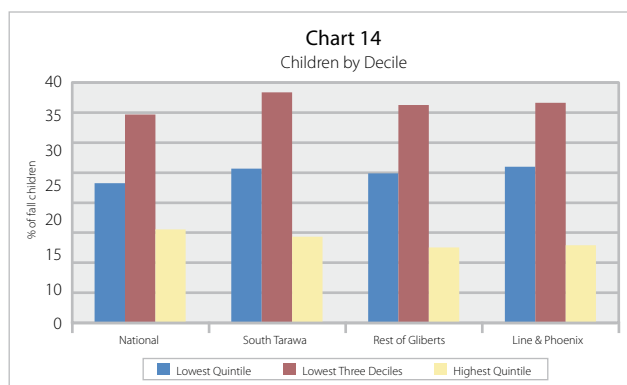
132. The situation appears equally risky for those children living in female headed households in the rural Gilberts. The survey indicates that one-third of all children in the rural Gilberts live in HH headed by females, but of these fifty percent are in the bottom three deciles.

133. These figures also point to the increasing levels of dependency in the outer islands.

#### 9.4 Age of Household Heads

134. Table 19 provides a summary of the location and decile of households headed by those over 60 years. The highest proportion of HH with elderly heads is to be found in the rural Gilberts, at 15.6% with the lowest proportion in the Line Islands, only 7.9%. The proportion of elderly headed HH in South Tarawa is estimated at 11.7%. However in both South Tarawa and the rural Gilberts the proportion of elderly headed HH in the lowest three deciles is around one-in-five or 20%. At the top end, the proportion of elderly headed HH in the highest two deciles was ten percent in South Tarawa and only 6.5% in the rural Gilberts. It was even lower, 4.3% in the Line Islands, but equally the proportion of elderly headed HH falling in the bottom three deciles was also lower in the Line Islands.

135. Chart 15 illustrates the age of HH heads across the sub-regions, and at the individual islands group level.

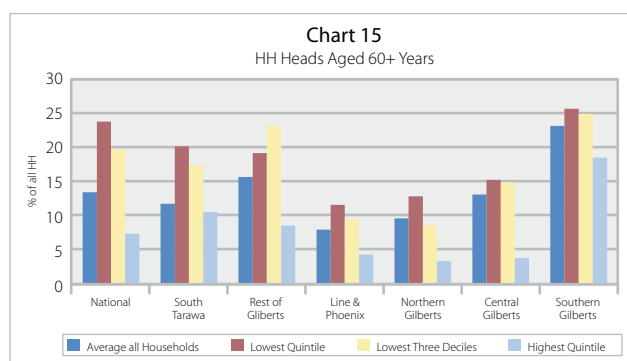


**Table 18**  
Location of Children By Decile %

Ranked by HH per capita adult equivalent expenditure deciles	National	South Tarawa	Rest of Gilberts	Line & Phoenix
Lowest Quintile	23.2	25.7	24.9	26.0
Lowest Three Deciles	34.7	38.3	36.2	36.6
Highest Quintile	15.6	14.4	12.5	12.9
Children by Region	32791	14569	14868	3353

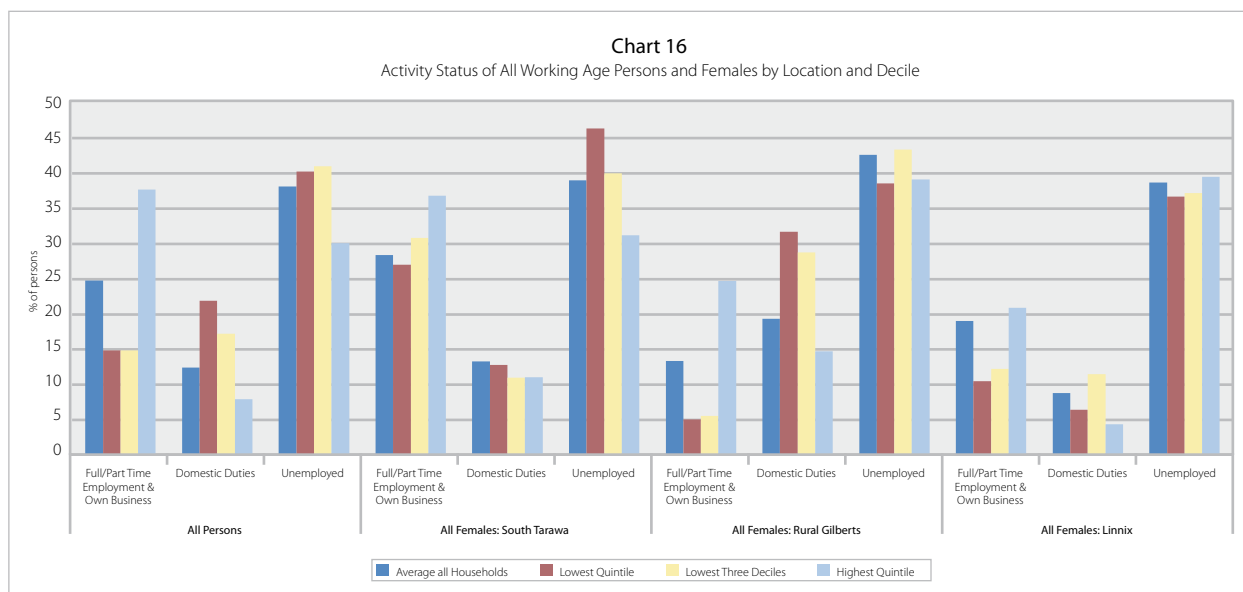
**Table 19**  
Proportion of Household Heads Aged 60+ Years By Decile

Ranked by HH per capita adult equivalent expenditure deciles	National	South Tarawa	Rest of Gilberts	Line & Phoenix
Average all Households	13.4	11.7	15.6	7.9
Lowest Quintile	23.7	20.1	19.1	11.5
Lowest Three Deciles	19.6	17.4	23.1	9.4
Highest Quintile	7.3	10.5	8.5	4.3



### 9.5 Activity of Household Heads

136. Lack of employment or other income generating activities is often a primary cause of a household experiencing hardship and poverty. Indeed it is often found that even households that have one or more employed persons still fall below the poverty line if the employment is in the low-wage or informal sectors. This is especially true in large households with many children or old persons, in other words those with a high dependency ratio. These are termed the “working-poor” and would seem from the survey results that many such households exist in Kiribati.
137. The survey data indicates that on average 18.6% of all households are without any member in employment and a further 5.7% have only one worker in the household. However thirty-eight percent of HH with no workers are in the bottom three deciles, as are 13.5% of those HH with just one worker.
138. From another perspective almost twenty-five percent of the 4195 HH in the bottom three deciles have no workers. More surprisingly however 54.4% of HH in the lowest three deciles reported having at least three workers, strong evidence that there are many “working poor”. Details are shown in Appendix Table A9.
139. Appendix Table A10 and Chart 16 provide details of the activity status of heads of household. This indicates that on average 27.3% of household heads were unemployed; a further 41.7% were in employment and 13.5% were engaged in production for own consumption. Amongst HH in the bottom three deciles the proportion with an unemployed household head was 31.3%, with only 25% being in employment. The proportion engaged primarily in production for own consumption was 17.0% with a further 16.5% being engaged in home duties.



140. Further details of activity status of all working age persons are provided in Appendix Table A11, and disaggregated specifically for females of working age by sub-region in Appendix Tables A12a through A12c, Chart 16 illustrates. On South Tarawa approximately 30% of all females reported being in full or part-time employment. For those in the top quintile the proportion was about 36%, and for those in the bottom quintile only 26%. In the rural Gilberts the proportion of females in employment in the top quintile was still quite high at 25% reflecting the number of nurses and teachers in the formal sector in the rural areas. For other females in the rural areas the level of employment reported was very low, only 5% of those in the bottom quintile and lowest three deciles. Most rural females in the lowest three deciles were engaged in home duties, around 30%, or claimed to be unemployed,

approximately 40%. Many of these latter would also no doubt be engaged in subsistence activities and home duties in the village economy. On South Tarawa in contrast, only 10% of females reported being primarily involved in home duties.

141. Although the definition of unemployed can be hard to quantify in a subsistence or semi-subsistence environment, the survey data indicates that amongst the bottom three deciles around 40% of all persons claimed to be unemployed. Even amongst those in the top quintile of HH the rate of unemployment was reported at 30%. For females in the lowest three deciles the rate in the rural Gilberts was around 45%.
142. These apparently very high, and seemingly rising levels of unemployment compared to the levels reported in the census, are a serious issue for concern. According to the ADB's 2008 economic report approximately 2000 young people enter the labour force each year. Of these only approximately 500 are likely to find employment in the formal sector of the domestic economy or in regular overseas employment as seafarers, fishermen, cruise-ship crew or care-workers. There are therefore an estimated 1500 young persons to be absorbed into the informal economy each year, in the absence of employment opportunities many of these will become the unemployed, or underemployed of the future.

### 9.6 Educational Attainment

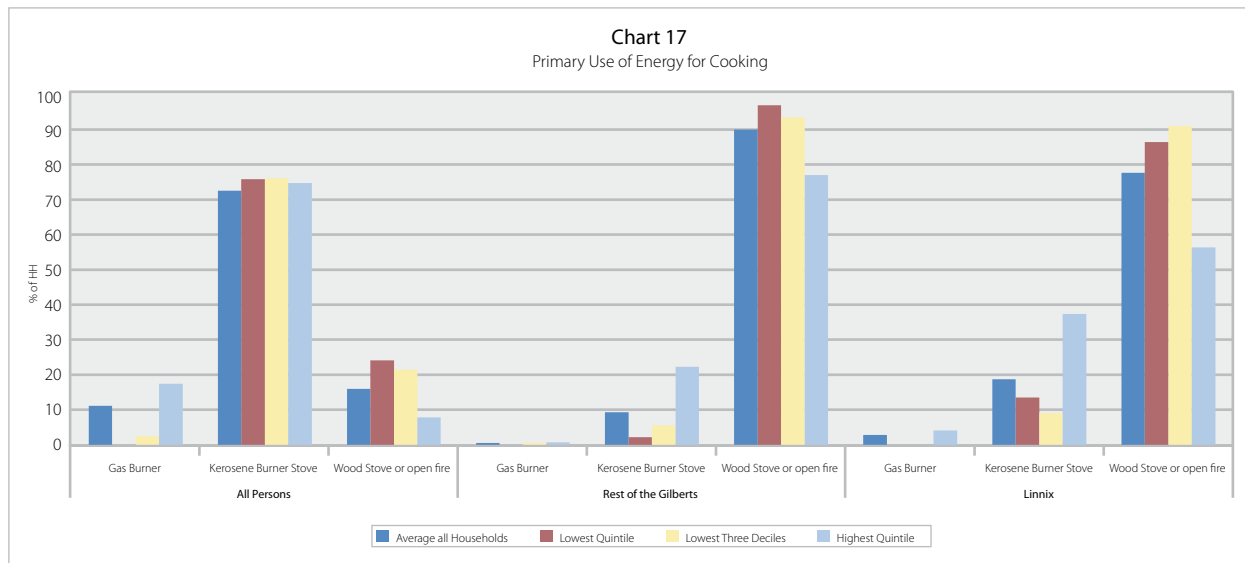
143. Education is generally acknowledged as being one of the most critical factors in influencing whether a household is likely to be in poverty, and whether it will be able to rise out of such a condition. It is therefore a concern that in Kiribati, at the national level, some 13.7% of all household heads reported having had no schooling at all, with a further 43.8% reporting only primary as the highest level of attainment. The connection with poverty is illustrated by the fact that in the poorest three deciles the reported rate of no-schooling was 16.5%, with about a further sixty percent only reaching a maximum of primary level. Approaching from the other perspective only twenty-percent of HH in the bottom three deciles had a HH head with a junior secondary or better level of educational attainment, Appendix Table A13.
144. The same high level of low educational attainment is reflected in the adult population as a whole. The survey indicates that 12.3% of the total adult population reported having had no education, with a further 35.8% reporting only primary level as having been reached. For those in the lowest quintile the proportions were 15.9% and 45.5% respectively. In contrast in the top quintile only 8.8% reported no educational achievement while a further 26.4% indicated only primary level attainment.
145. The gross and net enrolment rates at primary school have been reported as being close to one-hundred percent for many years (2005 MDG Report); these HIES figures therefore suggest that many must have dropped-out during their schooling and thus never completed primary. It also highlights the relatively low progression rates between primary, junior and senior secondary. The weaknesses in the education system have long been a concern and have recently been highlighted again by the ADB's 2009 economic report on Kiribati .



