Living Income Report

Rural Côte d'Ivoire

Cocoa growing areas

By: Ivorian Center for Socio Economic Research (CIRES)

Supported by the

Federal Ministry
for Economic Cooperation
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iseal alliance

SUSTAINABLE FOOD LAB

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

TABLE OF CONTENTS

Executive Summary

This report presents a living income benchmark for cocoa producing areas of Côte d'Ivoire. The benchmark was supported by the German Federal Ministry for Economic Cooperation and Development and commissioned by GIZ in the scope of the Living Income Community of Practice (LI CoP). The LI CoP brings together sustainability standards systems, businesses, government bodies, NGOs, finance and producer groups to support activities focused on improving smallholder incomes and enabling farmers to achieve a decent standard of living. Through this study and a sister study in Ghana, the Community aims to establish credible, robust living income benchmarks for critical cocoa growing regions in the two countries and contribute to the dialogue on how to help farmers reach these benchmarks.

Our living income estimate in rural cocoa growing regions of Côte d'Ivoire (Gôh, Loh Djiboua, Nawa, Mé, Agnéby, Tonkpi, Indénié-Djuablin, Sud-Comoé and San-Pedro) is CFA 262,056 (US$454) per month for a typical family of two adults and four children.

Table 1 provides a summary of the calculation of the living income benchmark estimates **based on actual costs of living in August 2018** at a basic standard of decency for the reference family. The estimates include CFA 124,625 (US$216) for food, CFA 29,850 (US$52) for housing, CFA 95,102 (US$165) for non-food non-housing expenses (e.g., healthcare, education, clothing, transport, communications, furniture and other household expenses, etc.) and an addition of CFA 12,479 (US$22) to allow the family to face unplanned or occasional events (e.g. funerals, illnesses, marriages, etc.) to ensure families do not easily fall into poverty. We used the comprehensive and widely accepted Anker methodology[1] for this estimation of living income, representing the amount of profit from all sources of household income that would be necessary to cover living expenses for the family.

Table 1: Living income benchmark for a family of two adults and four children in rural cocoa growing regions of Cote d'Ivoire

Item	CFA per month	US$ per month[2]
Food costs per month	124,625	216
Housing costs per month	29,850	52
Non-food non-housing costs per month	95,102	165
Additional 5% for sustainability and emergencies	12,479	22
Total costs per month for basic but decent living standard for family of 2 adults and 4 children	**262,056**	**454**

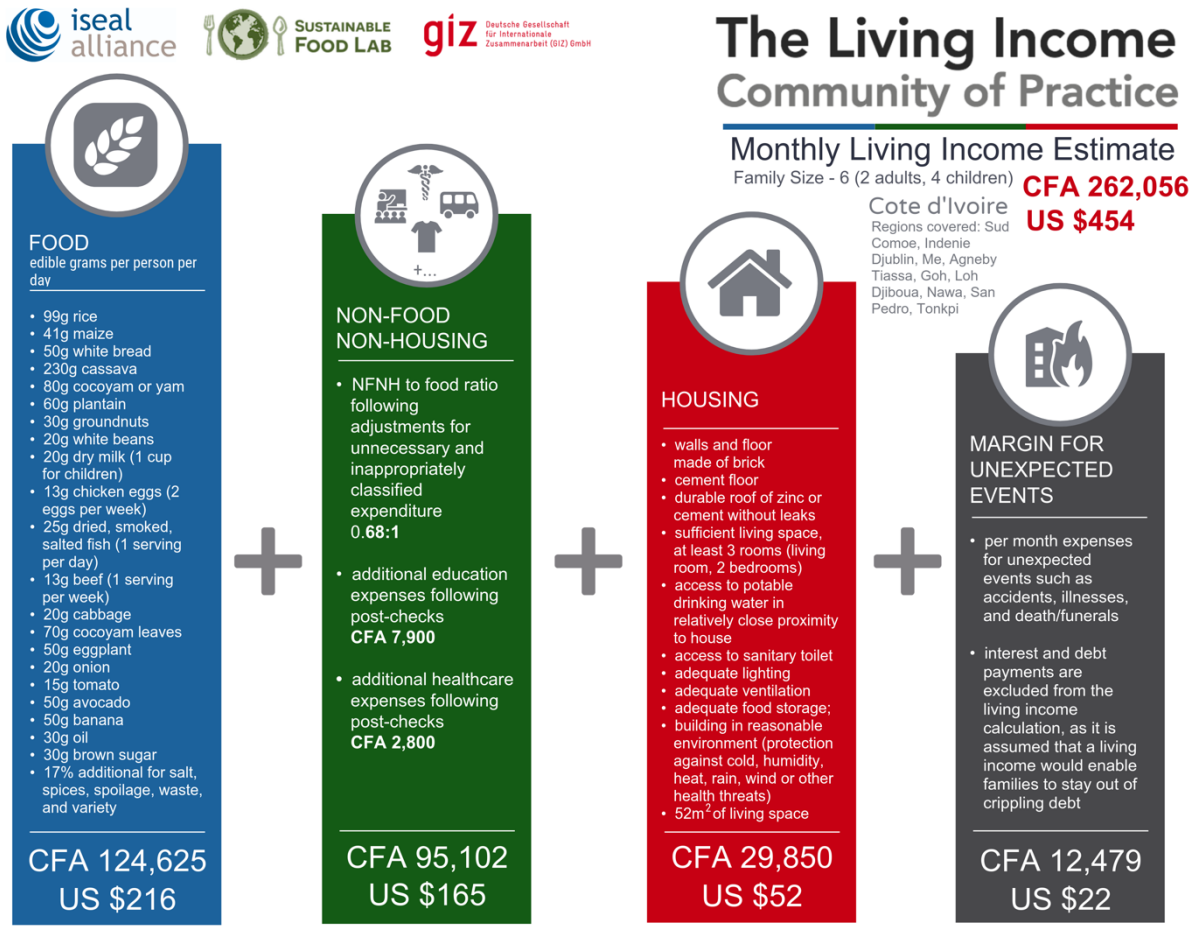
Source: The Authors

The following Figure 1 gives more details on the composition of the living income estimates.

[1] Anker and Anker, 2017

[2] Based on rate of US dollar to CFA on August 17, 2018: 576.81

Figure 1: Living income benchmark composition for rural cocoa growing regions of Côte d'Ivoire



Source: The Authors

For the benchmark calculation, we used a judicious mix of firsthand primary data and high quality national and international secondary data. The primary data was collected at several selected sites of the nine major cocoa regions of Cote d'Ivoire between July and August 2018 with the active involvement of the Coffee-Cocoa Council (Le Conseil Café-Cacao). The purpose was to gather information related to food and housing costs and crosscheck secondary data on education, healthcare and transportation expenditures for cocoa growing households.

Food cost was computed based on a low-cost nutritious diet, respecting international standards (FAO and WHO) and consistent with local food preferences. The model diet includes food items which are locally available, affordable and commonly consumed by cocoa growing households. The food prices were predominantly collected in villages as guided by focus group discussions on where food is purchased. In total, we collected around 1,200 prices from close to 400 different vendors, including vendors in open air markets and shops. To estimate the housing costs, we started by defining our housing standard, respecting minimum international standards for decency, and adapted to local conditions. We then collected local rental costs of houses meeting this standard. The costs of non-food, non-housing expenditures were calculated based on a ratio from secondary data on household

expenditure to food costs[3]. We crosschecked that sufficient funds were included in our non-food, non-housing estimates for education and healthcare needs based on primary data collected in the field.

Our living income benchmark for rural cocoa regions is around twice the World Bank's US$3.20 PPP[4] poverty line for middle-income countries and Côte d'Ivoire's national upper poverty line.

In order to assess the gap between our living income benchmark and actual incomes, KIT Royal Tropical Institute analysed actual incomes of cocoa growing households, based on data collected in 2017 on 3,045 farming households in cocoa growing areas of Ghana and Côte d'Ivoire.

The KIT team[5] estimated that, on average, typical male-headed households[6] with less than four hectares of productive cocoa earn 36.1% of the living income benchmark, and only 6.9% of the households of this group had incomes which met or exceeded the living income benchmark. Male-headed households with large land size (more than four hectares) earn on average 92% of the living income benchmark. But only 32.5% of the male-headed, large households had incomes which met or exceeded our living income estimate. Across the whole sample, only 13% of the households had incomes which met or exceeded the living income benchmark. (see Figure 2).

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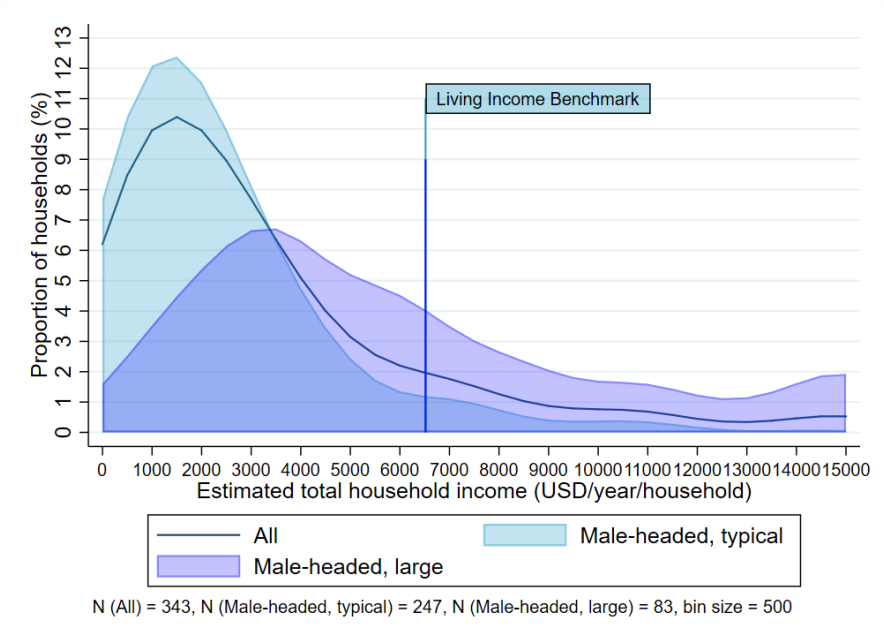
[3] We computed the non-food, non-housing (NFNH) to food ratio from secondary data on household expenditures and then applied this ratio to the food costs calculated earlier from primary data to derive a new estimate for NFNH

[4] The World Bank Purchasing Power Parity or PPP is based on 2011 prices

[5] Bymolt, Laven and Tyszler, 2018

[6] According to the KIT researchers, as the number of observations within the female-headed analytical group was too small, they decided to not report further statistics from this group, because the confidence level and representativeness was too low and analysis would be misleading.

Figure 2: Distribution of total incomes of cocoa growing households, grouped into 'typical' male-headed households (less than 4ha cocoa) and large male-headed households (≥ 4ha cocoa), and comparison with adjusted living income benchmarks for each group. Value of food crops grown on farm and consumed at home is not included.



Source: Tyszler, Bymolt and Laven, 2018

For interpreting this study's results, it should be considered that KIT's comprehensive survey data was not specifically designed to measure actual income. Some major limitations[7] of accurately measuring actual income are outlined in the study. This means that their the findings should be taken as indication only. Nevertheless, it is clear that there is an important gap between actual income and the living income. That does not mean the living income was unrealistic or over-estimated. It is important to emphasise that our living income estimates are based on conservative assumptions adapted to the local context. For example, cassava and rice provide close to 35% of the diets' calories while a sufficient amount of protein is provided mainly by cheap smoked or dried fish, commonly consumed, and supplemented with low-cost protein sources such as beans and groundnut. The housing cost estimates are derived from local rental prices for basic but decent dwellings, respecting minimum standards. We also assume that cocoa growers' children attend government public schools, not private schools.

That said, closing the gap between actual income and living income is not the responsibility of only one actor. It will be a joint effort of all the cocoa sector's stakeholders in the country, including the producer as the centerpiece. No single factor will be determinative in improving the current situation. The strategy will be to identify along the chain, from the production side to the marketing side, all potential sources of improvement and act collegially to move forward in improving cocoa smallholders' living standards.

[7] An important limitation is the fact that the value of food produced by farmers and consumed at home was not part of actual income calculations because of the complexity of getting reliable data

Our hope is that this report and our estimates of a living income benchmark will be an important tool in measuring progress along the way to help the ongoing process of stakeholder dialogue in improving fair income distribution in the cocoa sector in Côte d'Ivoire.

About the Authors

This report was prepared by the Ivorian Centre for Socio Economic Research (CIRES) under the general supervision of Dr. Diarra Ibrahim (Director of CIRES) and Yapo G. N'Guessan, Ph. D. as Team Leader on the study. The study team comprised the following main researchers: Abdoulaye Kouma, Andjou Chantal Eluh, Tidiane Kamagaté, Diarra Lacina and Aka Aka Bekroudjobehon. The fieldwork team consisted of: Dr. Affessi Adon Simon, Anoa Assemian, Sitionan Tenan, Kouakou Aya Larissa, N'Goran N'Guessan Olivier, Kossonou Bernard, Gondo Marcel Pecaraire and Yapi Assi Sosthène.

Backstopping was provided by Michelle Bhattacharyya (On-Up) and Dr. Levison Chiwaula from the University of Malawi.

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Finally, we would like to thank all the stakeholders in the cocoa sector for their involvement in this study, including the cocoa farming communities we visited, food vendors, school officials and healthcare providers.

Key Abbreviations

BCEAO Banque Centrale des Etas de l'Afrique de l'Ouest

CFA Communauté Financière Africaine (West African Franc)

CPI Consumer Price Index

DHS Demographic and Health Survey

ENV Enquête sur le Niveau de Vie des ménages

FAO Food and Agriculture Organization of the United Nations

GDP Gross Domestic Product

GIZ Deutsche Gesellschaft für Internationale Zusammenarbeit (German development agency)

GLWC Global Living Wage Coalition

ha hectare

HH household

IMF International Monetary Fund

INS Institut National de la Statistique

JHS Junior High School

kg kilogram

KIT Royal Tropical Institute [of The Netherlands]

MDG Millennium Development Goals

NFNH non-food non-housing [expenditure]

PAL Physical Activity Level

PPP Purchasing Power Parity

SHS Secondary High School

TFR total fertility rate

U5MR under-five mortality rate

US$ United States dollars

WHO World Health Organization

Living Income Estimates

Rural Côte d'Ivoire

Smallholder cocoa producers

Section I: Introduction

1. BACKGROUND

The living income estimate set forth in this report is intended to cover rural regions of Côte d'Ivoire, primarily located in the south. These areas were selected as they are the major production zones for cocoa and provide a representative observation of the different costs of living in regions where smallholder farmers produce cocoa.

This report uses the Anker Methodology to calculate costs of living and to establish a living income benchmark. The Anker Methodology was originally developed by living wage experts Richard Anker and Martha Anker. It is used widely by the Global Living Wage Coalition and has obtained acceptance as the most accurate measure available for costs of living and living wage in a given place and time. The Anker Methodology is published in its entirety and is available to download free of charge for anyone wishing to further understand the methodology that contributed to this living income estimate.

The Anker Methodology was used for this study due not only to its ability to accurately estimate cost of living and living income, but also because it adheres to the following key principles important to all living income estimates:

- Transparency
- Normative
- Time and place specific
- Internationally comparable
- Universal relevancy
- Practical and with relatively modest cost of estimation

Currently, the Global Living Wage Coalition (GLWC) has published 24 estimates of living wage with eight additional studies underway across 20 countries using the Anker Methodology. This Côte d'Ivoire study is the second of two studies carried out by the Living Income Community of Practice to adapt the Anker Methodology fully to the living income context. The first study conducted was completed in neighboring Ghana.

The Living Income Community of Practice is an alliance of partners dedicated to the vision of thriving, economically stable, rural communities linked to global food and agricultural supply chains. The goal of this community is to support activities focused on improving smallholder incomes toward living incomes, aiming to enable smallholder farmers to achieve a decent standard of living. This community is a result of a partnership between The Sustainable Food Lab, GIZ and the ISEAL Alliance.

The Living Income Community of Practice with leadership from GIZ, ISEAL Alliance and Sustainable Food Labs commissioned this work with support from the German Federal Ministry for Economic Cooperation and Development. Furthermore, GIZ has provided the leadership necessary to bring it to its completion.

2. LIVING INCOME ESTIMATE

Our estimate of a **living income for rural cocoa regions in Côte d'Ivoire for August 2018 is CFA 262,056 (US$454) per month**. This is the net income required for a decent standard of living for a typical family of two adults and four children based on actual costs of living at a basic standard of decency. The breakdown of costs is summarised in the following Table 2. The remainder of this report provides a detailed explanation of how our living income was estimated.

Table 2: Living Income estimate

Item	CFA	($)[8]	%
Food costs per month	124,625	216	48
Housing costs per month	29,850	52	11
Non-food non-housing costs per month	95,102	165	36
Additional 5% as provision for unforeseen events and emergencies	12,479	22	5
Total costs per month for basic but decent living standard for family of 2 adults and 4 children	**262,056**	**454**	**100**

Source: The Authors

The remainder of this report provides a detailed explanation of how our living income was estimated using the Anker methodology[9]. A lot of effort was invested in providing as detailed a report as possible because we feel that transparency is essential; it is important that all stakeholders should be able to understand the basis for our living income estimate. It was also critical to us that this report receive as wide acceptance as possible and that the parties consider the estimate to be credible and representative of costs in cocoa growing areas in rural Côte d'Ivoire regardless of

[8] US$1 = 576.86 as the rate of US dollar to CFA (Aug. 17th, 2018)

[9] See living wage/income manual; Anker (2006)

whether or not smallholder households are able to earn this income now or in the near future. Transparency will also help the ongoing process of stakeholder dialogue in improving fair income distribution in the cocoa sector in Côte d'Ivoire.

3. CONTEXT

3.1 Côte d'Ivoire: lower middle-income economy with high levels of rural poverty

Côte d'Ivoire is located on the west coast of Africa between Liberia and Ghana. Other neighbouring countries are Guinea, Mali and Burkina Faso. According to the last census in 2014, Côte d'Ivoire had 22.67 million inhabitants with Ivorian origin. Additionally, another 5.5 million people from other countries live in Côte d'Ivoire. The land area of the country covers 322,462 km^2 with a population density of 70.3 people per square kilometer. 77.7% of the inhabitants are younger than 35 and 41.5% are younger than 15. Over the last decade, the country has experienced rapid urbanisation. In 2014, 50.3% of the population lived in urban areas, compared to 42.3% in 1998.[10]

The economic crisis in the 1980s, partly caused by the collapse of agricultural commodity prices, was followed by a military and political crisis between 2002 and 2011.[11] This crisis was a massive setback for the country, which, at least when compared to most of its neighbouring countries, had prospered until the beginning of the 1980s.

Since 2011, the economy of the country has stabilised. The GDP grew by roughly 8% annually between 2012 and 2017.[12] According to the IMF, Côte d'Ivoire's GDP was 23,510 billion CFA (US$40.5 billion) in 2017, and the nominal GDP per capita 942,000 CFA (US$1,622). The IMF projects a continuation of this growth with an average annual rate of roughly 7% for the years 2018 to 2022.[13] The average inflation rate in Côte d'Ivoire over the period 2010 – 2016 is 0.7% below the community average of 1.4% (BCEAO, 2016).[14]The World Bank defines the country as belonging to the group of "Lower middle-income countries". According to the "Atlas Method" of the World Bank, average per capita income in 2015 was US$1,420. Calculations based on Purchasing Power Parity resulted in US$3,260 per capita.[15]

3.2. Poverty rates

During the three decades of economic political crisis, poverty rates increased tremendously. The National Statistical Office (Institut National de la Statistique – INS) defines poverty in 2015 as an income below CFA 269,075 per year (US$446).[16]

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10 République de Côte d'Ivoire (2017)

11 République de Côte d'Ivoire (2017)

12 IMF (2017)

13 IMF (2018)

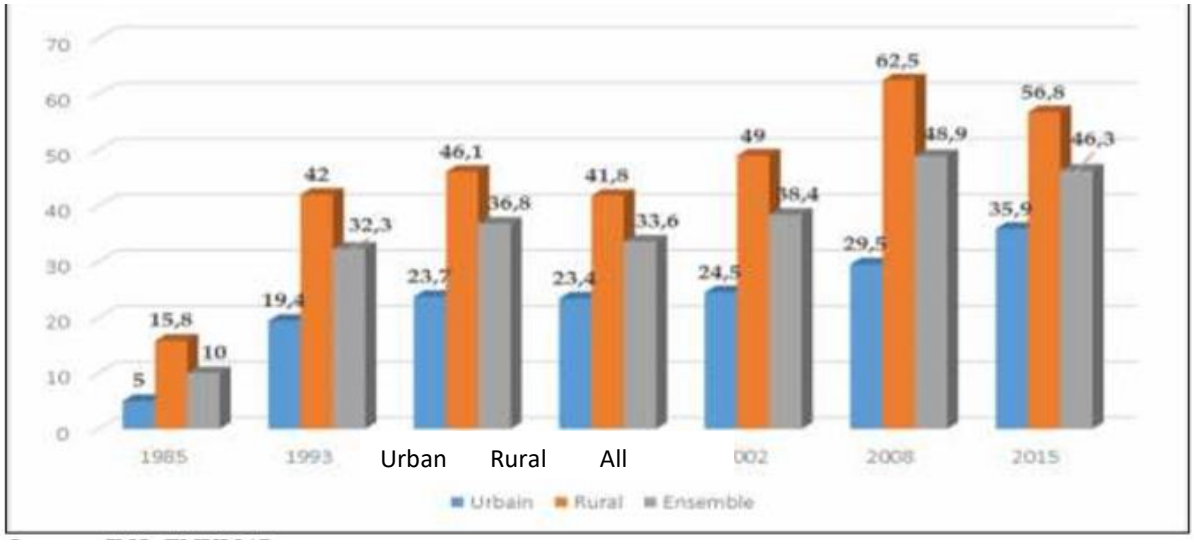
14 BCEAO (2016)

15 World Bank (2017)

16 Conversion rate in June 2015 according to

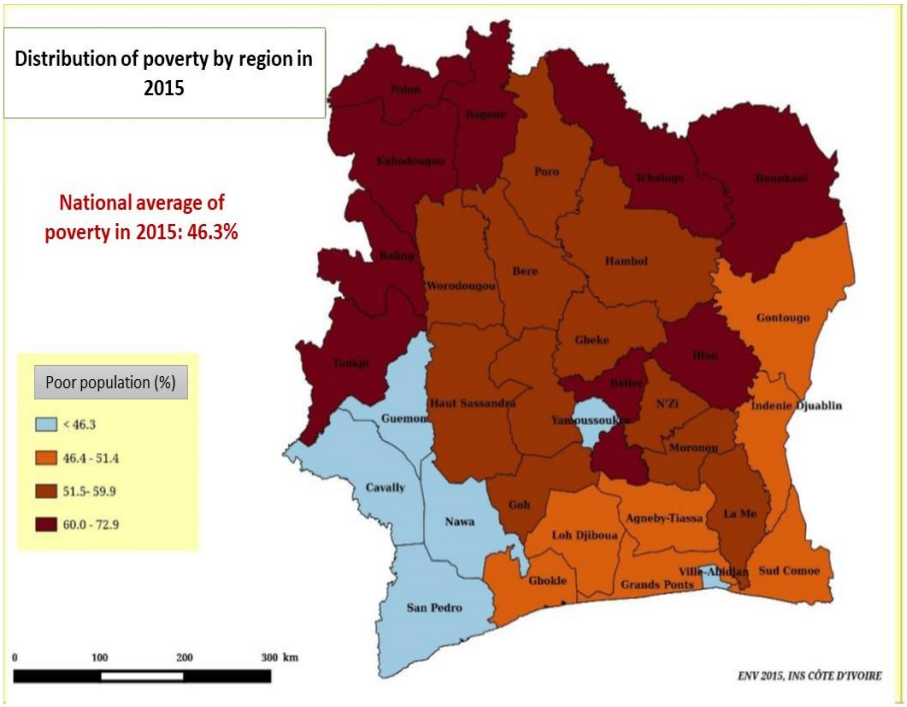
According to this definition, in 2015, 56.8% of the rural and 35.9% of the urban population lived in poverty. The overall poverty level was 46.3%, compared to 10% in 1985. The highest poverty levels were registered in the northeast and northwest regions and in some areas in the centre of the country. Despite higher living costs, poverty rates in urban districts are generally lower than in rural areas.[17]