### 9.7 Energy Access and Use

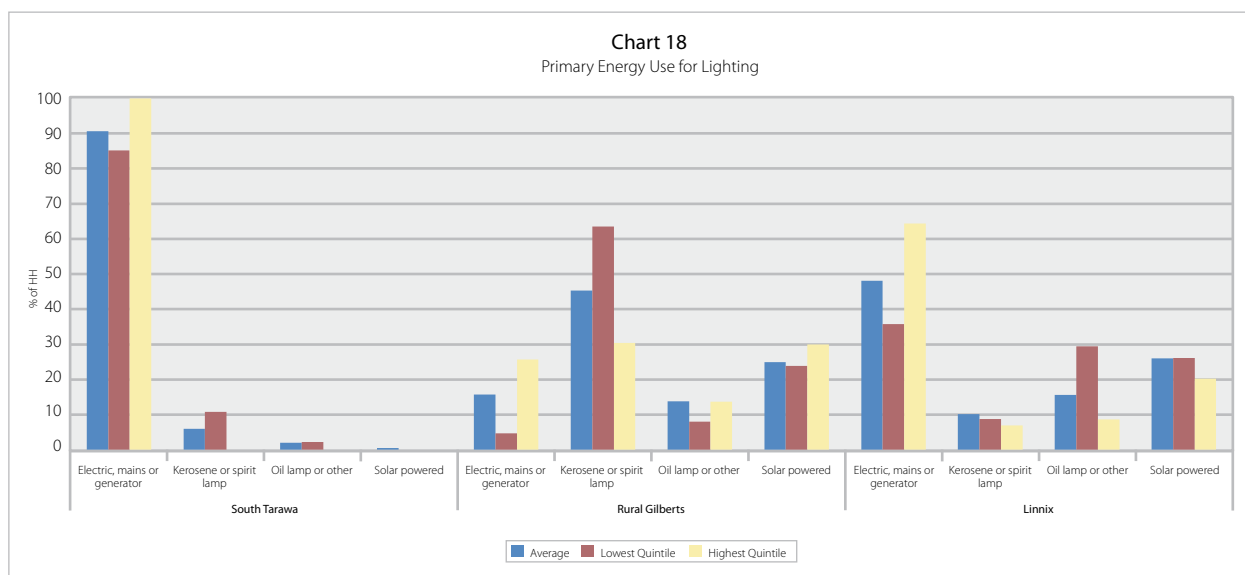
146. Chart 17 shows the nature of energy use for cooking used by HH in the sub-regions and across deciles. In the rural Gilberts and the Line islands more than three-quarters of all HH rely on wood fuel and open fires for cooking.





Even on South Tarawa almost one-quarter of HH in the lowest two and three deciles still use wood and open fires. The remainder of HH on South Tarawa primarily use kerosene stoves, only the in the highest quintile is the use of gas significant. The use of electricity for cooking does not feature at all. In the rural Gilberts and in the Line Islands kerosene is a minor source of cooking fuel, mainly used by those in the higher expenditure deciles; additional detail is provided in Appendix Tables A15a through to A15c.

- 147. In the outer island areas there is therefore very little use of energy sources other than firewood. This suggests that the cost (and lack of availability) of purchased fuel is a deterrent to its use and that there is a relatively easy availability of firewood, either in the local market or from self-collection. It is only in the higher expenditure deciles where “clean” fuel becomes a major source of cooking energy.
- 148. Thus while there may be significant health benefits, especially for women and young children, from the use of “clean” energy sources for cooking, the cost of such fuels compared to the “free” source of firewood is likely to



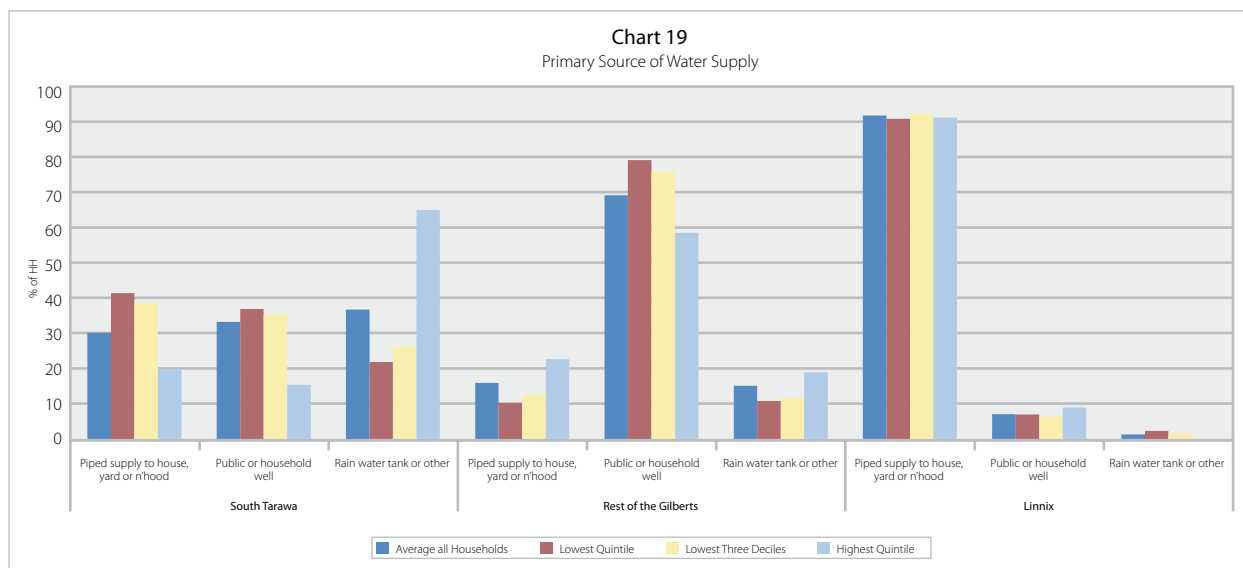
be difficult to overcome. Changing to clean fuels might also require significant changes in traditional cooking methods and food types. Any change will therefore likely need to be slow and gradual.

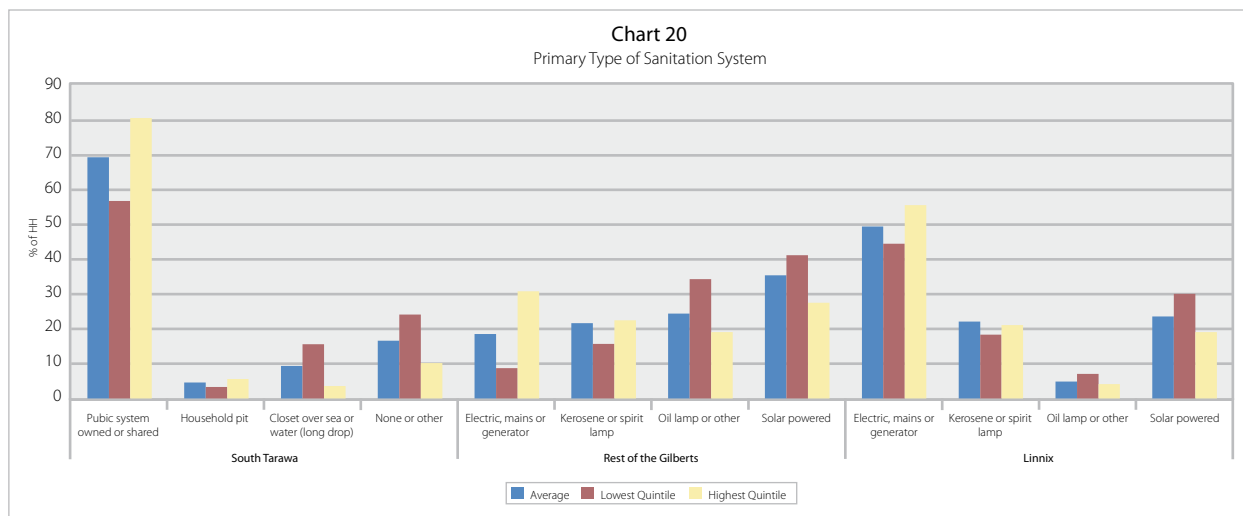
149. Although electricity is not used at all for cooking purposes it is widely used on South Tarawa and in the Line Islands for lighting, see Chart 18. For most HH in the rest of the Gilberts, and particularly those in the lowest decile, kerosene or oil lamps and the main source of lighting. Solar power is however the lighting power source for about one-quarter of HH in the lowest quintile and around one-third of those in the highest quintile. The availability of this lighting source is of significant advantage to those who have access to it, albeit it is necessary to ensure good maintenance of the equipment for sustainability; additional detail on lighting energy are at Appendix tables A16a through A16c.

### 9.8 Access to Water and Sanitation

150. Access to both safe water and good sanitation facilities are important factors in ensuring good health for children and adults alike. Access to these two is therefore a key issue in considering poverty and hardship alleviation. The environmental health conditions and the availability of quality water and safe sanitation in the overcrowded areas of South Tarawa are of particular concern.
151. Chart 19 summarises access to drinking water by sub-region and decile, further details are provided in Appendix Tables A17a through A17c. On South Tarawa public piped supplies only serve about 30% of the total population, however for those in the L3D the proportion rises to about 40%. However it is noticeable that for HH in the top quintile the preferred water source is a HH rain-water tank rather than the public piped supply. Almost two-thirds of top quintile HH rely on their own rain water tanks compared to only one-quarter of those in the lowest three deciles. Public piped supplies are reported to be unreliable and are frequently not regarded as being “safe”, thus those who are able to afford a water tank prefer to manage their own supplies. Public and HH wells on South Tarawa are the primary water source for 37% of HH in the lowest quintile but only 15% in the top quintile. The water lens on South Tarawa is generally regarded as being badly contaminated and only those with no recourse to a “better” supply, or those actually living on the small water reserve itself, would normally rely on this as a primary source of supply.

In the rural Gilberts there are only limited piped supplies available, mainly associated with government building





and staff quarters. This is reflected in the fact that only amongst the top quintile HH are piped supplies a significant source. Just under one-quarter of top quintile HH in the rest of the Gilberts have piped supplies compared to only 10% of HH in the lowest quintile. For most HH, three-quarters of the lowest three deciles and sixty percent of the top quintile, public or HH wells are the primary source of water supply. Only in the Line Islands is the piped supply widely accessible with around 90% of all HH having access.

152. On South Tarawa approximately 70% of all HH reported having a flush sanitation system; however the proportion was only around 57% of those in the lowest quintile compared with eighty percent in the top quintile. For HH in the bottom quintile almost one-quarter had no sanitation and a further 15% had the traditional over-water closet. In both these cases there is a high risk of pollution and infection from unsafe systems.
153. In the rest of the Gilberts few HH have flush sanitation systems, see Chart 20 and Appendix Tables A18a through A18c. Like the piped water supplies, these improved sanitation facilities are usually associated with government building and quarters. For most village-based HH in the rural Gilberts the sanitation system is of a traditional sort, either the over-water closet type or a household pit. One third of HH and sixteen percent respectively for those in the bottom quintile. Approximately 40% of HH in the bottom quintile in the outer islands reported not having any sanitation system, this means in effective that either lagoon or ocean beach-fronts are used. While such practices are far less of a public health risk in the relatively sparsely populated islands, the significant proportion of HH without proper facilities on South Tarawa in a major health concern.
154. In the Line Islands between forty to fifty percent of HH have access to flush systems, with a further twenty percent using a household pit. This latter being an approximately similar proportion to those HH in the rest of the Gilberts. Some thirty percent of HH in the bottom quintile nevertheless reported having no sanitation system.
155. It has been noted in Section 9.3 on children that there are many children living in households in the lowest two and three deciles. It is also clear that many HH in the lowest three deciles do not have adequate safe water supplies or sanitation systems, particularly those in the overcrowded parts of South Tarawa. Children living in these HH are therefore likely to be at a high risk in terms of their health.
156. Improvements to water supplies were highlighted as one of the priorities for hardship alleviation by many households on South Tarawa and the outer islands during the participatory assessments in 2005. Although many houses on South Tarawa (and the outer islands) are made from traditional materials there are also many permanent-

roofed public and community buildings that could be used to improve rainwater catchment and storage. Much storable rainwater is presently lost through inadequate guttering and storage facilities. A programme to support additional water storage could have significant benefits for many families who presently do not have access to safe water supplies through the public system.