Fig. 3: Development of poverty rates between 1985 and 2015



Source: INS 2015: 22

Fig. 4: Distribution of poverty in 2015



Source: INS 2015: 24

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http://ec.europa.eu/budget/contracts_grants/info_contracts/inforeuro/index_de.cfm

[17] INS (2015)

Poverty in urban and rural areas differs significantly across the country. Huge parts of the cocoa growing regions in southern Côte d'Ivoire have poverty levels that are lower than the country average. Nonetheless, in some urban and rural areas in the southern regions, poverty rates are as high as 50% and up.[18] Poverty leads to malnutrition. In 2016, 44% of the smallholder households in the country declared themselves to be suffering from a lack of money to buy sufficient food.[19]

The government has set up specific programs to tackle poverty. One approach is the rollout of a Universal Healthcare Insurance and the effort to guarantee universal healthcare coverage through the improvement of health services infrastructure. Additionally, the government wants to invest significantly in the education system. Another step is the implementation of a system for cash transfers for poor households which is specifically aimed at supporting children in attending school and gaining access to health services.[20]

Côte d'Ivoire missed nearly all Millennium Development Goals, including those concerning poverty and hunger (MDG1), the achievement of universal primary education (MDG2), the promotion of gender equality and the empowerment of women (MDG3), a significant reduction in child mortality rate (MDG4) and improved maternal health (MDG5).[21]

Statistics from the UNDP Human Development Index (HDI) have revealed that the situation in the country has improved in recent years, yet in 2015, the HDI value of 0.474 was still lower than the average in Sub-Saharan Africa (0.523). The country rank was 171 out of the 188 countries listed. The average life expectancy of 51.9 years was significantly lower than the average of 58.9 years in Sub-Saharan Africa. Expected years of schooling (8.9 years), mean years of schooling (5.0) and GNI (3.163 in 2011 PPP US$) per capita were slightly lower than average.[22]

Healthcare costs often pose a heavy financial burden on the poor specifically; out-of-pocket payments as a share of total health expenditure[23] represented more than 55% in 2012. And basic health indicators reveal that the healthcare system needs major improvement to reach the SDGs. The prevalence of child malnutrition and stunting is 29.6% for children under the age of five (2008-2015), the under-five mortality rate is 93 children per 1,000 live births (2015) and the maternal mortality ratio of 645 deaths per 100,000 births remains high.[24]

But access to basic healthcare center centres has improved recently. 80.4% of the villages have a basic first aid health centre (Etablissement Sanitaire de Premier

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18 INS (2015)

19 Riquet/Musiime/Marita 2017

20 IMF (2017); IMF (2018)

21 For details see http://www.mdgtrack.org/popup-country.php?t=popup&c=CIV

22 UNDP (2016)

23 WHO (2014)

24 World Bank (2017)

Contact - ESPC) or are less than five km away from such an institution, clinic or hospital.[25]

The education system is also facing massive challenges. The primary completion rate of the relevant age group reaches only 63% (2011-2016), the literacy rate for youths aged 15 to 24 is at a level of 50% (2006-2015).[26]

Attending school in Côte d'Ivoire should be free of charge, but due to insufficient funding and an inadequate schooling infrastructure, households pay a significant portion of expenses in the current education system. Households contribute 37% to the costs of preschools, 31% of primary schools, 47% of colleges, 43% to grammar schools, 35% to technical education and vocational training and 34% to higher education.[27]

In rural areas, 78.8% of villages have their own primary schools; 17.4% of the rural villages are within one to 10 km of the nearest primary school; 3.8% of the villages are more than 10 km from a primary school. Higher education remains a challenge. Only 5.6% of the rural villages have a college or high school; 64.5% only have access to colleges or other secondary schools that are more than 10 km away from the village.[28]

Infrastructure in rural areas is especially in need of a major upgrade. Only 12.7% of the villages are connected to a water supply from the state supplier SODECI; 50.1% of the villages have a common pump and 15.7% of the citizens have access to a well.[29]

3.3 Importance of the cocoa sector in the economy of Côte d'Ivoire

Cocoa production is a crucial factor for the livelihoods of smallholder farmers in Côte d'Ivoire. There is no comprehensive and authorised database on the number of cocoa farmers, the size of their farms, and productivity available. The government plans to create a cadastre of cocoa farms. This is politically sensitive as conflicts about land ownership were one of the elements fueling the civil war in the past. The combination of insufficient data and an interest in not talking about where a part of the cocoa production originated makes it very difficult to give exact figures on cocoa production in specific regions.

Having stated this, it is possible to derive some general information. The developments in the cocoa sector have a huge impact on the well-being of a large number of Côte d'Ivoire citizens. At least 800,000 households earn a significant part of their income by producing and selling cocoa and development in the cocoa sector affects the livelihoods of millions of people in the country.[30]

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25 République de Côte d'Ivoire (2017)

26 World Bank (2017)

27 Gouvernement de la Côte d'Ivoire (2016)

28 République de Côte d'Ivoire (2017)

29 République de Côte d'Ivoire (2017)

30 Hütz-Adams/Huber/Knoke/Morazán/Mürlebach (2016)

Overall, cocoa is grown by 66% of the farmers in the forest areas. It is by far the most important cash crop for Côte d'Ivoire.[31] The cocoa sector, and on a much smaller level the coffee sector, have a great influence on the Ivorian economy. Approximately 60% of the areas where export crops are grown are used for the production of cocoa, and to a much smaller extent, for coffee. During the last several years, 40% of the export earnings, 70% of the agricultural income and 30% of the state's tax revenue was derived from these crops, again mostly from cocoa.[32]

According to preliminary figures from the IMF, Côte d'Ivoire exported goods worth CFA 6,861 billion in 2017, of which CFA 2,904 billion, roughly 42%, were generated by the cocoa sector. The IMF projects that dependence on cocoa will decline in the coming years but cocoa will remain by far the most important export product.[33]

The cocoa sector has a crucial influence on the ability of the government to invest in infrastructure and increase overall government spending. According to IMF estimates, a "1 percent increase in cocoa export revenues is associated with a 0.63 percent increase in real government spending".[34]

Due to this dependence, fluctuations in the price of cocoa are not only a huge challenge for the farmers and their families, but also for the government of Côte d'Ivoire. The decline in the price of cocoa starting in September 2016 led to a significant decrease in tax income in 2017, forcing the government to reduce budgets. Despite the reduction in spending, the deficit in the current account balance rose to more than 2%.[35]

The close link between the growth rate in per capita income and the price of cocoa still exists, but has been weakened during recent years due to a stronger diversification of the economy. Nonetheless, the decline in cocoa prices still has a high impact not only on the livelihoods of cocoa producers, but also on the fiscal revenues of the government and the overall growth of the economy.[36]

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31 Riquet/Musiime/Marita (2017)

32 République de Côte d'Ivoire (2017)

33 IMF (2018)

34 IMF (2016)

35 IMF (2017)

36 IMF (2018)

4. METHODOLOGY FOR DATA COLLECTION IN TARGETING LOCALITIES IN COCOA PRODUCTION AREAS

Fig. 5: Côte d'Ivoire division into regions

Administrative regions in Côte d'Ivoire

Areas of study and major towns marked in yellow

A typical region is divided into departments which include a varying number of sub-prefectures. For each region, the data collection was based on the following rationale:

- Region of Gôh: 1 Department + 1 Sub-prefecture + 1 Village;
- Region of Loh Djiboua: 1 Department + 1 Sub-prefecture + 1 Village;
- Region of Nawa: 1 Department + 1 Sub-prefecture + 1 Vvllage;
- Region of Mé: 1 Department + 1 Sub-prefecture + 1 Village;
- Region of Agnéby: 1 Department + 1 Sub-prefecture + 1 Village;
- Region of Tonkpi: 1 Department + 1 Sub-prefecture + 1 Village;
- Region of Indénié-Djuablin: 1 Department + 1 Sub-prefecture + 1 Village;
- Region of Sud Comoé: 1 Department + 1 Sub-prefecture + 1 Village;
- Region of San-Pedro: 1 Department + 1 Sub-prefecture + 1 Village;

As the target group in the study is the farmers who derive most of their income from cocoa production, in each region, the departments were selected on the basis of the cocoa production statistics and producer populations provided by the Conseil du Café-Cacao, the cocoa board sector of Côte d'Ivoire (Table 3), herein referred to as Coffee-Cocoa Council.

TABLE 3: Production of major cocoa regions (2016-2017)

REGIONS	PRODUCTION (1,000 Kg)	PERCENTAGE (%)
INDENIE-DJUABLIN	72,461	5.7
SUD-COMOE	42,883	3.4
ME-AGNEBY TIASSA	59,966	4.7
LOH DJIBOUA	168,509	13.3
GAGNOA	165,201	13.0
TONKPI	81,647	6.4
SAN PEDRO	464.044	36.6
NAWA	213,264	16.8
TOTAL	**1,267,975**	**100**

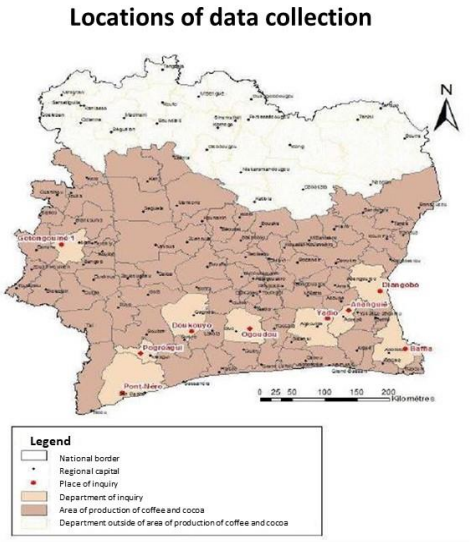
Source: Coffee-Cocoa Council

The sub-prefectures are selected according to the criterion based either on the volume of cocoa production or the estimated number of cocoa producers that may be encountered in that sub-prefecture. This same criterion is applied when choosing a village in a selected sub-prefecture.

Ultimately, this involves retaining the sub-prefecture and the associated village where there is a large number of cocoa producers in the department and/or representing the largest localities in terms of cocoa production volume.

The selection of the sub-prefectures and villages required the active involvement of the Coffee-Cocoa Council through its regional delegates. In the end, the following localities were selected for data collection (Figure 6 provides the data collection sites of the study).

Fig. 6: Collection sites for primary data



Source: Authors' own based on data from the Coffee-Cocoa Council

Primary data was collected for the purposes of gathering information related to food and housing costs and also to crosscheck secondary data on education, healthcare and transportation expenditures for cocoa growing households in the villages. The data collection was guided by Focus Group Discussions (FGD) with key informants in the villages selected.

The food prices were predominantly collected in the village market as guided by focus group discussions. The farmers specifically said that they buy food items at village markets as immediate towns are far away (for some towns, this was verified at 50 km). Since roads are impractical, rural residents don't shop for groceries in these larger towns. The targeted villages were actually large villages with daily markets that are fairly well-supplied with food. We collected food price data in two towns because they were quite close to the selected village and were easy to access.

In addition, some data was collected from larger towns in the vicinity of these villages, as cocoa farming households use hospitals and their children attend secondary schools in these towns.