## ■ ■ ■ 10. Conclusions

### 10.1 Poverty of Income/Expenditure or Opportunity?

157. This analysis has highlighted the disadvantages being experienced by the poorest households in Kiribati in their lack of access particularly to safe water and sanitation, and to the low-level of educational attainment amongst many in the bottom three deciles. It further highlights the reported high level of unemployment that is reported by those with poor education exacerbating their conditions of hardship and poverty. Thus poverty and hardship are multi-dimensional issues. The social and economic problems associated with hardship and poverty are only likely to ease if the economic can be supported to growth and increase employment and income earning opportunities.
158. The national poverty lines and levels of incidence of poverty between the different parts of the country are the “headline” indicators. They are the basic building blocks on which poverty alleviation strategies can be founded. Far more important from a policy perspective is to analyse the specific characteristics, and where possible, the causes of low-income/expenditure and poverty in the disadvantaged sections of society. Policy-makers at the sector level, and those responsible for framing the national strategies need to know who-the-poor-are, why-are-they-poor, and specifically, what-are-the-characteristics of the poor and poor households, so that targeted poverty alleviation measures can be initiated.
159. The BNPL measures the incidence of “income or expenditure” poverty but this is just one aspect of poverty or hardship. Families might have low incomes/expenditure, but through good household budgeting and prioritising of expenditure, might still be reasonably well-fed and healthy. Nevertheless they are still likely to live in conditions where they experience varying degrees of hardship. As this paper indicates the poorest households might lack access to basic services, especially water and sanitation if they are in parts of urban Tarawa or in some of the remote outer islands for example. Similarly, they might lack access to adequate health, education and transport facilities. These weaknesses in access can be especially difficult in the outer islands. A combination of low educational attainment, socio-cultural factors relating to age, gender and other personal characteristics may also limit freedom of choice, or socio-economic opportunity.
160. This poverty of opportunity, e.g. lack of access to basic health and education services, employment opportunities, standards of good governance and equal opportunities across gender and age, is now regarded as just as important in defining the extent of poverty and hardship in a society as is the lack of income/expenditure. Often the conditions and circumstances giving rise to the poverty of opportunity are the causes of income/expenditure poverty. Alleviating poverty of opportunity will help to increase incomes and wealth.
161. The analysis in this paper has therefore aimed to provide a basis for this to be carried forward to this policy level. Much of the information and analysis in this report has not been available to policy-makers in Kiribati before. This is the first comprehensive household survey to be carried-out through the country.

### 10.2 How Does Poverty Affect People

162. Households with income or expenditure levels below the basic needs poverty line will not necessarily be going hungry, although their diet is likely to be poor in nutrition. It is more likely that, whilst they are probably not going hungry they are, nevertheless, struggling to meet their daily/weekly living expenses, particularly those

that require cash payments (food, power, transport, school fees and other education costs, clothing, housing, medical costs etc). These families will be constantly trying to balance their incomes with their expenditure and frequently something has to be given up, a trade-off will have to be made between one bill and another, food or fees.

163. Fortunately in Kiribati, as elsewhere in the Pacific region, few people appear to be going hungry, but there are indications in the food expenditure and consumption patterns of the poorest households that many may be getting inadequate nutrition. This may be particularly the case for children in the urban centres where local produce, and especially home-grown produce, may not be readily available in household diets. Poor diet and inadequate nutrition are critical issues for the health of children now, and for their future health as adults. The data on food expenditure and consumption for the poorest households provides valuable information for health and nutrition authorities to develop targeted health awareness programmes.
164. The data should also be very valuable to agriculture sector policy makers to target extension and other services to improve local crop production for domestic markets as import replacements. Helping to improve food security, particular for the urban centre of Tarawa, would be an important additional benefit.
165. Urban drift leading to higher levels of unemployment and growing numbers of people living in squatter-type settlements and sub-standard housing conditions result in a deteriorating social environment. Poor housing conditions lead to poor health, poor educational attainment and poor employment prospects, conditions which perpetuate poverty and hardship. The levels of urban hardship and poverty indicated by the analysis of the 2006 HIES point to a wide range of issues that need to be addressed by government policy. Strengthening educational achievement and skill levels, increasing opportunities for employment, not only in the urban centres but also in the rural areas, are amongst the most critical.



166. Poverty and hardship in the Kiribati context means having to make choices on a daily or weekly basis between the competing demands for household expenditure and the limited availability of cash income to meet that expenditure. Many households struggle to pay bills and, in the absence of home gardens in the Tarawa urban area, to purchase adequate food. They borrow regularly from informal lenders who often charge very high interest rates for small unsecured loans to meet family commitments and community obligations. They will also run-up trade-store debts or borrow from other family members. They are frequently, and occasionally constantly, in debt.
167. As a consequence many of the poorest in Kiribati society live in unregulated, low-quality housing without proper access to water, sanitation and other basic services. Children frequently miss school due to ill-health or because school fees or other associated costs have not been paid; many poor families simply cannot afford the costs of uniforms, books and other related items. Adults themselves are frequently poorly educated and thus unable to get anything but the lowest paid employment, if such employment is even available. The cycle of poverty can therefore be perpetuated.
168. Although hard to quantify with the available data it is widely held that one of the most critical issues is education. Many primary and junior secondary schools appear to be under-resourced and poorly maintained. Without a good basic education it is very difficult for the poor to move out of poverty. Higher income derives from having the ability to take advantage of economic opportunities, this means having an ability to read and write and learn skills. For those wishing to become seafarers or even to take temporary seasonal work under the RSE and similar schemes, a sound basic education is essential. For females where the greatest opportunities are in care-work a good basic education is even more important.

### 10.3 Impact of the Global Economic and Financial Situation

169. There are many challenges facing the Kiribati economy with high food and fuel prices and with the widening impact of global recession. Over the past six years the Kiribati economy has not performed well. Economic growth has been slow with little growth or no growth in per capita GDP. This will have likely led to a further increase in poverty and hardship after 2006. The recent food and fuel price rises will have exacerbated the situation, and as the above analysis has noted a ten percent increase in the real level of the BNPL could already have led to an increase of up to around five percentage points in the number of households and population falling below the basic needs poverty line.
170. Kiribati is a very open economy and is extensively integrated into the global economy through trade and tourism, finance and employment. It is therefore being impacted by the global economic slowdown in many ways. Jobs are being lost in the seafarer's sector, on fishing vessels and there is a slowing in demand for crew on cruise vessels. The reduction in cruise vessel visits to the Line Islands is having a severe impact on the livelihoods of the people on the isolated island of Tabueran. The curtailment of international airline flights to Kiritimati Island is an additional constraint. Together these impacts are leading to a reduction in incomes and remittances. The recent price rises for basic food items is exacerbating the problems for many families causing further falls in their real incomes. The government's budget has been impacted by the fall in value of the nation's sovereign wealth fund, the RERF, and is likely to be further impacted by reductions in tax and tariff revenues as domestic incomes fall with domestic economic activity already stagnant, slowing further.
171. The priorities of the people, as outlined in Box 1 above, highlight those issues which were deemed important for reducing hardship and poverty at the household and community levels. They provide indicators for government in terms of identifying the policy challenges for creating more economic and employment opportunities, improving infrastructure and access improved quality of services. Other studies have highlighted the need for improving the policy and regulatory environment for foreign investment, access to micro-finance and to markets, either inwards as source of tourism or outwards for potential exports.

172. The analysis has identified that the extent of relative poverty and hardship within Kiribati is at a similar level to that being experienced by other PICs in the region. The costs of imported foods and non-food basic needs are high in Kiribati as a consequence of transport and the underlying business environment. But the opportunities for employment and income generation are low.
173. The government needs to commit to renewed economic and public sector reform and to improving governance standards and service delivery. There needs to be recognition of the increasing extent of hardship and poverty throughout the country. More attention needs to be given to addressing the needs of the disadvantaged and those who are being left behind.
174. Amongst the key issues facing Kiribati in addressing the growing signs of hardship and poverty are the need to:
- improve standards of governance, including transparency and accountability;
  - strengthen the institutional and regulatory basis for renewed domestic economic growth and stability;
  - ensure fiscal discipline and sound financial management within the framework of the resources available and a sustainable investment and draw-down strategy from the RERF;
  - give greater emphasis to public enterprise reform, reducing subsidies and improving efficiency, promoting private sector investment, access to financial services for people and communities and the creation of new employment opportunities;
  - broaden and deepen the economic base of the economy, especially in strengthening the contribution of the agriculture sector, and to improve food security;
  - improve technical and vocational training opportunities in order to meet the skill needs of the private sector; of those who will need lifestyle skills to succeed in the rural economy; and for those who will seek employment overseas; and to
  - continue to improve the delivery of education, primary health care and health/nutrition education, particularly to those in the more remote islands.
175. At the micro level, it is necessary to address the specific needs of individual communities, islands and villages. This means promoting rural enterprise activities, especially in the agriculture sector, to create income generating opportunities as well as meeting particular local social development and infrastructure priorities.
176. The current high prices of imported food and fuel give many opportunities for domestic agriculture to provide import substitutes for the rice and cereal products that feature prominently in the diets of those in urban Tarawa.
177. In the social area small-scale hardship alleviation projects for improving water supplies, health services, sanitation and similar community based projects need to be priorities. The quality of basic service delivery needs to be improved, through better training of teachers, better staffing of schools and clinics, better maintenance of health and education facilities and infrastructure and improving the availability of essential teaching materials and medical supplies.
178. The potential for a continuing weakening in the fiscal situation in the face of high fuel prices and rising personnel costs in particular is a serious challenge and needs careful monitoring to ensure that fiscal discipline is maintained. Renewed economic growth needs to be generated in the domestic economy through an appropriate investment enabling environment and improving governance standards. Growth oriented, employment-creating strategies, need to be implemented to keep the macroeconomic side moving forward.
179. Kiribati like many other PICs faces serious challenges in coping with the impact of this period of global recession. The country did not benefit greatly during the period of sustained global expansion that has recently ended. High food and fuel prices, increasing unemployment amongst seafarers and the lack of new employment

opportunities in the home economy will continue to limit economic opportunities for people in Kiribati. The global financial situation is likely to continue to have an adverse impact on the value of the RERF for many months, if not years, to come. This will impact adversely on the future fiscal situation. These challenges cannot be ignored. Poverty and hardship are already a reality for many households in Kiribati. Standards of living may already have declined as households have begun to feel the squeeze of higher prices.

180. Those living in the rural outer-islands have the option of falling back on coping strategies relying on increased subsistence production. This choice is not available to those living in the often overcrowded conditions on South Tarawa. Broadening the coverage of social protection schemes beyond the existing “old-age pension” could offer some relief to the most vulnerable. In other countries of the region, notably Vanuatu and Samoa, development partners have assisted governments to provide targeted pro-poor support for education related costs. Such a scheme, or a similar programme of conditional cash transfers for the most needy, could also be appropriate for Kiribati.
181. The opportunity of temporary migration to New Zealand, (and possibly Australia in the future) is becoming the option of choice for an increasing number of young people. But this out-migration may eventually become a threat to the viability of some of the smaller island communities, as is already occurring in some of the other Pacific countries.
182. The option of continuing to accept low rates of economic growth is no longer really sustainable for Kiribati. Hardship and basic-needs poverty are clearly prevalent in the country and the poor economic performance of recent years, exacerbated by the impacts of the global situation, is causing this to worsen. The Kiribati economy and the socio-economic environment are showing signs of serious strain and weakness. Living conditions for many low income and vulnerable households are not improving. The HDI, HPI and MDG indicators all point to areas of concern. Renewed emphasis on reform is needed if the economy is not to slip further behind in the current economic environment.
183. The threat to the very sustainability of the atolls of Kiribati from the impacts of climate change is also very real, and adds to the urgency of addressing both the short-term economic weakness as well as the long term viability and future of the nation.



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## Appendix tables

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<b>Table A1</b>				
<b>Total Weekly HH Expenditure</b>				
A\$ per capita adult equivalent per week				
Ranked by per capita adult equivalent HH expenditure deciles	National	South Tarawa	Rest of Gilberts	Line & Phoenix
1st Decile	8.41	14.44	6.70	17.90
2nd Decile	15.71	22.05	11.75	24.48
3rd Decile	20.38	26.56	16.34	30.82
4th Decile	25.01	29.88	19.78	36.11
5th Decile	28.78	35.57	23.49	40.62
6th Decile	34.07	42.06	27.04	48.14
7th Decile	40.08	49.50	32.03	54.75
8th Decile	50.17	60.04	38.39	64.83
9th Decile	65.15	71.39	51.18	81.35
Top Decile	116.89	131.20	98.59	131.22
Average	36.33	41.46	28.52	48.22

<b>Table A2</b>				
<b>Weekly HH Food Expenditure</b>				
A\$ per capita adult equivalent per week				
Ranked by per capita adult equivalent HH expenditure deciles	National	South Tarawa	Rest of Gilberts	Line & Phoenix
1st Decile	4.42	7.84	3.30	10.40
2nd Decile	8.63	10.83	6.34	12.92
3rd Decile	11.08	12.32	8.89	21.71
4th Decile	12.67	14.52	10.71	22.46
5th Decile	14.75	17.64	13.76	22.54
6th Decile	17.71	18.85	14.44	25.84
7th Decile	20.36	20.93	16.78	25.14
8th Decile	23.38	23.33	21.72	32.37
9th Decile	28.19	28.27	27.55	43.82
Top Decile	43.87	40.27	44.66	51.32
Total	17.02	17.46	14.88	24.80

<b>Table A3</b>				
<b>Weekly HH Non-Food Expenditure</b>				
A\$ per capita adult equivalent per week				
Ranked by per capita adult equivalent HH expenditure deciles	National	South Tarawa	Rest of Gilberts	Line & Phoenix
1st Decile	3.99	6.59	3.40	7.50
2nd Decile	7.08	11.22	5.41	11.56
3rd Decile	9.30	14.24	7.45	9.11
4th Decile	12.33	15.36	9.07	13.65
5th Decile	14.03	17.94	9.73	18.08
6th Decile	16.37	23.21	12.60	22.30
7th Decile	19.72	28.57	15.25	29.61
8th Decile	26.79	36.71	16.67	32.46
9th Decile	36.97	43.12	23.63	37.53
Top Decile	73.02	90.93	53.93	79.89
Total	19.32	24.00	13.64	23.42

<b>Table A4</b>				
<b>Weekly HH Purchased Food Expenditure</b>				
A\$ per capita adult equivalent per week				
Ranked by per capita adult equivalent HH expenditure deciles	National	South Tarawa	Rest of Gilberts	Line & Phoenix
1st Decile	3.29	5.99	2.49	3.73
2nd Decile	5.90	7.80	3.47	6.12
3rd Decile	6.97	6.89	4.64	8.16
4th Decile	7.49	10.13	4.73	8.05
5th Decile	9.74	11.37	7.09	9.56
6th Decile	10.71	14.16	6.73	10.37
7th Decile	12.54	14.32	5.45	11.70
8th Decile	16.17	15.53	8.99	16.52
9th Decile	19.33	19.83	14.62	18.37
Top Decile	29.48	30.99	20.01	32.28
Total	11.15	12.18	6.97	11.36

<b>Table A5</b>				
<b>Weekly HH Production of Own Food Consumed</b>				
A\$ per capita adult equivalent per week				
Ranked by per capita adult equivalent HH expenditure deciles	National	South Tarawa	Rest of Gilberts	Line & Phoenix
1st Decile	1.13	1.86	0.80	6.67
2nd Decile	2.73	3.03	2.87	6.80
3rd Decile	4.11	5.43	4.25	13.55
4th Decile	5.18	4.40	5.98	14.41
5th Decile	5.01	6.27	6.67	12.98
6th Decile	7.00	4.68	7.71	15.47
7th Decile	7.82	6.61	11.33	13.44
8th Decile	7.22	7.80	12.73	15.84
9th Decile	8.86	8.44	12.93	25.45
Top Decile	14.39	9.29	24.65	19.05
Total	5.87	5.28	7.92	13.44

<b>Table A6</b>				
<b>Distribution of HH Expenditure %</b>				
Ranked by per capita adult equivalent HH expenditure deciles	National	South Tarawa	Rest of Gilberts	Line & Phoenix
1st Decile	2.5	5.1	3.0	4.5
2nd Decile	5.3	6.1	4.8	6.9
3rd Decile	6.1	7.3	6.4	6.9
4th Decile	7.7	7.9	8.1	8.6
5th Decile	8.6	9.4	8.6	8.3
6th Decile	9.0	10.4	9.7	8.8
7th Decile	10.9	10.5	9.7	10.9
8th Decile	13.0	13.1	12.6	12.5
9th Decile	14.8	11.2	12.0	11.2
Top Decile	22.0	19.0	25.1	21.5
Total	100.0	100.0	100.00	100.0
Ratio of Q1:Q5	4.7	2.7	4.7	2.9

<b>Table A7</b>						
<b>Location of Females Aged 15 - 59 by Decile</b>						
Ranked by per capita adult equivalent HH expenditure deciles	South Tarawa	Rural Gilberts	Linnix	Total	Number of Females by Decile	% of females by decile
1st Decile	13.3	85.7	1.0	100.0	2572	10.4
2nd Decile	43.8	51.9	4.3	100.0	2867	11.6
3rd Decile	27.5	63.8	8.7	100.0	2481	10.0
4th Decile	54.1	41.0	4.9	100.0	2901	11.7
5th Decile	61.8	30.3	7.9	100.0	2741	11.1
6th Decile	49.5	40.4	10.1	100.0	2224	9.0
7th Decile	57.3	31.5	11.2	100.0	2656	10.8
8th Decile	67.4	17.0	15.7	100.0	2422	9.8
9th Decile	64.2	22.0	13.7	100.0	2160	8.7
Top Decile	53.2	27.7	19.0	100.0	1672	6.8
Total	48.9	42.0	9.1	100.0	24695	100.0
Number of Females	12074	10383	2238	24695		
Summary by Decile Groups						
Average	48.9	42.0	9.1	100.0		
Lowest Quintile	28.6	68.8	2.6	100.0	5440	22.0
Lowest Three Deciles	28.2	67.2	4.6	100.0	7921	32.1
Top Quintile	58.7	24.9	16.4	100.0	3831	15.5

<b>Table A8</b>						
<b>Location of Female Children by Decile</b>						
Ranked by per capita adult equivalent HH expenditure deciles	South Tarawa	Rural Gilberts	Linnix	Total	Number of Females by Decile	% of females by decile
1st Decile	7.5	90.9	1.5	100.0	1613	9.9
2nd Decile	33.8	61.1	5.1	100.0	2049	12.6
3rd Decile	29.8	60.6	9.6	100.0	1855	11.4
4th Decile	48.1	47.0	4.9	100.0	1921	11.8
5th Decile	44.6	46.0	9.4	100.0	1688	10.4
6th Decile	44.8	42.2	13.0	100.0	1440	8.9
7th Decile	46.6	37.7	15.7	100.0	1482	9.1
8th Decile	65.7	18.0	16.3	100.0	1739	10.7
9th Decile	74.8	13.9	11.4	100.0	1479	9.1
Top Decile	50.5	28.5	21.0	100.0	954	5.9
Total	43.8	46.1	10.1	100.0	16220	100
Number of Females	7109	7478	1633	16220		
Summary by Decile Groups						
Average	43.8	46.1	10.1	100.0		
Lowest Quintile	20.7	76.0	3.3	100.0	1831.0	11.3
Lowest Three Deciles	23.7	70.9	5.4	100.0	1839.1	11.3
Top Quintile	62.6	21.2	16.2	100.0	1216.7	7.5

Table A9

Number of Workers per HH									
Ranked by per capita adult equivalent HH expenditure deciles	0	1	2	3	4	5		Number of HH	% of HH by Decile
1st Decile	17.3	2.8	12.4	20.4	28.5	18.6	100.0	1392	9.9
2nd Decile	26.6	1.6	20.3	22.1	20.5	8.9	100.0	1400	10.0
3rd Decile	27.4	3.4	25.2	17.1	19.6	7.3	100.0	1402	10.0
4th Decile	25.2	1.6	20.6	24.9	14.8	12.9	100.0	1396	10.0
5th Decile	24.0	3.9	21.3	17.6	20.8	12.4	100.0	1401	10.0
6th Decile	16.3	1.4	33.6	22.7	10.2	15.7	100.0	1402	10.0
7th Decile	22.2	4.7	29.7	14.7	20.3	8.4	100.0	1389	9.9
8th Decile	16.9	12.7	25.1	19.9	16.3	9.1	100.0	1400	10.0
9th Decile	4.1	7.0	36.4	26.0	11.0	15.4	100.0	1408	10.1
Top Decile	6.5	18.0	43.5	17.5	6.0	8.4	100.0	1408	10.1
Total	18.6	5.7	26.8	20.3	16.8	11.7	100.0	13999	100.0
Number of HH	2609	800	3758	2843	2351	1638			
Summary by Decile Groups									
Average	18.6	5.7	26.8	20.3	16.8	11.7	100.0		
Lowest Quintile	22.0	2.2	16.4	21.3	24.5	13.7	100.0		
Lowest Three Deciles	23.8	2.6	19.3	19.9	22.9	11.6	100.0		
Top Quintile	5.3	12.5	40.0	21.8	8.5	11.9	100.0		

Table A10

Activity Status of Heads of HH									
Ranked by per capita adult equivalent HH expenditure deciles	Full/Part Time Employment & Own Business	Sell Product	Own Hhd Consumption	Domestic Duties	Full/Part Time Education	Unemployed	Total	Number of HH by Decile	% of HH by Decile
1st Decile	17.6	0.4	15.2	19.1	8.0	39.7	100.0	1392	9.9
2nd Decile	20.5	5.2	11.9	21.8	9.2	31.4	100.0	1400	10.0
3rd Decile	36.8	3.1	23.9	8.5	4.9	22.7	100.0	1402	10.0
4th Decile	41.7	5.1	17.2	5.9	2.9	27.2	100.0	1396	10.0
5th Decile	44.2	1.3	15.0	5.4	3.2	30.8	100.0	1401	10.0
6th Decile	36.9	1.3	15.6	9.4	8.5	28.2	100.0	1402	10.0
7th Decile	51.8	2.7	9.9	8.0	6.6	21.0	100.0	1389	9.9
8th Decile	45.2	2.0	8.5	6.1	2.9	35.3	100.0	1400	10.0
9th Decile	59.6	5.8	5.2	2.4	3.9	23.1	100.0	1408	10.1
Top Decile	62.8	2.2	12.0	6.5	3.0	13.5	100.0	1408	10.1
Total	41.7	2.9	13.5	9.3	5.3	27.3	100.0	13999	100.0
Number of HH	5842	407	1884	1302	745	3819	13999		
Summary by Decile Groups									
Average	41.7	2.9	13.5	9.3	5.3	27.3	100.0		
Lowest Quintile	19.0	2.8	13.5	20.4	8.6	35.5	100.0	2793	19.9
Lowest Three Deciles	25.0	2.9	17.0	16.5	7.4	31.3	100.0	4195	30.0
Top Quintile	61.2	4.0	8.6	4.5	3.4	18.3	100.0	2816	20.1