Table 4: Types of data collected, by site

	DATA COLLECTION SITES		
Type of data	**Village**	**Sub-prefecture**	**Department**
Focus group discussion	X		
Costs of food	X	X	
Cost of housing	X		
Healthcare cost	X	X	X
Education cost	X	X	X
Transport cost	X		

Source: The Authors

5. CONCEPT AND DEFINITION OF A LIVING INCOME[37]

The concept of a living income is based on the idea that families should not just earn enough to cover their basic subsistence and survival (i.e. poverty alleviation), they should be able to afford a decent standard of living and to participate in social and cultural life. The following definition has been agreed upon by the Living Income Community of Practice:

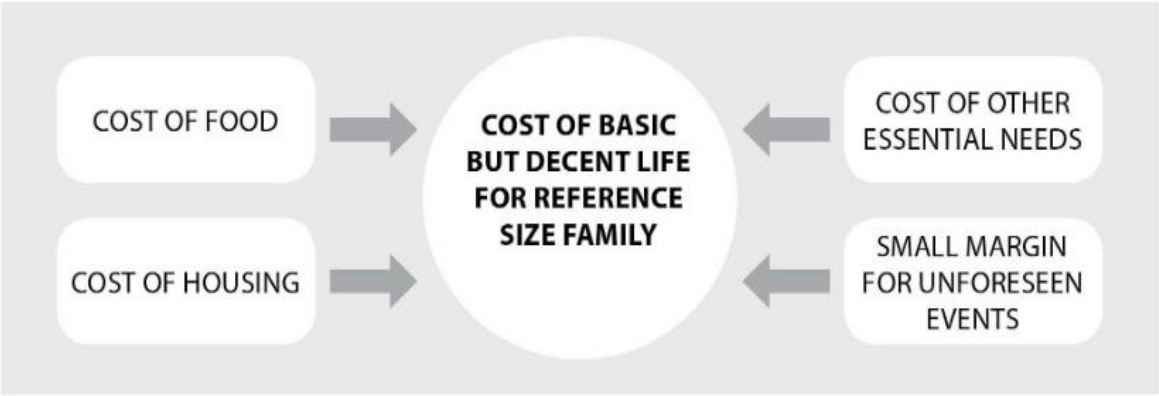
"A living income is the net annual income required for a family in a particular place to afford a decent standard of living for all members of that family. Elements of a decent standard of living include: food, water,

[37] This section has been reproduced from the Living Income Report for the cocoa sector in Ghana, with the permission of the authors (Smith and Sarpong, 2018). It is based on materials produced by the Living Income Community of Practice, particularly Grillo (2018), the Ankers' book on measuring living wages (2017), and living wage benchmark reports authored by the Ankers.

housing, education, healthcare, transport, clothing, and other essential needs including provision for unexpected events."

The net annual family income is the total amount of income earned by family members over the course of a year – including cash and non-cash income (e.g. food produced by family members for their own consumption) – minus the costs associated with earning that income. It includes income from all sources, including remittances and social protection transfers. Figure 6 illustrates the four factors that contribute to a decent living as defined globally, allowing for certain adjustments based on local conditions. Living costs are estimated by summing up separate estimates of: (i) a low-cost nutritious diet; (ii) basic decent healthy housing; (iii) all other essential needs, including education of children through secondary school, decent healthcare, transportation, clothing, furniture, recreation, personal care, etc. The costs of food and housing are estimated individually based on normative standards and primary data, whereas the costs of all other essential needs are estimated as a lump sum using secondary data, as it would be difficult, time-consuming and costly to agree to normative standards and cost each area separately. However, crosschecks are done to ensure a sufficient amount is allowed for adequate access to healthcare and the education of children through secondary school. A small margin above this total cost of a basic but decent lifestyle is then added to provide for unforeseen events such as illnesses and accidents, or special occasions like weddings and funerals, to help ensure that common unplanned events do not easily throw families into poverty.

Figure 7: Components of a basic but decent life for a family



Source: Global Living Wage Coalition

The living income concept is aligned with that of living wages, which is not a new or radical idea. In 1776, Adam Smith wrote, “No society can surely be flourishing and happy, of which far greater part of the members are poor and miserable. It is equity besides that they who feed, clothe and lodge the whole body of the people should have such a share of the produce of their own labour as to be themselves well fed, clothed and lodged.” Pope Leo XIII in a Papal encyclical Rerum Novarum (1891) stated, “Remuneration must be enough to support the wage earner in reasonable and frugal comfort. If through necessity, or fear of worse evil, the workman accepts harder conditions because an employer or contractor will give no better, he is the victim of fraud and injustice.” American President Franklin D. Roosevelt wrote in 1933 that “Liberty requires opportunity to make a living – a living decent according to

the standard of the time, a living which gives men not only enough to live on but something to live for." The International Labour Organization Constitution (1919) states that "Peace and harmony in the world requires provision of an adequate living wage", and United Nations' Universal Declaration of Human Rights (1948) states that "Everyone who works has the right to just and favourable remuneration ensuring for himself and his family an existence worthy of human dignity."[38]

The difference between a living wage benchmark and a living income benchmark is that the former states how much full-time wage workers needs to earn in a particular job, considering typical number of workers in a family in an area to afford decency for themselves and their families, while the latter sets a minimum income benchmark for the family as a whole, including all sources of income. The living income concept has been developed specifically with smallholder farming households in mind, recognising that they often have multiple sources of income (on-farm and off-farm) and that establishing benchmarks for individuals or specific livelihood activities may be more difficult. This necessitates a somewhat different approach to establishing the gap between actual incomes and a living wage/income, but the methodology for calculating the cost of living for a typical family is effectively the same.

5. How a Living Income is estimated

The Living Income Community of Practice has drawn on the Anker living wage methodology to arrive at guiding principles for estimating a living income. According to these principles, the cost of a decent standard of living should be:

- **A normative concept:** The purpose is not to provide the situation of each individual person, but to be used as a reference for typical families in a particular place.
- **Globally applicable:** International minimum standards guide the estimation of cost of living components.
- **Locally adapted:** In making choices about the acceptable application of the methodology, those affected by the benchmark should be at the centre. This means that considerations should be locally adapted to cultural norms and conditions while meeting international basic decency standards.
- **Income-source agnostic:** The cost of a decent standard of living for a family of a certain size is the same for all families of that size in that particular place irrespective of what their livelihood activities look like.
- **Reflective of annual needs:** The cost of a decent standard of living should reflect the family's needs during an average year, not an annualized estimate of the family's total costs over a lifetime (e.g. inclusive of old age, etc). The one exception to this would be to account for some degree of savings to absorb variations in costs that are common to all types of families and that normally occur only once every few years (e.g. weddings, funerals).
- **Based on market prices:** Costs are estimated based on obtaining goods and services in the market, even if in practice families may obtain some goods from their own farms or businesses.
- **Recognisable:** The decisions made to establish a cost of living benchmark should be transparent and understandable by those conducting research or using the benchmark.
- **Replicable and practical:** The approach and judgments taken to estimate

[38] See Anker (2011) for how other historical figures, international bodies, NGOs, governments and others describe the concept of a living wage.

costs of living should be replicable and practical.

- **Alignment with the Anker Methodology on Living Wage:** To the extent possible, the living income methodology is aligned with the Anker Methodology on living wage as outlined in Living Wages Around the World: Manual for Measurement (2017).

As indicated above, the living income benchmark is for a typical size family in a particular place. The size and composition of a 'typical' family is based on national statistics for the location(s) covered by the living income benchmark. The rationale for using the family as the reference unit rather than the 'household' is that households often exclude family members who have migrated for work or education, and/or include people who do not pool their income (both relatives and non-relatives). In contrast, the living income concept is based on the idea of a single economic unit with shared income and the principle that family members should be able to live together without the need to migrate. However, household is often used as the unit of measure in income surveys, which complicates matters when it comes to calculating the gap between actual incomes and a living income benchmark. As such, it is sometimes necessary to make adjustments either to the living income benchmark, or to the income data, for the specific purpose of calculating the gap. The latter is only possible if income data can be disaggregated by household member and information on pooling of resources is available. Making adjustments on the living income benchmark side is somewhat more straightforward, as it involves creating a second benchmark for the 'typical' household size and composition according to the income survey. This is what has been done in this report in order to assess the living income gap in the Côte d'Ivoire cocoa sector using data from a recent survey by the Royal Tropical Institute among cocoa growing households (see Chapters 13 and 15).

Section II: Cost of a Basic but Decent Life in Cocoa Growing Regions of Côte D'ivoire

6. FOOD COSTS

Food costs for a living income benchmark for Côte d'Ivoire cocoa growing regions was estimated using local food prices and a low-cost nutritious model diet for an average person in a reference family size of six people (two adults and four children)**. Food was estimated to cost CFA 692.36 (US$1.20) per person per day,** implying **CFA 124,625 (US$216) per month for our reference family size for August 2018**.

Full details on how the estimates were computed are explained in this chapter, which includes three sections concerned with: (i) principles used to develop the model diet, (ii) description of the model diet, and (iii) food prices used to estimate cost of the model diet.

6.1 General principles of a model diet

The following general principles were used to establish the model diet for estimating food costs. Our model diet needed to be:

1. Nutritious (i.e. have sufficient calories as well as acceptable quantities of proteins, fats, carbohydrates, minerals, vitamins, micro and macro nutrients) to help ensure that cocoa growers and their families have enough to eat and can be healthy. Our model diet has a sufficient number of calories and meets other World Health Organization (WHO/FAO, 2003) nutritional recommendations of: minimum of 10 per cent of calories from proteins (with a reasonable proportion of proteins coming from "higher quality" sources such as legumes and animal-origin foods); 15-30 per cent of calories from fats; 50-75 per cent of calories from carbohydrates and an adequate amount of fruits and leafy greens as well as other vegetables for micro and macro nutrient needs.

2. Relatively low in cost for a nutritious diet. For this reason, our model diet includes relatively inexpensive foods in order to reflect how cost-conscious families shop for food items while maintaining nutritional standards.

3. Consistent with Côte d'Ivoire's development level as a lower middle-income country. For this reason, our model diet includes a relatively low percentage of calories from proteins since proteins are expensive per calorie. But at the same time, per cent of calories from proteins meets WHO/FAO minimum requirements.

4. Consistent with local food preferences, local food availability and costs. For this reason, our model diet includes considerable amounts of low-cost foods which are eaten regularly such as cassava, plantain, dried fish and cocoyam leaves and relatively more expensive foods such as rice and bread that are commonly consumed by cocoa growers' families.

6.2 Model diet

The model diet we used to estimate a living income for cocoa growing regions is shown in Table 4. It was developed through an iterative process using the Excel spreadsheet tool developed by Richard Anker and Martha Anker for the Global Living

Wage Coalition (GLWC), and available on the Edward Elgar website[39]. The model diet started with data from the food expenditure survey for rural areas conducted by the Ministry of Agriculture[40] and also uses the FAO food supply balance sheet data for Côte d'Ivoire[41] and the Ministry of Agriculture's reports on food production and availability. The analysis was further guided by focus group discussions with cocoa growers during field trips that helped to identify relevant food items to be incorporated in our model diet.

Our model diet has 2,235 calories allotted per family member. (This figure is an equivalent midway between the average dietary energy supply estimated at 2,542 calories and the national food supply estimated at 2,000 calories.[42] The calculation of the number of calories is based on the Schofield equations[43], widely used to estimate calorie needs based on age, sex, height[44] and activity level. For our family size of six people (two adults and four children), we assumed that one adult in the family has a heavy physical activity level and one has a moderate physical activity level. Further adjustments have been made to the initial model diet to make it more nutritious and cost effective such that it will be acceptable and affordable for smallholder cocoa farming families. The proposed model diet meets the WHO/FAO[45] standards for a nutritious diet with percentages of calories from protein at 11.5%, from fats at 26% and from carbohydrates at 63%. Varieties of micronutrients are provided by a total of 325 grams per day of fruits, vegetables and legumes, slightly less than the 400 grams per day level recommended by WHO/FAO that appears quite unrealistic for a lower middle-income country like Côte d'Ivoire[46]**.**

Our model diet includes:

- High quantities of cassava, plantain cocoyam and yam as they are inexpensive and a main source of calories in the daily diet for cocoa growing regions, for example as foutou, foufou, and attieke.
- Relatively high quantities of rice, enough for around one large serving four to five times per week, as it is popular but relatively expensive.
- Small quantities of maize, enough for around one large serving per week, as it is not popular among the native cocoa growers and relatively expensive, but regularly consumed by hired workers coming from the northern regions.