Table A11

## All Working Age Persons Activity Status by Decile

Ranked by per capita adult equivalent HH expenditure deciles	Full/Part Time Employment & Own Business	Sell Product	Production for Own Consumption	Domestic Duties	Full/Part Time Education	Unemployed		Number of Pwrsns by Decile	Proportion of Persons by decile
1st Decile	10.2	0.5	10.6	25.3	12.3	41.1	100.0	5802	10.8
2nd Decile	19.4	2.3	12.2	18.5	8.1	39.6	100.0	6462	12.1
3rd Decile	14.8	2.8	22.8	7.9	9.1	42.6	100.0	5762	10.8
4th Decile	25.3	1.9	12.3	10.3	8.8	41.3	100.0	5979	11.2
5th Decile	32.4	1.0	9.0	7.8	12.5	37.3	100.0	5885	11.0
6th Decile	24.1	2.8	12.8	9.4	12.5	38.3	100.0	5219	9.8
7th Decile	26.3	3.5	6.4	13.2	15.7	34.9	100.0	5403	10.1
8th Decile	29.1	2.3	4.8	12.2	10.5	41.1	100.0	4992	9.3
9th Decile	36.1	3.1	6.7	8.0	12.3	33.8	100.0	4275	8.0
Top Decile	39.3	2.1	13.8	7.8	10.5	26.4	100.0	3738	7.0
Average	24.8	2.2	11.3	12.4	11.1	38.2	100.0	53517	100.0
Number of Persons	13273	1169	6034	6642	5961	20438	53517		
Summary by Decile Groups									
Average	24.8	2.2	11.3	12.4	11.1	38.2	100.0		
Lowest Quintile	14.8	1.4	11.4	21.9	10.2	40.3	100.0	6132	11.5
Lowest Three Deciles	14.8	1.8	15.2	17.2	9.8	41.1	100.0	6009	11.2
Top Quintile	37.7	2.6	10.3	7.9	11.4	30.1	100.0	4007	7.5

Table A12a

## Activity Status Working Age Females: South Tarawa

Ranked by per capita adult equivalent HH expenditure deciles	Full/Part Time Employment & Own Business	Sell Product	Own Hhd Consumption	Domestic Duties	Full/Part Time Education	Unemployed	Total	Number of Females by Decile	% of females by decile
1st Decile	33.9	0.0	6.2	14.9	3.1	41.9	100.0	1702	14.1
2nd Decile	20.2	3.5	8.4	10.7	6.2	51.1	100.0	1178	9.8
3rd Decile	38.4	1.4	8.5	7.3	17.1	27.2	100.0	1534	12.7
4th Decile	37.4	0.0	3.2	7.1	10.0	42.4	100.0	1401	11.6
5th Decile	21.1	6.7	2.4	13.1	14.9	41.8	100.0	1259	10.4
6th Decile	14.3	1.2	3.8	25.7	14.6	40.4	100.0	1345	11.1
7th Decile	19.6	0.0	3.9	14.9	12.5	49.1	100.0	1152	9.5
8th Decile	26.8	4.4	6.2	16.2	17.4	29.1	100.0	1079	8.9
9th Decile	32.1	0.0	4.0	11.8	19.1	33.1	100.0	663	5.5
Top Decile	41.7	0.0	5.5	10.3	13.2	29.4	100.0	760	6.3
Total	28.4	1.8	5.3	13.3	12.2	39.1	100.0	12074	100.0
Number of Females	3430	212	640	1604	1469	4719			
Summary by Decile Groups									
Average	28.4	1.8	5.3	13.3	12.2	39.1	100.0		
Lowest Quintile	27.1	1.8	7.3	12.8	4.6	46.5	100.0	2880	23.9
Lowest Three Deciles	30.8	1.6	7.7	11.0	8.8	40.1	100.0	4413	36.6
Top Quintile	36.9	0.0	4.7	11.0	16.1	31.2	100.0	1423	11.8

Table A12b

## Activity Status Working Age Females: Rural Gilberts

Ranked by per capita adult equivalent HH expenditure deciles	Full/Part Time Employment & Own Business	Sell Product	Own Hhd Consumption	Domestic Duties	Full/Part Time Education	Unemployed	Total	Number of Females by Decile	% of females by decile
1st Decile	6.0	1.1	13.4	36.9	14.7	28.0	100.0	1351	13.0
2nd Decile	4.0	0.0	9.3	26.6	10.7	49.3	100.0	1263	12.2
3rd Decile	6.4	1.1	12.7	22.9	3.8	53.0	100.0	1030	9.9
4th Decile	5.0	1.9	32.3	13.8	4.7	42.2	100.0	1267	12.2
5th Decile	14.2	1.1	17.3	12.4	5.0	49.9	100.0	1045	10.1
6th Decile	20.2	1.6	14.5	17.4	5.4	40.9	100.0	1102	10.6
7th Decile	16.9	2.0	15.6	16.0	7.8	41.7	100.0	843	8.1
8th Decile	24.3	3.1	12.5	8.8	6.3	45.0	100.0	987	9.5
9th Decile	26.2	5.3	8.6	21.2	2.0	36.8	100.0	732	7.0
Top Decile	23.3	4.5	14.4	8.3	7.9	41.5	100.0	763	7.3
Average	13.3	1.9	15.5	19.3	7.2	42.7	100.0	10383	100.0
Number of Persons	1384	200	1607	2007	747	4437			
Summary by Decile Groups									
Average	13.3	1.9	15.5	19.3	7.2	42.7	100.0		
Lowest Quintile	5.0	0.6	11.4	31.7	12.7	38.7	100.0	2614	25.2
Lowest Three Deciles	5.5	0.7	11.8	28.8	9.7	43.4	100.0	3644	35.1
Top Quintile	24.7	4.9	11.5	14.7	5.0	39.2	100.0	1494	14.4

Table A12c

## Activity Status Working Age Females: Linnix

Ranked by per capita adult equivalent HH expenditure deciles	Full/Part Time Employment & Own Business	Sell Product	Own Hhd Consumption	Domestic Duties	Full/Part Time Education	Unemployed	Total	Number of Females by Decile	% of females by decile
1st Decile	7.0	17.4	30.3	8.9	4.4	32.0	100.0	269	12.0
2nd Decile	13.9	5.2	30.1	3.8	5.4	41.6	100.0	326	14.6
3rd Decile	15.7	6.0	12.2	21.7	6.2	38.2	100.0	197	8.8
4th Decile	15.7	11.6	8.9	2.5	2.9	58.5	100.0	202	9.0
5th Decile	14.8	20.2	15.0	13.1	0.0	36.9	100.0	239	10.7
6th Decile	26.8	6.0	19.2	18.2	3.0	26.7	100.0	196	8.7
7th Decile	20.6	11.1	7.4	11.7	6.6	42.6	100.0	254	11.4
8th Decile	38.4	3.2	19.2	0.0	3.2	36.0	100.0	221	9.9
9th Decile	13.0	11.6	17.9	3.6	0.0	53.9	100.0	139	6.2
Top Decile	28.8	3.3	37.6	5.1	0.0	25.3	100.0	196	8.8
Average	19.0	9.7	20.3	8.7	3.4	38.8	100.0	2238	100.0
Number of Persons	426	217	455	196	77	867			
Summary by Decile Groups									
Average	19.0	9.7	20.3	8.7	3.4	38.8	100.0		
Lowest Quintile	10.4	11.3	30.2	6.4	4.9	36.8	100.0	595	26.6
Lowest Three Deciles	12.2	9.5	24.2	11.5	5.3	37.2	100.0	792	35.4
Top Quintile	20.9	7.5	27.8	4.3	0.0	39.6	100.0	335	15.0



Table A13

## Educational Attainment Heads of HH

Ranked by per capita adult equivalent HH expenditure deciles	No school	Primary	Junior Secondary	Senior Secondary	Post Secondary & Tertiary		Number of HH	% of HH by Decile
1st Decile	16.6	66.6	5.3	11.5	0.0	100.0	1392	9.9
2nd Decile	19.2	57.6	11.3	11.8	0.0	100.0	1400	10.0
3rd Decile	13.7	49.1	18.4	18.1	0.8	100.0	1402	10.0
4th Decile	14.6	43.6	11.7	22.5	7.7	100.0	1396	10.0
5th Decile	19.8	34.8	19.8	17.0	8.6	100.0	1401	10.0
6th Decile	12.6	47.0	12.1	21.9	6.4	100.0	1402	10.0
7th Decile	7.2	41.2	20.3	24.0	7.4	100.0	1389	9.9
8th Decile	16.7	33.2	26.7	19.3	4.1	100.0	1400	10.0
9th Decile	10.1	32.6	21.4	23.1	12.7	100.0	1408	10.1
Top Decile	6.5	32.3	24.2	32.5	4.4	100.0	1408	10.1
Average	13.7	43.8	17.1	20.2	5.2	100.0	13999	100.0
Number of HH	1917	6128	2398	2824	731	13999		
Summary by Decile Groups								
Average	13.7	43.8	17.1	20.2	5.2			
Lowest Quintile	17.9	62.1	8.3	11.7	0.0		2793	19.9
Lowest Three Deciles	16.5	57.8	11.7	13.8	0.3		4195	30.0
Top Quintile	8.3	32.4	22.8	27.8	8.6		2816	20.1

Table A14

## All Persons Educational Attainment

Ranked by per capita adult equivalent HH expenditure deciles	No school	Primary	Junior Secondary	Senior Secondary	Post Secondary and Tertiary	Total	Number of Persons by Decile	Proportion of Persons by decile
1st Decile	19.3	49.5	15.5	15.0	0.7	100.0	5802	10.8
2nd Decile	12.6	41.6	15.2	28.3	2.2	100.0	6462	12.1
3rd Decile	11.1	42.9	26.5	18.4	1.2	100.0	5762	10.8
4th Decile	10.9	36.4	18.9	28.7	5.0	100.0	5979	11.2
5th Decile	16.5	27.9	18.9	29.6	7.2	100.0	5885	11.0
6th Decile	11.3	35.2	18.1	31.3	4.1	100.0	5219	9.8
7th Decile	7.8	35.9	17.0	34.8	4.5	100.0	5403	10.1
8th Decile	13.3	28.7	20.4	31.8	5.8	100.0	4992	9.3
9th Decile	10.1	25.0	20.3	37.5	7.1	100.0	4275	8.0
Top Decile	7.8	27.8	21.0	37.0	6.4	100.0	3738	7.0
Average	12.3	35.8	19.0	28.6	4.2	100.0	53517	100.0
Number of Persons	6593	19159	10190	15313	2261	53517		
Summary by Decile Groups								
Average	12.3	35.8	19.0	28.6	4.2			
Lowest Quintile	15.9	45.5	15.4	21.7	1.4		12264	22.9
Lowest Three Deciles	14.3	44.6	19.1	20.6	1.4		18026	33.7
Top Quintile	8.9	26.4	20.7	37.3	6.7		8014	15.0

Table A15a

## Primary Cooking Energy Source: South Tarawa

Ranked by per capita adult equivalent HH expenditure deciles	Electric – plate without oven	Gas burner with oven	Gas burner without oven	Kerosene burner, stove	Wood stove (including coconut shell)	Open fire	Total	Number of HH by Decile
1st Decile	0.0	0.0	0.0	77.0	0.0	23.0	100.0	506
2nd Decile	0.0	0.0	0.0	74.7	0.0	25.3	100.0	511
3rd Decile	0.0	4.1	3.2	76.5	3.4	12.8	100.0	533
4th Decile	0.0	0.0	4.1	74.8	8.1	13.1	100.0	535
5th Decile	0.0	10.9	15.3	65.4	4.2	4.2	100.0	515
6th Decile	4.0	0.0	12.0	49.1	3.4	31.5	100.0	542
7th Decile	0.0	0.0	12.7	76.7	7.0	3.5	100.0	523
8th Decile	0.0	0.0	13.9	82.0	0.0	4.1	100.0	527
9th Decile	0.0	5.2	22.3	68.3	4.2	0.0	100.0	514
Top Decile	0.0	0.0	7.4	81.2	7.4	4.0	100.0	539
Average	0.4	2.0	9.1	72.5	3.8	12.2	100.0	5245
Number of Persons	22	104	477	3805	200	638	5245	
Summary by Decile Groups								
Average	0.4	2.0	9.1	72.5	3.8	12.2	100.0	
Lowest Quintile	0.0	0.0	0.0	75.9	0.0	24.1		1017.8
Lowest Three Deciles	0.0	1.4	1.1	76.1	1.1	20.3		1551.0
Top Quintile	0.0	2.6	14.9	74.8	5.8	2.0		1052.8

Table A15b

## Primary Cooking Energy Source: Rest of the Gilberts

Ranked by per capita adult equivalent HH expenditure deciles	Electric – plate without oven	Electric – stove with oven	Gas burner with oven	Gas burner without oven	Kerosene burner, stove	Wood stove (including coconut shell)	Sawdust stove	Open fire	Total	Number of HH by Decile
1st Decile	0.0	1.7	0.0	0.0	4.3	19.6	0.0	74.4	100.0	732
2nd Decile	0.0	0.0	0.0	0.0	0.0	20.1	0.0	79.9	100.0	748
3rd Decile	0.0	0.0	0.0	1.5	12.2	16.4	0.0	69.9	100.0	736
4th Decile	0.7	0.0	0.0	0.0	7.8	12.8	0.0	78.6	100.0	735
5th Decile	0.0	0.0	0.0	0.0	10.9	12.6	0.0	76.6	100.0	750
6th Decile	0.0	0.0	0.0	0.0	3.6	11.1	0.0	85.3	100.0	740
7th Decile	0.0	0.0	0.0	1.6	6.4	12.0	0.0	80.0	100.0	743
8th Decile	0.0	0.0	0.7	0.0	3.1	16.4	1.8	78.0	100.0	739
9th Decile	0.0	0.0	0.0	0.7	19.1	18.1	0.0	62.0	100.0	738
Top Decile	0.0	0.0	0.0	0.7	25.3	14.5	0.0	59.4	100.0	745
Average	0.1	0.2	0.1	0.4	9.3	15.4	0.2	74.4	100.0	7407
Number of Persons	5	13	5	33	688	1137	1882			
Summary by Decile Groups										
Average	0.1	0.2	0.1	0.4	9.3	15.4	0.2	74.4		
Lowest Quintile	0.0	0.9	0.0	0.0	2.2	19.8	0.0	77.1		1481
Lowest Three Deciles	0.0	0.6	0.0	0.5	5.5	18.7	0.0	74.7		2217
Top Quintile	0.0	0.0	0.0	0.7	22.2	16.3	0.0	60.7		1483

Table A15c

## Primary Cooking Energy Source: Line &amp; Phoenix Islands

Ranked by per capita adult equivalent HH expenditure deciles	Electric – stove with oven	Gas burner with oven	Gas burner without oven	Kerosene burner, stove	Wood stove (including coconut shell)	Sawdust stove	Open fire	Total	Number of HH per Decile
1st Decile	0.0	0.0	0.0	5.5	15.1	0.0	79.4	100.0	128
2nd Decile	0.0	0.0	0.0	21.6	9.2	0.0	69.2	100.0	140
3rd Decile	0.0	0.0	0.0	0.0	4.9	0.0	95.1	100.0	131
4th Decile	0.0	0.0	0.0	13.7	4.7	0.0	81.5	100.0	136
5th Decile	3.7	0.0	0.0	9.5	0.0	0.0	86.9	100.0	136
6th Decile	0.0	0.0	9.8	8.6	14.1	0.0	67.5	100.0	137
7th Decile	0.0	0.0	4.5	18.9	9.9	0.0	66.7	100.0	130
8th Decile	0.0	0.0	5.2	33.0	4.8	0.0	56.9	100.0	134
9th Decile	4.4	0.0	0.0	32.0	0.0	4.0	59.6	100.0	133
Top Decile	0.0	4.1	4.1	42.7	9.1	0.0	39.9	100.0	142
Average	0.8	0.4	2.4	18.7	7.2	0.4	70.0	100.0	1347
Number of Persons	11	6	32	253	97	5	943	1347	
Summary by Decile Groups									
Average	0.8	0.4	2.4	18.7	7.2	0.4	70.0		
Lowest Quintile	0.0	0.0	0.0	13.5	12.1	0.0	74.3		269
Lowest Three Deciles	0.0	0.0	0.0	9.0	9.7	0.0	81.2		399
Top Quintile	2.2	2.1	2.1	37.4	4.6	2.0	49.7		275

Table A16a

## Primary Lighting Energy Source: South Tarawa

Ranked by per capita adult equivalent HH expenditure deciles	Electric, main electricity supply	Kerosene or spirit lamp	Oil lamp (including coconut or fat)	Solar powered	Other light (specify fuel)	No lighting regularly available	Total	Number of HH by Decile
1st Decile	86.6	9.5	0.0	0.0	0.0	3.9	100	506
2nd Decile	83.8	12.0	0.0	0.0	4.2	0.0	100	511
3rd Decile	96.6	0.0	3.4	0.0	0.0	0.0	100	533
4th Decile	70.2	26.1	3.7	0.0	0.0	0.0	100	535
5th Decile	91.6	4.2	4.2	0.0	0.0	0.0	100	515
6th Decile	88.7	4.0	0.0	0.0	3.7	3.7	100	542
7th Decile	93.2	3.5	0.0	0.0	0.0	3.3	100	523
8th Decile	95.9	0.0	0.0	4.1	0.0	0.0	100	527
9th Decile	100.0	0.0	0.0	0.0	0.0	0.0	100	514
Top Decile	100.0	0.0	0.0	0.0	0.0	0.0	100	539
Average	90.6	5.9	1.1	0.4	0.8	1.1	100	5245
Number of Persons	4754	311	60	22	42	57	5245	
Summary by Decile Groups								
Average	90.6	5.9	1.1	0.4	0.8	1.1		
Lowest Quintile	85.2	10.8	0.0	0.0	2.1	2.0		1017.8
Lowest Three Deciles	89.0	7.2	1.1	0.0	1.4	1.3		1551.0
Top Quintile	100.0	0.0	0.0	0.0	0.0	0.0		1052.8

Table A16b

## Primary Lighting Energy Source: Rest of the Gilberts

Ranked by per capita adult equivalent HH expenditure deciles	Electric, main electricity supply	Electric, own generator	Kerosene or spirit lamp	Oil lamp (including coconut or fat)	Solar powered	Other light (specify fuel)	No lighting regularly available	Total	Number of HH by Decile
1st Decile	6.1	0.0	63.5	4.4	24.4	1.7	0.0	100.0	732
2nd Decile	1.8	1.5	63.6	9.9	23.2	0.0	0.0	100.0	748
3rd Decile	3.1	9.6	57.9	8.8	18.7	0.0	1.9	100.0	736
4th Decile	11.2	4.3	39.8	12.4	24.2	8.1	0.0	100.0	735
5th Decile	9.7	3.5	39.6	10.8	24.4	11.2	0.8	100.0	750
6th Decile	11.6	3.1	40.8	9.4	28.4	6.7	0.0	100.0	740
7th Decile	7.2	10.7	38.3	10.0	22.9	10.9	0.0	100.0	743
8th Decile	15.2	7.0	49.0	5.5	23.3	0.0	0.0	100.0	739
9th Decile	14.8	5.5	31.6	17.2	29.2	0.9	0.8	100.0	738
Top Decile	22.2	8.8	29.1	9.3	30.6	0.0	0.0	100.0	745
Average	10.3	5.4	45.3	9.8	24.9	3.9	0.4	100.0	7407
Number of Persons	761	400	3356	723	1848	292	27	7407	
Summary by Decile Groups									
Average	10.3	5.4	45.3	9.8	24.9	3.9	0.4		
Lowest Quintile	3.9	0.7	63.5	7.1	23.8	0.9	0.0		1481
Lowest Three Deciles	3.6	3.7	61.7	7.7	22.1	0.6	0.6		2217
Top Quintile	18.5	7.1	30.4	13.3	29.9	0.4	0.4		1483

Table A16b

## Primary Lighting Energy Source: Rest of the Gilberts

Ranked by per capita adult equivalent HH expenditure deciles	Electric, main electricity supply	Electric, own generator	Kerosene or spirit lamp	Oil lamp (including coconut or fat)	Solar powered	Other light (specify fuel)	No lighting regularly available	Total	Number of HH by Decile
1st Decile	6.1	0.0	63.5	4.4	24.4	1.7	0.0	100.0	732
2nd Decile	1.8	1.5	63.6	9.9	23.2	0.0	0.0	100.0	748
3rd Decile	3.1	9.6	57.9	8.8	18.7	0.0	1.9	100.0	736
4th Decile	11.2	4.3	39.8	12.4	24.2	8.1	0.0	100.0	735
5th Decile	9.7	3.5	39.6	10.8	24.4	11.2	0.8	100.0	750
6th Decile	11.6	3.1	40.8	9.4	28.4	6.7	0.0	100.0	740
7th Decile	7.2	10.7	38.3	10.0	22.9	10.9	0.0	100.0	743
8th Decile	15.2	7.0	49.0	5.5	23.3	0.0	0.0	100.0	739
9th Decile	14.8	5.5	31.6	17.2	29.2	0.9	0.8	100.0	738
Top Decile	22.2	8.8	29.1	9.3	30.6	0.0	0.0	100.0	745
Average	10.3	5.4	45.3	9.8	24.9	3.9	0.4	100.0	7407
Number of Persons	761	400	3356	723	1848	292	27	7407	
Summary by Decile Groups									
Average	10.3	5.4	45.3	9.8	24.9	3.9	0.4		
Lowest Quintile	3.9	0.7	63.5	7.1	23.8	0.9	0.0		1481
Lowest Three Deciles	3.6	3.7	61.7	7.7	22.1	0.6	0.6		2217
Top Quintile	18.5	7.1	30.4	13.3	29.9	0.4	0.4		1483

Table A16c

## Primary Lighting Energy Source: Line &amp; Phoenix Islands

Ranked by per capita adult equivalent HH expenditure deciles	Electric, main electricity supply	Electric, own generator	Kerosene or spirit lamp	Oil lamp (including coconut or fat)	Solar powered	Other light (specify fuel)	No lighting regularly available	Total
1st Decile	19.2	0.0	9.1	18.3	38.4	15.0	0.0	100.0
2nd Decile	52.4	0.0	8.4	20.9	13.8	4.6	0.0	100.0
3rd Decile	27.3	0.0	0.0	35.9	36.9	0.0	0.0	100.0
4th Decile	35.6	0.0	22.8	4.3	33.3	0.0	3.9	100.0
5th Decile	45.4	0.0	20.2	17.1	17.3	0.0	0.0	100.0
6th Decile	26.5	4.7	9.4	4.3	50.3	4.7	0.0	100.0
7th Decile	45.9	12.9	9.1	9.4	22.7	0.0	0.0	100.0
8th Decile	74.4	4.4	8.1	0.0	8.4	4.8	0.0	100.0
9th Decile	40.8	4.4	13.7	4.4	36.8	0.0	0.0	100.0
Top Decile	71.0	12.6	0.0	0.0	3.5	12.9	0.0	100.0
Average	44.1	3.9	10.1	11.3	25.9	4.2	0.4	100.0
Number of Persons	594	53	136	153	349	57	5	1347
Summary by Decile Groups								
Average	44.1	3.9	10.1	11.3	25.9	4.2	0.4	
Lowest Quintile	35.8	0.0	8.7	19.6	26.1	9.8	0.0	
Lowest Three Deciles	32.9	0.0	5.8	25.0	29.7	6.5	0.0	
Top Quintile	55.9	8.5	6.8	2.2	20.1	6.5	0.0	

Table A17a

## Primary Source of Water Supply: South Tarawa

Ranked by per capita adult equivalent HH expenditure deciles	Piped into household/yard	Piped into neighbour'h'd	Piped supply outside neighbour'h'd	Well in yard	Public well	Rain water tank	Tanker truck	Other	Total	Number of HH by Decile
1st Decile	42.1	5.9	0.0	7.4	11.6	29.9	0.0	3.1	100	506
2nd Decile	16.2	10.4	8.1	15.6	39.2	10.6	0.0	0.0	100	511
3rd Decile	32.6	0.0	0.0	10.9	21.5	35.0	0.0	0.0	100	533
4th Decile	22.1	9.9	3.7	19.6	9.0	28.2	0.0	7.5	100	535
5th Decile	19.3	4.2	7.7	12.6	31.4	21.7	0.0	3.1	100	515
6th Decile	19.2	0.0	3.7	27.1	18.3	24.1	4.0	3.7	100	542
7th Decile	21.0	0.0	3.8	28.9	10.9	28.4	0.0	7.0	100	523
8th Decile	28.2	5.0	0.0	21.6	15.5	26.2	0.0	3.5	100	527
9th Decile	23.0	0.0	3.9	6.7	11.9	50.4	4.2	0.0	100	514
Top Decile	8.9	0.0	3.7	4.0	8.0	71.9	0.0	3.4	100	539
Average	23.2	3.5	3.4	15.5	17.7	32.7	0.8	3.1	100	5245
Number of Persons	1216	184	181	813	926	1717	43	165	5245	
Summary by Decile Groups										
Average	23.2	3.5	3.4	15.5	17.7	32.7	0.8	3.1		
Lowest Quintile	29.1	8.1	4.1	11.5	25.4	20.2	0.0	1.6		1017.8
Lowest Three Deciles	30.3	5.4	2.7	11.3	24.1	25.1	0.0	1.0		1551.0
Top Quintile	15.9	0.0	3.8	5.3	10.0	61.1	2.1	1.7		1052.8