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39 Edward Elgar website available at https://www.e-elgar.com/living-wages-around-the-world-companion-site

40 Ministère de l'agriculture (2009)

41 FAO (2013)

42 Analyse de la situation nutritionnelle en Côte d'Ivoire, 2015. Prime Minister's Office

43 Based on BMI of 21

44 Average height for adult women in Côte d'Ivoire was taken from Subramanian et al. (2011). A standard ratio of 1 to 1.08 for adult female to adult male heights was used to arrive at the height for men in Côte d'Ivoire.

45 FAO 2009

46 From the Anker manual: "According to WHO (n.d.) 'only a small and negligible minority of the world's population consumes the generally recommended high average intake of fruits and vegetables."

- Around two slices of bread per day, even though it is relatively expensive, as this reflects typical consumption among cocoa farming households.
- Enough fresh fish and dried or smoked salted fish for at least one serving per day as this is the cheapest source of animal protein.
- Enough beef for one serving per week because meat is relatively expensive.
- A small amount of milk (one cup for children per day in the form of powdered milk), as milk is quite expensive.
- Two eggs per week, in line with dietary guidelines.
- Enough groundnuts and cowpeas to supplement protein requirements as they are relatively cheap sources of protein but typically not eaten daily.
- The least costly vegetables and legumes available and consumed locally by cocoa growers, namely cocoyam leaves and eggplant, which are used to make stew or paste eaten with foutou[47], rice or plantain. Tomatoes and onions, even though expensive, are included in the diet due to their common use in most Ivorian soups and stews.
- The least costly fruit available year-round and during the field trip, namely avocado and banana. Other fruits such as mangoes, orange, and papaya are eaten when in season.
- 30 grams of refined palm oil for cooking (approximately equivalent to two tablespoons).
- A standard amount of sugar (six teaspoons per day) for sweetening food and drinks.
- 13% was added to the cost of the model diet to allow families some variation in what they eat, including the occasional consumption of high cost food during feast and celebrations.
- An additional 2% was added to cover condiments and spices that are commonly used in Ivorian cuisine (pepper, salt, seasoning cubes, garlic, etc.…).
- Finally, 3% was added to account for spoilage and wastage due to a lack of refrigeration in most cocoa farming family homes.

Our model diet composition and cost are summarised in the following Table 5.

[47] Pounded cooked cassava and plantain

Table 5: Model diet and estimated food cost per person per day for rural cocoa growing areas of Côte d'Ivoire

Food items	Edible grams[48],[49]	Purchased grams	Cost per kg[50] (CFA)	Cost[51] (CFA)	Comments (Diet is for average person in family of 6. Portions for adults are bigger than for children.)
Rice	106	106	365	38.82	Rice provides 17% of calories, relatively expensive per kg but cost per calories is the same as cassava (1 cfa/cal)
Maize	41	41	304	12.48	Small amount as expensive and not very popular locally
Bread	50	50	750	37.50	Equivalent to 2 slices per day
Cassava	230	274	142	38.79	Cassava provides 16% of calories
Cocoyam	40	49	266	1313	Cocoyam and yam can be interchangeable
Yam	40	49	214	10.58	Cocoyam and yam can be interchangeable
Plantain	60	92	294	27.15	Commonly mixed with cassava with the proportion 1:3 to make the popular foutou
Groundnuts	30	30	806	24.18	Enough groundnut paste for 2 to 3 meals per week
Beans	20	20	474	9.48	Enough beans for 1 to 2 large servings per week
Milk	14	14	4,529	63.41	1 cup per day for children (powdered milk)
Eggs	15	17	1,154	19.68	2 eggs per week
Dried, smoked salted fish	26	26	1,796	46.71	1 serving per day of dried/salted or smoked fish (anchovies, mackerels, sardines) as less low cost source of protein
Fresh fish	22	31	1,251	38.79	1 serving fresh, commonly eaten fish
Beef meat	13	16	2,237	35.90	Enough for 1 serving per week
Cabbage	20	25	510	12.76	Cocoyam was the least expensive vegetable commonly consumed at time of survey, so a higher quantity is included Eggplant and okra are very popular in Ivorian dishes but eggplant was less expensive during the survey Tomatoes and onions are relatively expensive but
Cocoyam leaves	70	117	240	28.08	
Eggplant	50	62	385	23.75	
Onions	20	22	586	12.88	
Tomato	15	16	824	13.58	

[48] Edible (intake or consumed) quantity differs from purchased quantity for foods with inedible parts. The percentage edible for each purchased food is taken from the FAO's West African food composition table (2012).

[49] Number of calories, proteins, carbohydrates and fats per 100 grams for each food item are calculated using the values reported in the FAO's West African food composition table (2012), supplemented by the USDA online nutritional values database (www.ndb.nal.usda.gov/ndb/foods)

[50] Costs per kilo are prices collected in venues where cocoa farmers shop

[51] Cost = quantity purchased x cost per kilo

					important for Ivorian cuisine; low quantities are included
Avocado	50	68	189	12.76	Avocado and banana were the leasst expensive and widely available fruits during the survey; Avocado is very popular and eaten with boiled cassava, yam, plantain or cocoyam as well as bread
Banana	50	78	172	13.45	
Cooking oil	30	30	1,000	30	Refined palm oil, the most frequently used cooking oil
Sugar	30	30	764	2.94	7 teaspoons of white or brown sugar per day
Sub-total cost per person per day (CFA)				586.75	
Total with 18% added for misc. costs (CFA)				**692.36**	
Total cost per person per day in US$				**1.2**	

Source: The Authors

6.3 Food prices

To estimate the cost of our model diet, we collected food prices from local markets where cocoa farmers typically shop for each food item so that the costs reflect what they actually pay. Based on what we learned in focus group discussions, cocoa farmers produce much of their own food, mainly tubers and vegetables, but other foods are purchased in the market like rice, fish, meat, oil and other condiments. Even for food items that are mostly produced at home, small-holders often still buy the items at the markets during times of lack. It is therefore relevant to estimate the cost of our model diet based on market prices.

The living income estimate is based on living costs for a particular geographical area and it is not specific to a particular livelihood activity. During focus group discussions, cocoa farmers explained that when needed, they buy all food items from local markets or shops in their villages and very rarely in larger towns when these towns are not far from their villages and are accessible. We therefore focused our market surveys on local markets in the villages. One small town and one bigger town were included in the survey because they were close to a particular chosen village and accessible. From a focus group discussion in every village for each food group, the list of food items that are commonly consumed were chosen. The researchers then went to the venues where cocoa farmers typically shop to collect the price of these food items.

As can be seen on the illustrative pictures below, food items are not sold by weight but in small quantities, such as three or four tubers of cassava for CFA 500, a bundle of eight to 10 eggplant for CFA 100 or a quantity of local rice sold in a measure of an empty tomato can for CFA 200. We then had to use a balance to weigh typical quantities of food items sold at a particular price and derive the price per kg. For each food item and every variety, three different vendors were surveyed for every market place. For every vendor, the quantity is weighed and the equivalent price recorded. The price per kg is derived. The mean price per location for the particular food item is calculated to arrive at a representative mean price. A trim mean price is calculated from all representative mean prices across all locations.

In total, we collected around 1,200 prices from close to 400 different vendors. This included vendors in open air markets and shops.

Figure 8: Examples of the types of food items and vendors where prices were collected

Vendors selling Attieke (steamed fermented dried cassava) in open market

Fresh cassava sold by piles in open market

Vendor selling smoked fish in open market

Piles of cocoyam and avocado in open market

Source: The Authors

7. HOUSING COSTS

Housing costs for our living income were estimated by adding the cost of the rental equivalent value of a basic acceptable dwelling and utility costs (water, lighting, and cooking fuel). Routine repairs and maintenance were in general at the expense of the landowner.

Using the Anker methodology to measure a living income requires us to estimate the cost of decent housing separately from other non-food costs. This methodology differs from the approach usually used to measure living wages/income and poverty lines where all non-food costs (including housing) costs are estimated in one go. This approach leads to a better estimate of costs of acceptable housing.

We estimated housing costs for rural cocoa growing regions as **CFA 29,850 (US$52)** per month, with **CFA 21,000 (US$36)** for rental equivalent value of housing and **CFA 8,850 (US$15)** for utilities for a family of two adults and four children for **August 2018**. Our housing estimate equates to 11.4% of the living income estimate. This is considerably higher than the 8% for housing indicated in the ENV2015 household expenditure data for rural areas. The difference is possibly due to the current shortage of acceptable housing in Côte d'Ivoire and ignores the cost of owner-occupied housing in secondary household expenditure statistics.

Figure 9: Housing pictures from field trip

Acceptable house: compound house with brick walls

Acceptable toilet-pit latrine with slab

Acceptable kitchen-good ventilation

Not acceptable house made of mud bricks

Not acceptable kitchen: no cement floor, no durable materials

Not acceptable bathroom and toilet: no protection, no privacy

Source: The Authors

7.1 Standard for basic acceptable local housing

Access to decent housing is considered a right by the international community in accordance with Article 25 of the 1948 Universal Declaration of Human Rights. This right is recognised by the State of Côte d'Ivoire in the National Housing Act 2016 (Articles 9 and 38 of the Constitution of 8 November 2016):

'' Everyone has the right to education and vocational training.

Everyone is also entitled to access to health services. The state promotes access to housing for citizens, under the conditions provided for by law."

In order to estimate the cost for basic acceptable housing, it is necessary to set minimum standards for what is acceptable basic housing for our family size of six persons.

Our housing standard is:

- Brick walls (mud bricks plastered by cement acceptable);
- Cement floor;
- Durable roof of zinc or cement without leaks;
- Sufficient living space, at least three rooms (living room, two bedrooms);
- Access to potable drinking water in relatively close proximity to house;
- Access to sanitary toilet;
- Adequate lighting;
- Adequate ventilation;
- Building in reasonable environment (protection against cold, humidity, heat, rain, wind or other health threats).

There is currently a severe shortage of housing in Côte d'Ivoire due to the exponential demographic growth combined with sustained urbanisation[52]. The housing deficit was estimated at more than 1,000,000 housing units in 2012 (SICOGI, 2013). The quality of construction is still poor. According to the MICS 2017, only 52% of houses in rural areas are made of solid walls, 74% have a cement floor and 71% of houses' roofs are of durable materials. Access to safe water is good in rural areas as more that 84% of the population uses safe drinking water. Access to sanitary toilets is still problematic as only 22% of households in rural areas use toilets that meet sanitary standards.

The living income concept implies that families should be able to afford a decent and healthy home. The following Table 6 shows the minimum international housing standards required for decency and the current national and rural housing conditions. We presented the standard that we developed for housing in the rural cocoa growing regions, which meets the international standards.