Table A17b

## Primary Source of Water Supply: Rest of the Gilberts

Ranked by per capita adult equivalent HH expenditure deciles	Piped into household/ yard	Piped into neighbour'h'd	Piped supply outside neighbour'h'd	Well in yard	Public well	Rain water tank	Other	Total	Number of HH by Decile
1st Decile	3.6	1.7	1.6	53.2	30.9	7.6	1.5	100.0	732
2nd Decile	5.6	1.5	6.3	44.4	29.7	12.4	0.0	100.0	748
3rd Decile	7.1	4.0	6.3	47.7	21.6	13.4	0.0	100.0	736
4th Decile	2.0	7.0	2.1	47.0	11.4	29.1	1.5	100.0	735
5th Decile	8.5	1.6	5.3	51.6	20.2	12.8	0.0	100.0	750
6th Decile	8.1	3.8	6.2	53.3	18.5	7.9	2.2	100.0	740
7th Decile	6.4	1.5	4.8	62.6	9.9	11.7	3.3	100.0	743
8th Decile	12.2	3.2	3.2	52.9	19.0	7.5	2.1	100.0	739
9th Decile	14.9	3.9	6.1	36.6	20.2	15.0	3.2	100.0	738
Top Decile	16.6	3.8	0.0	51.8	8.3	18.2	1.4	100.0	745
Average	8.5	3.2	4.2	50.1	19.0	13.5	1.5	100.0	7407
Number of Persons	631	236	310	3712	1404	1003	111	7407	
Summary by Decile Groups									
Average	8.5	3.2	4.2	50.1	19.0	13.5	1.5		
Lowest Quintile	4.6	1.6	4.0	48.8	30.3	10.0	0.7		1481
Lowest Three Deciles	5.5	2.4	4.7	48.4	27.4	11.1	0.5		2217
Top Quintile	15.8	3.9	3.0	44.2	14.2	16.6	2.3		1483

Table A17c

## Primary Source of Water Supply: Line and Phoenix Islands

Ranked by per capita adult equivalent HH expenditure deciles	Piped into household/ yard	Piped into neighbour'h'd	Piped supply outside neighbour'h'd	Well in yard	Public well	Rain water tank	Total	Number of HH per Decile
1st Decile	14.6	5.0	71.2	4.6	0.0	4.6	100.0	128
2nd Decile	48.2	8.7	33.9	9.2	0.0	0.0	100.0	140
3rd Decile	27.3	4.9	62.9	4.9	0.0	0.0	100.0	131
4th Decile	35.6	0.0	56.0	3.6	4.7	0.0	100.0	136
5th Decile	28.0	4.3	55.4	8.7	0.0	3.7	100.0	136
6th Decile	13.7	4.3	73.1	4.3	0.0	4.7	100.0	137
7th Decile	41.4	0.0	54.5	4.1	0.0	0.0	100.0	130
8th Decile	64.8	0.0	27.1	4.4	3.7	0.0	100.0	134
9th Decile	40.8	4.8	40.8	5.3	8.4	0.0	100.0	133
Top Decile	66.9	4.1	24.9	0.0	4.1	0.0	100.0	142
Average	38.4	3.6	49.7	4.9	2.1	1.3	100.0	1347
Number of Persons	517	49	669	66	28	17	1347	
Summary by Decile Groups								
Average	38.4	3.6	49.7	4.9	2.1	1.3	100.0	
Lowest Quintile	31.4	6.9	52.6	6.9	0.0	2.3	100.0	269
Lowest Three Deciles	30.0	6.2	56.0	6.2	0.0	1.5	100.0	399
Top Quintile	53.8	4.5	32.8	2.6	6.3	0.0	100.0	275

Table A18a

Primary Source of Sanitation: South Tarawa									
Ranked by per capita adult equivalent HH expenditure deciles	Public sewage system	Own flush septic tank	Shared flush toilet	Household pit	Closet over sea or water (long drop)	Other, specify	None	Total	Number of HH by Decile
1st Decile	20.4	29.5	3.1	3.4	15.0	0.0	28.5	100	506
2nd Decile	15.5	36.8	8.3	3.3	16.2	0.0	19.8	100	511
3rd Decile	21.4	54.9	0.0	0.0	12.1	0.0	11.6	100	533
4th Decile	13.3	46.4	5.0	0.0	11.6	0.0	23.7	100	535
5th Decile	15.4	57.1	7.3	7.5	0.0	4.2	8.4	100	515
6th Decile	0.0	44.4	10.8	12.6	9.2	0.0	23.1	100	542
7th Decile	10.5	45.5	8.3	8.3	8.6	7.7	11.1	100	523
8th Decile	16.3	49.8	12.2	0.0	14.2	0.0	7.6	100	527
9th Decile	12.3	63.4	5.2	7.8	7.1	0.0	4.2	100	514
Top Decile	23.4	48.5	8.6	3.4	0.0	4.0	12.1	100	539
Average	14.8	47.7	6.9	4.6	9.4	1.6	15.0	100	5245
Number of Persons	777	2502	361	243	492	83	787	5245	
Summary by Decile Groups									
Average	14.8	47.7	6.9	4.6	9.4	1.6	15.0	100.0	
Lowest Quintile	18.0	33.2	5.7	3.3	15.6	0.0	24.2	100.0	1017.8
Lowest Three Deciles	19.1	40.4	3.8	2.2	14.5	0.0	20.0	100.0	1551.0
Top Quintile	17.8	56.0	6.9	5.6	3.6	2.0	8.1	100.0	1052.8

Table A18b

Primary Source of Sanitation: Rest of the Gilberts										
Ranked by per capita adult equivalent HH expenditure deciles	Public sewage system	Own flush septic tank	Shared flush toilet	Household pit	Closet over sea or water (long drop)	Other	None	N/A	Total	Number of HH by Decile
1st Decile	0.0	7.8	4.4	13.8	28.4	7.3	35.9	2.5	100.0	732
2nd Decile	0.0	5.2	0.0	17.7	40.3	4.1	32.7	0.0	100.0	748
3rd Decile	2.1	21.0	4.2	17.7	24.8	4.7	25.5	0.0	100.0	736
4th Decile	2.5	10.1	3.0	27.7	26.1	6.5	24.1	0.0	100.0	735
5th Decile	0.7	7.0	3.7	22.8	21.2	8.8	35.7	0.0	100.0	750
6th Decile	0.7	7.0	3.8	27.6	23.5	9.9	27.4	0.0	100.0	740
7th Decile	0.7	10.8	1.3	16.7	23.4	13.3	33.6	0.0	100.0	743
8th Decile	2.8	21.2	3.3	27.8	18.0	13.0	13.9	0.0	100.0	739
9th Decile	2.2	17.2	1.3	19.1	28.2	11.6	17.9	2.4	100.0	738
Top Decile	5.4	32.9	2.7	25.9	10.0	13.4	9.7	0.0	100.0	745
Average	1.7	14.0	2.8	21.7	24.4	9.3	25.7	0.5	100.0	7407
Number of Persons	127	1039	205	1606	1806	686	1900	36	7407	
Summary by Decile Groups										
Average	1.7	14.0	2.8	21.7	24.4	9.3	25.7	0.5		
Lowest Quintile	0.0	6.5	2.2	15.7	34.3	5.7	34.3	1.2		1481
Lowest Three Deciles	0.7	11.4	2.9	16.4	31.2	5.4	31.4	0.8		2217
Top Quintile	3.8	25.0	2.0	22.5	19.1	12.5	13.8	1.2		1483

Table A18c

## Primary Source of Sanitation: Line &amp; Phoenix Islands

Ranked by per capita adult equivalent HH expenditure deciles	Public sewage system	Own flush septic tank	Shared flush toilet	Household pit	Closet over sea or water (long drop)	Other, specify	None	Total	Number of HH by Decile
1st Decile	0.0	14.2	14.2	23.8	14.1	0.0	33.8	100.0	732
2nd Decile	8.7	52.1	0.0	12.9	0.0	0.0	26.3	100.0	748
3rd Decile	4.5	13.4	9.8	36.4	4.5	0.0	31.4	100.0	736
4th Decile	4.3	29.5	13.8	35.1	4.3	0.0	13.0	100.0	735
5th Decile	4.3	18.5	3.7	32.9	9.0	4.0	27.7	100.0	750
6th Decile	9.0	25.8	18.8	7.3	4.3	0.0	34.9	100.0	740
7th Decile	4.5	45.2	9.4	17.8	4.5	0.0	18.6	100.0	743
8th Decile	4.8	69.2	4.4	13.3	0.0	0.0	8.4	100.0	739
9th Decile	4.4	39.6	13.6	21.0	0.0	8.1	13.3	100.0	738
Top Decile	0.0	49.1	4.6	21.2	8.3	0.0	16.8	100.0	745
Average	4.5	35.9	9.1	22.1	4.9	1.2	22.4	100.0	7407
Number of Persons	60	483	123	298	65	16	301	1347	
Summary by Decile Groups									
Average	4.5	35.9	9.1	22.1	4.9	1.2	22.4		
Lowest Quintile	4.4	33.1	7.1	18.3	7.1	0.0	30.1		1481
Lowest Three Deciles	4.4	26.6	8.0	24.4	6.2	0.0	30.5		2217
Top Quintile	2.2	44.4	9.1	21.1	4.1	4.0	15.1		1483



**Appendix Table B1**  
**Calculation of Food Poverty Line: Estimated Food Expenditure and Calorie Consumption**

Item	South Tarawa Households										
	A	B	C	D	E	F	G	H	I	J	K
Estimated Annual Expenditure (grossed-up)	CPI/OI price	CPI Unit Kg equiv	Kcal value per 100g	Annual Consumption Kg equiv	100g Unit Equiv Consumed	Total Kcal Value	Annual kcal PAE	Kcal/pAE per day	Cost Per Day Per Cal: A\$	Cost Per Day PAE: A\$	
% of Total Food Consumed	A\$	A\$	=A/B	=E*C(100g units)	=F*D	=G/AE poop	=H/365	=A/G	=J*M		
Rice	718869	0.97	1.00	123	743657	914698327	136841	374.9	0.0008	0.29	
Fish (lagoon)	587809	2.64	1.00	130	222655	289451533	43303	118.6	0.0020	0.24	
Sugar	464296	1.03	1.00	394	449318	1770314772	264843	725.6	0.0003	0.19	
Breadfruit	189645	2.00	1.00	30	94823	28446775	4256	11.7	0.0067	0.08	
Toddy	127347	1.50	0.75	42	84898	26742859	4001	11.0	0.0048	0.05	
Chicken	126051	7.48	0.70	231	16844	27237169	4075	11.2	0.0046	0.05	
Tinned Mackerel	88424	2.13	0.43	290	41611	51286011	7672	21.0	0.0017	0.04	
Chicken (free range)	73194	7.48	0.70	231	9781	15815743	2366	6.5	0.0046	0.03	
Tinned Corned Beef	69034	4.00	0.34	192	17259	11266401	1685	4.6	0.0061	0.03	
Flour	57654	0.89	1.00	349	64780	226081685	33822	92.7	0.0003	0.02	
Noodles	56275	0.43	0.09	99	129866	10928212	1635	4.5	0.0051	0.02	
Cakes incl. Pastries, buns	52764	0.10	0.10	439	527644	231635723	34653	94.9	0.0002	0.02	
Tuna	50820	2.64	1.00	204	19250	39270038	5875	16.1	0.0013	0.02	
Doughnuts	48638	0.10	0.10	439	486377	213519547	31943	87.5	0.0002	0.02	
Bread (sliced, loaf, square, rolls, French)	44602	1.00	0.50	242	44602	53967909	8074	22.1	0.0008	0.02	
Tea	44066	3.40	0.23	5	12961	145807	22	0.1	0.3022	0.02	
Other shell fish n.e.c	40622	2.00	1.00	350	20311	71089017	10635	29.1	0.0006	0.02	
Milk powder	36748	5.40	0.30	334	6805	6818795	1020	2.8	0.0054	0.02	
Tea bun	33385	2.00	1.00	116	16693	19363551	2897	7.9	0.0017	0.01	
Cooking oil	30947	1.57	0.63	878	19754	108398383	16217	44.4	0.0003	0.01	
Condensed milk	20172	0.95	0.34	334	21233	24112655	3607	9.9	0.0008	0.01	
Coconut	19497	0.20	0.30	283	97485	82765175	12382	33.9	0.0002	0.01	
Soya sauce	17442	1.43	0.63	33	12169	2509797	375	1.0	0.0069	0.01	
Other milk (flavoured, zap, milk shake)	14644	0.80	0.33	66	18305	3986847	596	1.6	0.0037	0.01	
	3012946										
							L	1734		1.23	
							M	2200	per day	1.57	
							N	0788	per week	10.97	