52 Yapi-Diahou, A. (2010)

Table 6: Housing standards

Housing characteristics	*International minimum standards*	*Distribution based on Secondary data (MICS 2017)*		*Local housing standard for rural cocoa zones*
		Urban	**Rural**	*Côte d'Ivoire*
MATERIALS				
Walls	Durable material providing protection from elements	1.6% Natural wall (mud, bamboo, etc. …) 4.3% Basic materials (wood, iron sheets, etc. …) 93.9% Finished wall (bricks, concrete, etc. …) 0.1% Other	23.7% Natural wall (mud, bamboo, etc. …) 24.1% Basic materials (wood, iron sheets) 52.0% Finished wall (bricks, concrete, etc. …) 0.1% Other	Walls made of cement block, concrete or brick, baked mud brick walls plastered with cement (well-constructed and in good condition)
Roof	Durable material without leaks	0.7% Natural roof 3.0% Basic materials 95.6% Finished roof 0.7% Other	18.8% Natural roof 9.7% Basic materials 71.2% Finished roof 0.3% Other	Roof made of metal sheet or tiles, concrete, no leaks
Floor	Durable material	1.4% Natural floor (mud, sand, etc. ...) 98.4% Finished floor (cement, tiles) 0.2% Other	26.1 Natural floor (mud, sand, etc. …) 73.9% Finished floor (cement, tiles) 0.0% Other	Floor made of cement, concrete or tiles, in decent condition
AMENITIES				
Toilet	At least pit latrine with slab	44.5% Flush toilet 32.6% Pit latrine with	8.5% Flush toilet 22.2% Pit latrine with	KVIP or flush toilet or pit latrine with slab, well ventilated, clean and acceptable drainage and depth. Private toilet or toilet only shared by a few households and that is close to

		slab 20% Pit latrine without slab/ open pit 2.9% Other, not safe	slab 29.3% Pit latrine without slab/open pit 40% Other, not safe	home
Water source				
	Safe water not far from home	43.9% Piped into house	5.3% Piped into house	Safe water not far from home (no more than 30 minutes total collection time) Safe sources: piped into dwelling or nearby, public tap, borehole/pump/tube well, protected well or protected spring
		27.3% Piped into dwelling or yard	8.6% Piped into dwelling or yard	
		3.2% Public tap	14.7% Public tap	
		2.0% Borehole/ tube well	19.5% Borehole/ tube well	
		17.8% Protected well	20.4% Protected well	
		4.9% Unprotected well	18.2% Unprotected well	
		0.1% Unprotected spring/river/lake	11.2% Unprotected spring/river/lake	
		0.8% Other	2.1% Other	
Electricity	Not required	92%	38.1%	Electricity required. (Main electricity network, solar energy, etc...)
VENTILATION & LIGHTING				
Ventilation quality	Good ventilation			Good ventilation, at least one window per room; Ceiling height no less than 2m

Lighting	Adequate			Electricity required (Main electricity network, solar energy, etc. ..)
Number of windows	Sufficient for adequate lighting and ventilation			At least one window per room
COOKING FUEL**	GPL	31.8%	0.9%	All sources of cooking fuel are acceptable
	Wood	27.6%	86.9%	
	Charcoal	32.5%	5.4%	
	Other	8.1%	6.8%	No cooking facility, not acceptable
LIVING SPACE				
Number of bedrooms		1 BR 47.1% 2 BR 30.9% 3 BR and more 22.1%	1 BR 42.4% 2 BR 27.4% 3 BR and more 30.2%	Adequate living space for a family of six (50 m^2) Living space is measured by floor area of usable rooms, including covered porch area and relevant proportion of shared living space Minimum of 2 bedrooms
Average # persons/ bedroom		2.51	2.38	
Number of square meters of living space	≥35 m^2			
Kitchen location	If kitchen is inside the house, adequate ventilation for cooking needed			If cooking inside or on porch, adequate ventilation is required (especially when using wood or charcoal stoves)
CONDITION	In good state of repair			In good state of repair
ENVIRONMENT	Not a slum No site hazards such as: surface water			Not a slum No animals in or near house No site hazards such as: surface water drainage, industrial

	drainage, industrial pollution, danger of landslides, flood zone			pollution, danger of landslides, flood zone

Source: MICS 2017 and The Authors

7.2 Rent for basic acceptable housing

In order to estimate the rental cost of decent and healthy housing, we surveyed 37 dwellings in total in the locations selected for primary data collection, targeting specifically housing which had the potential to meet the standard for decency. In most of the villages we visited, there were houses for rent but more often these were not in good condition, generally there was a one-bedroom house with walls made of mud bricks, cement floor with poor toilet and kitchen. These houses were rented by occasional farm workers for CFA 3,000 to 5,000 per month. We saw some houses rented daily at a cost of CFA 100 per day. Most of the cocoa growers' households live in their own houses. Their typical housing does not meet the standard.

Out of the dwellings visited, five were owner-occupied houses and 32 houses were rented, among which, 11 met the standard's criteria. The team used the 32 houses surveyed after removing the owner-occupied housings. The major reasons for not meeting the criteria were poor construction structure (walls made of mud bricks, wall and floor was not cemented), good structure but poor maintenance, inadequate toilet and kitchen or not having enough living space to accommodate a family of six.

The rental cost for the houses that did meet the criteria ranges from CFA 20,000 to 40,000 per month.

We calculated the cost per square meter for each of the houses that meet the criteria and estimated the equivalent cost for the minimum space for decency[53] of 50 m^2. The rental costs for the houses meeting the criteria for decency ranged from CFA 375 to 466 per m^2 with an average cost of CFA 423 per m^2. This gave us an average rental cost of CFA 21,163 per month.

With all the information at hand, we believe that rent for housing at a minimum acceptable standard of CFA 21,000[54] per month can be considered an appropriate figure to use for our family size of six.

It is important to note that rents were paid at the beginning of every month. There was no need to pay many months in advance. Some tenants said that they were asked to pay the equivalent of one month of rent as a deposit at the beginning of the contract. Table 7 below gives a summary of the dwellings visited and their characteristics.

[53] The minimum space for decency for our family of six persons is set at 50 m^2, with two to three rooms (including the living room)

[54] 423 x 50 = CFA 21,263 rounded to CFA 21,000

Table 7: Cost of rented housing units surveyed

Acceptable standard?	Rent in local currency	Size & rooms	Comments
INDENIE DJUABLIN/SUD COMOE			
No	15,000	S: 45.5 m^2 LR, 1BR	Building with mud bricks and cement walls. House in band, more or less in good condition, with common bathroom and kitchen. Not enough living space.
No	4,000	S: 17.6 m^2 BR	Wall with mud bricks and cement in poor condition. Floor cemented. Toilet shared with too many households and in poor condition. No kitchen.
Yes	25,000	S: 66.6 m^2 LR, 2BR, 1 porch	New construction with 2 modern internal toilets and BRs. Floor with tile. Above standard.
Yes	40,000	S: 91.7 m^2 LR, 4BR, 1 porch	House in very good condition with modern toilet, internal showers. Floor with tile, cemented wall and metal roof. 4 adults and 3 children. Above standard.
No	15,000	S: 57.6 m^2 LR, 2BR	House in bad state of repair; cement walls and cement floor but degraded, rusty metallic roof. The owner intends to remodel soon and will increase the rent to 25,000.
Yes	35,000	S: 81.2 m^2 LR, 3 BR, porch	House being recently rented, in good condition but unoccupied at the time of the visit. Cemented wall, roof with metal sheet.
No	5,000	S: 27.3 m^2 LR, BR	Wall with mud bricks, floor not cemented. Pit latrine toilet in bad condition shared with too many households. Not enough living space. Not decent.
Almost	15,000	S: 42.7 m^2 LR, 2BR	Housing in good condition. Metal roof, cemented floor and wall. Kitchen not sufficiently ventilated.
No	10,000	S: 42.1 m^2 LR, 2 BR	Cement base in poor condition. Latrine in poor condition. Kitchen roof in poor condition. Needs maintenance.
ME/AGNEBY TIASSA			
Yes	25,000	S: 65.1 m^2 LR, 2BR, porch, K	House in good condition with shower and modern toilet, outside kitchen. Cemented wall and tiled floor with a tin roof. More than decent.
No	12,000	S: 37.8 m^2 LR, 3BR,	Wall with mud bricks, internal wall cemented but outer wall not cemented, floor not cemented. Pit latrine with no slab in bad condition. Metal sheet roof rusted with holes. Not decent.
No	10,000	S: 37.7 m^2 LR, 3BR,	Wall with mud bricks cemented, floor not cemented. Pit latrine with no slab in bad condition. External kitchen built with local materials. Not decent.
Yes	20,000	S: 50.2 m^2 LR 2 BR, K,	Toilet and external kitchen. Toilet in pit with slab in good condition.

		porch	Cemented wall and floor. Decent house.
Yes	40,000	S: 85.8 m^2 2LR, 3BR, K, porch	House in good condition. Tiled floor, inside flush toilet. Outside kitchen. Decent but more living space than required.
Yes except for size	15,000	S: 35.6 m^2 LR, BR	House in good condition. Tiled floor, inside flush toilet. Outside kitchen. Decent but not enough living space.
Yes	35,000 (owner-occupied)	LR, 4BR, K	New construction, tiled floor, external kitchen. Good condition. Owner-occupied; priced his house in case he wants to rent so price not reliable. Decent.
Yes	25,000	S: 58.5 m^2 LR, 3 BR, K	New house. Very good condition. Indoor water and toilet. Tiled floor, zinc roof.
Yes	35,000	S: 80.5 m^2 LR, 4BR, K	Very good condition. Indoor water and toilet. Wood walls, cement base, zinc roof. Recently rented. Decent but more living space than required.
Yes except for size	10,000	S: 30.4 m^2 LR, BR	House in quite fair condition, but needs some maintenance. Cemented wall and floor, zinc roof. Quite decent but not enough space for a family of six.

TONKPI

Yes	40,000	S: 88 m^2 LR 3BR K	House in good condition. Brick walls, floor cemented but not tiled, zinc roof. External kitchen and toilet, pit latrine with slab in good condition. Decent.
No	15,000	S: 58.4 m^2 LR 3 BR	Wall of mud bricks, small windows, not well-ventilated. Pit larine with no slab. Not decent.
Yes	30,000	S: 77.4 m^2 LR 3 BR K	House in good condition. Brick walls, floor cemented, tiled, zinc roof. External kitchen and flush toilet in BR. External toilet pit latrine with slab in good condition. Well-equipped. Decent, but slightly above standard.
No	10,000	S: 49.3 m^2 LR BR K	Wall with mud bricks, cemented; floor cemented. Pit latrine with slab but in bad condition. External kitchen. Waste water from bathroom evacuated outside compound. Not decent.
Almost	20,000	S: 57.6 m^2 LR 1 BR 2 BR K	House in band, wall in cement bricks, floor cemented. Shared toilet with neighbors. Needs maintenance. Almost decent.
No	15,000	S: 54.1 m^2 LR 2BR K	Wall with mud bricks cemented, floor cemented. Pit latrine with slab but in bad condition. External kitchen not well-aired. Toilet with slab. Not decent.

SAN PEDRO/NAWA			
No	25,000	S: 77.4 m^2 LR, 3 BR, K	Wall in cement, cemented floor quite degraded. External kitchen and bathroom. Pit latrine with slab in bad condition. Needs important repairs. Not Decent.
No	10,000 (Owner-occupied)	LR, 2BR, K	Wall in mud bricks and sticks, floor cemented, zinc roof, not well-ventilated, small window, external kitchen. Pit latrine no slab. Not decent.
Yes	25,000 (Owner-occupied)	LR, 2BR, K	New house. Very good condition. Indoor water and toilet. Tiled floor, zinc roof. Solar energy. Rent evaluated by owner (not reliable). Decent.
No	10,000 (Owner-occupied)	LR, 2BR, K	Wall in mud bricks, floor cemented, zinc roof, quite well-ventilated, external kitchen. Pit latrine with slab. Not decent.
GOH/LOH-DJIBOUA			
Yes	30,000 (Owner-occupied)	LR, 2 BR, porch	New house. Very good condition. Indoor water individual bathroom and modern toilet in each room. Tiled floor, zinc roof. Rent evaluated by owner (not reliable). Decent.
No	12,500	S: 59.8 m^2 LR, BR	Wall in mud bricks, floor cemented, roof made of straw covered by plastic sheet, not well-ventilated, small window, external kitchen. Pit latrine no slab. Not decent.
No	3,000	S: 19.4 m^2 LR, BR	Wall in mud bricks, floor cemented, roof made of straw covered by plastic sheet, not well-ventilated, small window, external kitchen. Pit latrine no slab. Not decent.
No	10,000	S: 45.3 m^2 LR, BR	Wall in mud bricks covered by cement (cracked), floor cemented, zinc roof, external kitchen. Pit latrine no slab. Not decent.
No	8,000	S: 30.4 m^2 LR, BR	Wall in mud bricks covered by cement, floor cemented, zinc roof, external kitchen. Pit latrine no slab. House in poor condition. Not decent.
No	6,000	S: 22 m^2 BR	Wall bricks, floor cemented, zinc roof. House in good condition. No kitchen. Shared toilet. Pit latrine with slab. Not enough living space.
Yes	30,000	S: 65.1 m^2 LR, 2BR, K	Wall in cement bricks, tiled floor, external kitchen. Good condition. Decent, but slightly above standard.

Source: The Authors

7.3 Utilities and other housing costs

All but three of the houses surveyed are connected to the main electricity network, named CIE. The three others have solar energy. Most of the households share the electricity meter with their neighbors. Only a few of them have their own meter. We had to take only their share of their electricity bill that they declared. The average cost per household for electricity was CFA 5,350 per month based on our survey. We excluded houses where spouses are using electricity for business (selling juice or other small commercial activities).

In our local survey, some villages have running water. But the most common source of drinking water was public boreholes. Some of the households have access to a covered well in their compound or not far from their house. In case of public boreholes, the water is given free of charge, with the exception that CFA 100 is collected per week for equipment maintenance. For those who have running water in their house, the average cost for water was CFA 705 per month. We use this figure as the cost of water per household[55].

For cooking fuel, most households use predominantly firewood collected from the farms as confirmed by secondary data[56]. Charcoal and gas are used occasionally. It was difficult for families surveyed to indicate an amount spent on collecting firewood. Even families using predominantly gas and charcoal also use firewood as a supplement. The data collected from the field indicates that charcoal and gas for cooking cost on average CFA 2,795 per household per month. This is a conservative figure, given that the cost of firewood was not included. **In total the sum of housing utilities was estimated at CFA 8,850 per month**.

8. NON-FOOD AND NON-HOUSING COSTS

We estimated all **non-food, non-housing costs for rural Côte d'Ivoire cocoa growing areas to be CFA 95,102 (US$165) per month** after adjusting for education and health post-checks. Below we described the steps taken to arrive at this estimate.

Non-food, non-housing costs (NFNH) for the cocoa growing areas were estimated in three steps. In step 1, NFNH were estimated based on household expenditure patterns for the regions concerned with our study according to ENV 2015. Step 2 removes unnecessary expenditures for a decent living income and reclassifies household expenditures to comply with the Anker methodology. Finally, step 3 evaluates more carefully healthcare and education expenses to ensure that sufficient funds are provided for these human rights and important needs.

Estimating NFNH costs requires that we define the income distribution that would best represent the spending patterns of cocoa growers who would earn a living income.

As mentioned earlier, 46.3% of the Ivorian population was considered poor in 2015. Out of 100 poor persons, 61.2 live in rural area and 38.8 in urban areas.

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55 Three to four households generally share a common water meter leading to a more affordable water bill (overhead costs are shared among the households)

56 87% of rural households use firewood as the cooking combustible, according to the MICS 2017

Even though most parts of the cocoa growing regions in southern Côte d'Ivoire have lower poverty levels than the country's average, poverty incidence is still high. Among the cocoa growing regions, the regions of Nawa and San Pedro have the lowest poverty incidence with a poverty rate of 33% and 40% respectively. The region of Tonkpi has the highest poverty rate (68%), followed by Indenie Djuablin (60%). Other regions have poverty rates around 50%.

According to the 2015 household living standard survey, a person who has less than CFA 269,075 per year is considered poor; the extreme poverty line is set at CFA 122,385 per year. The household expenditure distribution by deciles from ENV 2015 shows that the poverty line (CFA 269,075) falls between the 5th and 6th decile and almost equal to the median. ***Table 9: Cocoa regions household expenditures at the 50th percentile (%)***

	Urban	Rural	All zone
Food	57.1%	56.0%	56.9%
House	13.0%	7.8%	9.2%
Education	3.2%	0.6%	2.7%
Health	1.7%	3.2%	3.7%
Clothing	6.9%	7.4%	7.9%
Transport	9.3%	10.0%	6.6%
Communication	4.0%	7.5%	5.9%
Tobacco	0.6%	0.2%	0.4%
Recreation	0.0%	0.0%	0.0%
Others	4.2%	7.3%	6.8%
Total	**100.0%**	**100.0%**	**100.0%**

Source: Authors' estimates based on ENV 2015

Based on these data, NFNH to food ratio is 0.645 for rural areas.

The next step is to adjust this NFNH to food ratio by adjusting household expenditure data to conform to the Anker methodology, i.e. eliminating expenditures that are not necessary for a living income like expenses for tobacco or reclassifying expenditures that were classified wrongly in the ENV 2015. This adjustment leads to an increase of the initial NFNH to food ratio by 5%[57]; That is an adjusted NFNH to food ratio of 0.67

This gave us a preliminary estimate for non-food non-housing costs of CFA 84,402 (US$146) per month (i.e. 0.677 ratio × CFA **124,625** for food). We then looked specifically at the costs for healthcare and education in our rural cocoa growing regions, to ensure that sufficient funds are provided for these important needs.

[57] This adjustment is done using a rural household expenditure survey conducted by the INS and the Ministry of Agriculture in 2009. According to this data, rural households spend 2.4% on food consumed away from home. 50% of this proportion, i.e. 1.2%, is removed from food and transferred to the non-food non-house component. Secondly, alcoholic beverages and tobacco represent 2.4% of total expenditure. We reasonably assumed that 1/3 of these expenses go to tobacco (cannot be included in living income expenses) and 2/3 for alcohol. That is a conservative figure because few people smoke in rural Côte d'Ivoire. According to the MICS 2012, 98% of women and 75% of men between 15-49 years have never smoked. Hence, we removed 0.8% from NFNH component. These two adjustments lead to an increase of 5% of the initial NFNH to food ratio.

Table 8 Household average expenditure per capita and expenditure distribution by deciles

	Average per capita expenses (FCFA)			Share in total consumption (%)		
Decile	**2002**	**2008**	**2015**	**2002**	**2008**	**2015**
1	77,977	74,428	87,708	1.7	2.2	2.7
2	128,529	121,528	145,779	2.8	3.6	4.5
3	168,076	156,155	187,017	3.6	4.6	5.5
4	208,376	189,178	224,543	4.5	5.5	6.2
5	255,048	226,375	263,711	5.5	6.6	7.4
6	313,430	270,346	313,514	6.8	7.9	8.8
7	389,117	327,177	377,575	8.4	9.5	9.4
8	506,684	401,495	460,678	11	11.7	11.6
9	719,341	537,785	605,161	15.6	15.7	15
10	1,846,614	1,123,646	1,197,906	40	32.8	28.9
All	461,243	342,730	386,215	100	100	100

Source: ENV 2015

Based on the following and because the poverty rate in rural cocoa areas ranges from 33% to 68%, we can reasonably consider that the 50th percentile of the income distribution will best represent the spending patterns of cocoa growers across the regions included in our study.

Data on household expenditure from ENV 2015 reflect that food is the major component of household expenditures in the regions producing cocoa. Across all the regions, food represents 56.9% of all household expenditures. Households in rural areas spend more on food (56%) compared to households in urban areas (57.1%). This confirms that the proportion of income spent on food decreases as income increases ('Engel's Law'[58]), and average expenditure across all income groups is skewed by the expenditure of wealthier households.

[58] See Anker (2011b) for a more detailed explanation of Engel's Law and the implications for estimating a living wage.

Table 9: Cocoa regions household expenditures at the 50th percentile (%)

	Urban	Rural	All zone
Food	57.1%	56.0%	56.9%
House	13.0%	7.8%	9.2%
Education	3.2%	0.6%	2.7%
Health	1.7%	3.2%	3.7%
Clothing	6.9%	7.4%	7.9%
Transport	9.3%	10.0%	6.6%
Communication	4.0%	7.5%	5.9%
Tobacco	0.6%	0.2%	0.4%
Recreation	0.0%	0.0%	0.0%
Others	4.2%	7.3%	6.8%
Total	**100.0%**	**100.0%**	**100.0%**

Source: Authors' estimates based on ENV 2015

Based on these data, NFNH to food ratio is 0.645 for rural areas.

The next step is to adjust this NFNH to food ratio by adjusting household expenditure data to conform to the Anker methodology, i.e. eliminating expenditures that are not necessary for a living income like expenses for tobacco or reclassifying expenditures that were classified wrongly in the ENV 2015. This adjustment leads to an increase of the initial NFNH to food ratio by 5%[59]; That is an adjusted NFNH to food ratio of 0.67

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[59] This adjustment is done using a rural household expenditure survey conducted by the INS and the Ministry of Agriculture in 2009. According to this data, rural households spend 2.4% on food consumed away from home. 50% of this proportion, i.e. 1.2%, is removed from food and transferred to the non-food non-house component. Secondly, alcoholic beverages and tobacco represent 2.4% of total expenditure. We reasonably assumed that 1/3 of these expenses go to tobacco (cannot be included in living income expenses) and 2/3 for alcohol. That is a conservative figure because few people smoke in rural Côte d'Ivoire. According to the MICS 2012, 98% of women and 75% of men between 15-49 years have never smoked. Hence, we removed 0.8% from NFNH component. These two adjustments lead to an increase of 5% of the initial NFNH to food ratio.

Table 10: Elements of non-food non-house estimates

Expenditure on food (%)	**56.0**
Expenditure on housing (%)	**7.8**
Expenditure on non-food non-housing (%)	**36.1**
Unadjusted ratio of non-food non-housing to food expenditure	**0.64**
Non-food non-housing to food ratio following adjustments for unnecessary and inappropriately classified expenditures	**0.67**
Non-food non-housing estimate (CFA/month)	**84,404**

Source: ENV 2015 and Authors

9. POST CHECKS OF NON-FOOD AND NON-HOUSING COSTS

9.1 Education post check

Schooling in Côte d'Ivoire is structured as follows:

- Kindergarten: lasts three years. Kindergarten is not yet compulsory;
- Primary: lasts six years;
- 1st cycle in High School (JHS): four years;
- 2nd cycle in High School (SHS): three years.

In the Ivorian education system, preschool education is not compulsory. According to data from the Ministry of Education[60], very few children attend preschool. Enrolment is very low at around 9% nationwide with most children attending a public school (73%). Attendance in rural areas was very low at around 2% in 2012. For primary school, attendance rate was at 91% in 2018 and 81% of children attended public school. Drop-off rate was estimated at 22%.

In secondary school, the attendance rate in 2018 was at 66.6% for the first cycle and 35% for the second cycle. But very few students were able to complete their schooling[61]. The completion rate was around 55% and 28% for the first and second cycle, respectively. Private schools play an important role in secondary school as almost 50% of children attend private school.

Even though the education system has experienced some improvements in recent years due to more funds being allocated, the challenges[62] are still many, including inadequate and insufficient infrastructures (crowded classrooms, lack of benches, etc.) regular shortages of didactic materials or shortage of qualified teachers.

60 DSPS Ministry of Education (2017-2018)

61 UNICEF (2016)

62 Oyeniran (2017)

Public primary schools are officially free in Côte d'Ivoire, for enrolment and school supplies. Parents are supposed to pay minimum maintenance fees. During the fieldwork, parents reported paying beyond what was officially indicated. Some of the reasons are, for example, school supplies that are supposed to be free often come late and parents are obliged to pay for the supplies for their children in the beginning of the school year. They also reported that teachers require different books than the official one provided for free. During our field research, we collected information on education as we interviewed parents, teachers and schools' managers.

The average cost per child per year including all fees, uniforms, school supplies, meals, was CFA 50,433 in kindergarten, CFA 53,382 in primary school, CFA 73,489 in JHS and CFA 84,111 in SHS.

It is important to note that lunch money makes up a significant proportion of these costs, as parents send their children to school with between CFA 100 and 300 CFA per day to buy food[63].

The living income estimate assumes that all meals are prepared at home and are already provided through the model diet. We used the model diet to calculate the cost of lunch for children of different ages and derived the replacement value of lunches at school for each education level and then reduced the cost of education accordingly.

The replacement value of lunches at school for each education level was CFA 21,747 in kindergarten, CFA 31,017 in primary school, CFA 44,121 in JHS and CFA 49,351 in SHS.