**Appendix Table B2**  
**Calculation of Food Poverty Line: Estimated Food Expenditure and Calorie Consumption**

Rural Households: Rest of Gilberts												
Lowest Three Deciles of PCAE Total Weekly Expenditure												
Item	Estimated Annual Expenditure (grossed-up)	% of Total Food Consumed	CPI/OI price	CPI Unit Kg equiv	Kcal value per 100g	Annual Consumption Kg equiv	100g Unit Equiv Consumed	Total Kcal Value	Annual kcal PAE	Kcal pAE per day	Cost Per Day Per Cal: A\$	Cost Per Day PAE: A\$
A	B	C	D	E	F	G	H	I	J	K		
A\$	A\$			=A/B	=E'C(100g units)	=F'D	=G/AE pop	=H/365	=A/G	=J*M		
Rice	1657470	24.1	0.97	1.00	123	1714624	2108987575	3633	0.0008	0.29		
Fish (lagoon)	1047288	15.2	1.00	1.00	130	1047288	1361474502	2345	0.0008	0.18		
Sugar	964924	14.0	1.03	1.00	394	933797	3679161192	6338	0.0003	0.17		
Breadfruit	566346	8.2	1.00	1.00	30	566346	169903938	293	0.0033	0.10		
Toddy	423947	6.2	0.50	0.75	42	847895	267086894	46.0	0.0016	0.07		
Flour	274228	4.0	0.89	1.00	349	308122	1075344828	185.2	0.0003	0.05		
Tinned Mackerel	207447	3.0	2.13	0.43	290	97622	120319277	7565	0.0017	0.04		
Other fresh vegetables	188138	2.7	4.38	1.00	65	42921	27898718	1754	0.0067	0.03		
Tea	127039	1.8	3.40	0.23	5	37364	420349	26	0.3022	0.02		
Coconut	124209	1.8	0.05	0.30	283	2484185	2109073329	132611	0.0001	0.02		
Tinned Corned Beef	98505	1.4	4.00	0.34	192	24626	16076095	1011	0.0061	0.02		
Doughnuts	90783	1.3	0.10	0.10	439	907829	398536944	25059	0.0002	0.02		
Bread (sliced, loaf, square, rolls, French)	84076	1.2	1.00	0.50	242	84076	101732426	6397	0.0008	0.01		
Noodles	75056	1.1	0.43	0.09	99	173206	14575279	916	0.0051	0.01		
Te mwanai (crabs)	53590	0.8	1.00	1.00	109	53590	58412832	3673	0.0009	0.01		
Salt	51868	0.8	0.65	1.00	1	80416	804160	51	0.0645	0.01		
Tuna	50342	0.7	1.00	1.00	204	50342	102697232	6457	0.0005	0.01		
Cakes incl. Pastries, buns	47040	0.7	0.10	0.10	439	470397	206504098	12984	0.0002	0.01		
Yagona	45510	0.7	5.00	1.50	6	9102	819172	52	0.0556	0.01		
Chicken (free range)	43161	0.6	7.48	0.70	231	5768	9326335	586	0.0046	0.01		
Cooking oil	37301	0.5	1.57	0.50	878	23809	104521840	6572	0.0004	0.01		
Te taari (salt fish)	32249	0.5	1.00	1.00	185	32249	59661021	3751	0.0005	0.01		
Other meat n.e.c	28721	0.4	3.20	1.00	198	8975	17771196	1117	0.0016	0.00		
Pandanus fruit	28330	0.4	0.50	1.00	86	56660	48727679	3064	0.0006	0.00		
	6347569	92.4										
								L		2077		1.09
								M		2100	per day	1.11
								N		0.99	per week	7.74

**Appendix Table B3**  
**Calculation of Food Poverty Line: Estimated Food Expenditure and Calorie Consumption**

Item	Line & Phoenix Households											Cost Per Day PAE: A\$
	A	B	C	D	E	F	G	H	I	J	K	
	Estimated Annual Expenditure (grossed-up)	CPI/OI price	CPI Unit Kg equiv	Kcal value per 100g	Annual Consumption Kg equiv	100g Unit Equiv Consumed	Total Kcal Value	Annual kcal PAE	Kcal/pAE per day	Cost Per Day Per Cal: A\$	Cost Per Day PAE: A\$	
							=F*D	=G/AE pop	=H/365	=A/G	=J/M	
Toddy	A\$ 203309	0.50	0.75	42	406618	3049634	128084627	113887	312.0	0.0016	0.50	
Rice	116358	0.97	1.00	123	120370	1203699	148054917	131644	360.7	0.0008	0.28	
Fish (lagoon)	114314	1.00	1.00	130	114314	1143137	148607875	132136	362.0	0.0008	0.28	
Breadfruit	29068	1.00	1.00	30	29068	290677	8720325	7754	21.2	0.0033	0.07	
Sugar	23883	1.03	1.00	394	23112	231122	91062071	80969	221.8	0.0003	0.06	
Pumpkin	15289	3.00	1.00	44	5096	50962	2242345	1994	5.5	0.0068	0.04	
Coconut	14866	0.05	0.30	283	297326	891979	252429966	224450	614.9	0.0001	0.04	
Tinned Mackerel	13823	2.13	0.43	290	6505	27645	8017053	7128	19.5	0.0017	0.03	
Tinned Corned Beef	12607	4.00	0.34	192	3152	10716	2057490	1829	5.0	0.0061	0.03	
Other fresh vegetables	11900	4.38	1.00	65	2715	27149	1764664	1569	4.3	0.0067	0.03	
Te laari (salt fish)	10242	1.00	1.00	185	10242	102422	18948053	16848	46.2	0.0005	0.02	
Te mwanai (crabs)	8801	1.00	1.00	109	8801	88014	9593558	8530	23.4	0.0009	0.02	
Te were	8608	2.00	1.00	110	4304	43040	4734387	4210	11.5	0.0018	0.02	
Tuna	8566	1.00	1.00	204	8566	85656	17473736	15537	42.6	0.0005	0.02	
Noodles	8228	0.43	0.09	99	18988	16140	1597861	1421	3.9	0.0051	0.02	
Fruits or fruit products n.e.c	7562	4.08	1.00	30	1853	18534	556008	494	1.4	0.0136	0.02	
Tea	7466	3.40	0.23	5	2196	4941	24703	22	0.1	0.3022	0.02	
Chicken (free range)	7292	7.48	0.70	231	974	6821	1575747	1401	3.8	0.0046	0.02	
Pawpaws	6908	1.00	1.00	51	6908	69082	3523202	3133	8.6	0.0020	0.02	
Flying fish	6821	2.00	1.00	130	3411	34107	4433920	3942	10.8	0.0015	0.02	
kamimai	6673	3.00	0.75	217	2224	16683	3620291	3219	8.8	0.0018	0.02	
Pandanus fruit	6512	0.50	1.00	86	13023	130234	11200123	9959	27.3	0.0006	0.02	
	649095											
								L	2115.3		1.58	
								M	2100	per day	1.57	
								N	1.01	per week	10.99	

Appendix Table B4  
**Calculation of Food Poverty Line: Estimated Food Expenditure and Calorie Consumption**

Item	Estimated Annual Expenditure (grossed-up)	% of Total Food Consumed	CPI/price	CPI Unit Kg equiv	Kcal value per 100g	Annual Consumption Kg equiv	100g Unit Equiv Consumed	Total Kcal Value	Annual kcal PAE	Kcal pAE per day	Cost Per Day Per Cal: A\$	Cost Per Day PAE: A\$
	A\$		A\$			=A/B	=E*C(100g units)	=F*D	=G/AE pop	=H/365	=A/G	=J*M
Rice	2494283	23.1	0.97	1.000	123	2580293	25802931	3173760473	133839	366.7	0.0008	0.29
Fish (lagoon)	1751680	16.2	1.55	1.000	130	1127793	11277932	1466131117	61828	169.4	0.0012	0.20
Sugar	1453649	13.4	1.03	1.000	394	1406757	14067575	5542624516	233735	640.4	0.0003	0.17
Breadfruit	785161	7.3	1.24	1.000	30	631772	6317719	189531578	7993	21.9	0.0041	0.09
Toddy	757148	7.0	0.67	0.750	42	1131648	8487363	356469256	15032	41.2	0.0021	0.09
Flour	333637	3.1	0.89	1.000	349	374873	3748726	1308305334	55172	151.2	0.0003	0.04
Tinned Mackerel	309874	2.9	2.13	0.425	290	145823	619748	179726875	7579	20.8	0.0017	0.04
Other fresh vegetables	199776	1.8	4.38	1.000	65	45576	455762	29624506	1249	3.4	0.0067	0.02
Tinned Corned Beef	180458	1.7	4.00	0.340	192	45114	153389	29450715	1242	3.4	0.0061	0.02
Tea	178615	1.7	3.40	0.225	5	52534	118201	591004	25	0.1	0.3022	0.02
Coconut	158599	1.5	0.07	0.300	283	2314107	6942322	1964677008	82851	227.0	0.0001	0.02
Doughnuts	140587	1.3	0.10	0.100	439	1405873	1405873	617178341	26027	71.3	0.0002	0.02
Noodles	139796	1.3	0.43	0.085	99	322606	274215	27147304	1145	3.1	0.0051	0.02
Chicken	138127	1.3	7.48	0.700	231	18458	129205	29846413	1259	3.4	0.0046	0.02
Bread (sliced, loaf, square, rolls, French)	131518	1.2	1.00	0.500	242	131518	657591	159136965	6711	18.4	0.0008	0.02
Chicken (free range)	124032	1.1	7.48	0.700	231	16574	116021	26800830	1130	3.1	0.0046	0.01
Tuna	109997	1.0	1.76	1.000	204	62440	624400	127377511	5372	14.7	0.0009	0.01
Cakes incl. Pastries, buns	99971	0.9	0.10	0.100	439	999710	999710	438872594	18507	50.7	0.0002	0.01
Cooking oil	68851	0.6	1.57	0.500	878	43948	219738	192929589	8136	22.3	0.0004	0.01
Salt	63477	0.6	0.65	1.000	1	98413	984133	984133	42	0.1	0.0645	0.01
Other shell fish n.e.c	62508	0.6	1.48	1.000	350	42238	422383	147833996	6234	17.1	0.0004	0.01
Te mwanai (crabs)	62392	0.6	1.00	1.000	109	62392	623924	68007685	2868	7.9	0.0009	0.01
Milk powder	59714	0.6	5.40	0.300	334	11058	33175	11080298	467	1.3	0.0054	0.01
Yagona	45406	0.4	5.0000	1.500	6	9081	136217	817304	34	0.1	0.0556	0.01
Soya sauce	42594	0.4	1.43	0.625	33	29717	185731	6129131	258	0.7	0.0069	0.00
Te Taari (salt fish)	42561	0.4	1.00	1.000	185	42561	425614	78738655	3320	9.1	0.0005	0.00
Pawpaws	38225	0.4	1.49	1.000	51	25660	256597	13086426	552	1.5	0.0029	0.00
Condensed milk	36975	0.3	0.95	0.340	334	38921	132332	44198807	1864	5.1	0.0008	0.00
	100009611	92.6										
										L		1.16
										M		2100 per day
										N		0.89 per week





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