This brings the average education cost per child per year down to CFA 28,687 in kindergarten[64], CFA 22,366 in primary school, CFA 29,368 in JHS, and CFA 34,761 in SHS.

The monthly cost for education for our reference family is calculated by multiplying the cost per year at each level of school by the number of years spent at that level. We took the sum of the costs over the four school levels and finally computed for the average cost per year, given that we had 16 years of schooling in total. The average cost of education per child per month, including all fees from kindergarten to high school, was estimated at CFA 9,209 (see Table 11 for details).

[63] Very few of the schools visited have an in-school lunch program. Even when these programs exist, it is only for primary and kindergarten schools and parents said they are still giving school lunch money to their children anyway

[64] Subtracting replacement value of lunches at school in kindergarten (CFA 21,747) from average total cost per child per year in kindergarten (CFA 50,433) gives 50,433– 21,747 = CFA 28,687. Values for other education levels are calculated following the same logic

Table 11: Estimation of education related costs based on primary data collection

	Kindergarten	Primary	SHS cycle 1	SHS cycle 2	Total
Average expenditure per student per year, CFA	28,687	22,366	29,368	34,761	
Number of years in level	3	6	4	3	-
Annual cost per student x number of years in level, CFA	86,060	134,194	117,473	104,282	442,009
Average cost per student per year, CFA	-	-	-	-	27,626
Average cost per child per month, CFA	-	-	-	-	2,302
Average cost for reference family with 4 children per month, CFA	**-**	**-**	**-**	**-**	**9,209**

Source: The Authors

We arrived at an education post-check cost of CFA 9,209 per month for our reference family.

The preliminary estimate of NFNH costs for living income in afor rural cocoa growing region was CFA 84,402 per month. Since household expenditure statistics indicated that education expenses were 0.6% of rural NFNH expenses, this meant that approximately CFA 1,292 per family per month[65] was included for education in the preliminary estimate of NFNH.

In light of the above rapid assessment estimates of education costs, we added CFA 7,900 per month to our preliminary estimate of NFNH costs[66].

9.2 Healthcare post-check

According to ENV 2015, out-of-pocket expenditure on healthcare represents 3.2% of rural household expenses. It was important to check healthcare costs faced by cocoa growers to be sure that sufficient resources are provided because according to the ENV 2015, less than 1% of the population have medical insurance coverage in Côte d'Ivoire. The government launched a universal insurance coverage program to alleviate the medical expense burden on the population in March 2014. It will take a couple of years for this program to be operational. During focus group discussions, cocoa producers confirmed that they pay for their family medical expenses in their

[65] After adjustment, NFNH was estimated at 36.1 of all rural household expenditures and education expenses accounted for 0.6% in NFNH expenses. As a result,Then the amount of education implicitly included in the preliminary NFNH estimate for education is 0.6/36.1 x 84,402 = CFA 1,292

[66] CFA 9,209 needed minus CFA 1,292 included in preliminary NFNH estimate = CFA 7,917, rounded to CFA 7,900

entirety and this was a major source of concern for most of them. We considered therefore that there was no insurance coverage in our study.

We visited health centers, pharmacies and other drugstores in the study areas to collect costs related to outpatient and inpatient treatments for the major causes of morbidity and hospital admissions. The data collected are related to the types of expenses incurred: consultation, medical analyses, drugs, hospitalisations, the type of centre visited -- public and private. We then computed the out-of-pocket pay for medical expenses and checked if we needed to do any adjustments of the pre-field health budget.

In Côte d'Ivoire, infectious diseases are the major causes of morbidity[67], dominated by malaria, diarrhea, pneumonia, and typhoid. Children and pregnant women are the most exposed. Malnutrition and anemia are also blamed in under-5 child deaths.

According to the ENV 2015, the morbidity rate indicating the percentage of people who suffered from an illness in the four weeks preceding the survey was 11.4% for rural areas, 10.5% in Abidjan and 11.3% in other towns in Côte d'Ivoire. The morbidity rate was at 21.0% in the 2008 survey for the same time period (four weeks preceding the survey). The proportion of those surveyed who declared a sickness was 12.6% in 2002 (during the two weeks preceding the survey). It appears that the morbidity rate was too low in the 2015 survey. It will be reasonable to consider a morbidity rate of 17% for our study, a mid-point between the 2008 and the 2015 surveys. This implies 2.2 episodes of illness per person per year (0.17 x 13 four weeks periods), and therefore approximately 13.3 illness episodes per year for a reference size family of six persons (two adults and four children). The ENV 2015 survey reports that nationwide, 57.9% of those who reported an illness consulted a health practitioner. That means 42.1% of those who reported an illness didn't seek consultation. The report also indicates that 43% of those who didn't seek consultation did not do so because of the excessive cost of medical care, i.e. 18.5% (0.42 x 0.43). Of people reporting an illness or injury, the percentage who would have consulted a health practitioner if they could have paid would be 77.4% in rural Côte d'Ivoire. This implies approximately **10.3 visits to health** practitioners per year for our reference size family of six persons (13.3 x 0.774). The surveys did not outline which kind of health practitioners were visited, either public or private.

A survey conducted by the Ministry of Health in 2010[68] indicates that private facilities represent nearly 52 per cent of all health facilities in Côte d'Ivoire; mostly concentrated in big cities, predominantly in Abidjan.

But results from the surveys conducted by the WHO on health services utilisation and out-of-pocket expenditure at public and private facilities in low-income countries showed that for outpatient services, more than half of the utilisation was at public facilities in the majority of countries, including Côte d'Ivoire. For inpatient services, public facilities are even more dominant and their share exceeded that of the private facilities in most countries[69].

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67 Plan National de Développement Sanitaire (2015)

68 Côte d'Ivoire Private Health Sector Assessment, USAID, PEPFAR, 2010

69 WHO, World Health Report (2010) Health services utilization and out-of-pocket expenditure at public and private facilities in low-income countries; Background Paper, 20

Table 12: Summary of public and private health facilities, 2010

Type of facility	Number	Per cent
Public sector health facility (2009-2010)	1,887	45.6
Semi-public facilities and institutions	11	0.3
Public health sector administrative services (2009-2010)	102	2.5
Authorised commercial health facilities (2009)	554	13.4
Unauthorised commercial health facilities	1,482	35.8
Private faith- and community-based health facilities	99	2.4
Total	**4,135**	100

Source: Ministry of Health, Policy Division (2011b)

In rural areas the gap is ever deeper because of higher access cost to private health services and also the remoteness of these services. The public services are mostly composed of First Health Facilities and General Hospitals. Based on the following, we can reasonably assume that of those who visited health practitioners, 70% consulted a government health facility and 30% a private health facility.

Rural households mainly consult First Health Facilities (ESPC). When patients are referred by ESPCs to public hospitals, we can reasonably assume that they will systematically face costs for medical tests. According to RASS 2017, the utilisation rate for hospital facilities was at 28.39%. This implies 2.88 cases of medical tests for our reference family size (10.3 x 0.28).

A visit to a health centre always occasioned costs for medicine, implying **10.3 cases of medicine cost for the family**.

Out of the 10.3 visits to health practitioners per year for our reference size family of six, 2.6% will be followed by hospitalisation based on information from ENV 2015, implying **0.27 occurrences of hospitalisation costs** (10.3 x 0.026).

Based on this information, we estimated the average health expenditure cost for our household of six persons. The calculation is summarised in Table 13, resulting in an estimated cost of **CFA 121,934 per year or CFA 10,161 per month**.

Table 13: Estimation of health costs

Items	Average cost public facility	Average cost private facility	Weighted average cost public/private	Number of household members	Number of occurrences per year	Average cost per family per year
Consultation cost CFA	1,000	5,000	2,200	6	10.3	22,660
Cost of medical tests CFA	2,813	3,411	2,993	6	2.88	8,619
Medicine cost CFA	6,269	11,664	7,888	6	10.3	81,245
Hospitalisation cost CFA	29,179	48,087	34,851	6	0.27	9,410
Annual average cost CFA						**121,934**

Source: The Authors

The preliminary estimate of NFNH costs for living income for rural cocoa growing region was CFA 84,402 per month. Since household expenditure statistics indicated that health expenditures represent 3.18% of total rural NFNH expenditures, this meant that approximately CFA 7,416 per family per month[70] was included for healthcare in the preliminary estimate of NFNH.

In light of the above rapid assessment estimates of healthcare costs, we added CFA 2,800 per month to our preliminary estimate of NFNH costs (i.e. CFA 10,161 needed minus CFA 7,416 included in preliminary NFNH estimate and rounded that number to CFA 2,800).

10. Provision for unexpected events to ensure sustainability

A 5% margin totaling CFA 12,479 (US$22) **per month was added** on top of basic costs for **unexpected events to ensure sustainability**. This provision was important because unforeseen events such as serious illness, accidents, or death of family members can quickly throw people living on a basic standard of living income into poverty and debt from which it is often difficult to recover. This provision will also help to cover some discretionary spending like church offerings or transfers to other family members as it's common practice in Côte d'Ivoire.

[70] After adjustment, NFNH was estimated at 36.1 of all rural household expenditures. And health expenditures represent 3.18% of all NFNH estimates. Thus the amount of health expenditures implicitly included in the preliminary NFNH estimate is 3.18/36.14 x 84,402 = CFA 7,416

Section III: Living Income for Smallholder Cocoa Farmers

11. FAMILY SIZE NEEDING TO BE SUPPORTED BY LIVING INCOME

For our living income estimate, we use a **family size of two adults and four children to be representative of cocoa households in rural Côte d'Ivoire**. This figure is a combination of two major factors: the total fertility rate underlying the number of children that women in rural areas typically have and the survival rate of children. The figure derived from the previous factor is adjusted based on household size from surveys and census. A detail on how we arrived at the household size used is provided below.

Living income is a family concept, as indicated in the definition given at the start of this report. It was therefore necessary to determine an appropriate family size for a typical family in rural Côte d'Ivoire cocoa growing areas.

11.1 Total Fertility Rate (TFR) and Under-5 Mortality Rate (U5MR)

According to the MICS 2017, women in rural Côte d'Ivoire have on average 6.0 children. Not all of these children survive as 10.8% of these children die before their fifth birthday in rural Côte d'Ivoire. This gives us an average 5.35 surviving children per woman in the rural area (i.e. 6.0 x (1 - 0.108)).

Given that the average birth interval in rural areas is 35.8 months, almost three years (MICS 2017), and that births are spaced over many years, the number of children under 18 years at different points in time will be less than the adjusted TFR because more than one child will reach adulthood and will probably not be part of the household. This gives an indication that the number of children under 18 years is therefore likely to be somewhat under five.

11.2 Indications on household size based on census and survey data

11.2.1 Multiple Indicator Cluster Survey (*MICS*)

Based on the Multiple Indicator Cluster Survey 2017[71], households in Côte d'Ivoire have on average 4.6 persons nationwide. But the percentage distribution of household member for rural and urban areas were not specifically available. Adjusting for household size when eliminating households of only one person[72] gives a mean adjusted household size of **5.1 members. In the 2012 survey, after adjustment,** rural household size was at 5.3 while urban household size was at 5.1.

11.2.2. General Population and Housing Survey 2014

According to the 2014 General Population and Housing Census (RGPH 2014), household size is 5.4 nationwide, with urban and rural household size at 5.0 and 6.0,

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[71] MICS (2017)

[72] According to the Anker methodology, before using data on household size from census and surveys, single-person households (which definitely do not include children) should be excluded, since they are not relevant for estimating a living wage/income, which is a family concept

respectively. For the cocoa growing rural areas, household size is the lowest in Tonpki (4.7) and the highest in Loh-Djiboua (6.0)

11.2.3. Agricultural Census 2017

According to the Agricultural Census 2017[73], Côte d'Ivoire counts 1,407,451 agricultural households, out of which 27% live in urban areas and 73% in rural areas. The household size nationwide is 7.1; for urban area and rural area agricultural households, the size is 7.4 and 7.0 respectively.

When using the aAricultural Census 2017 and focusing only on our regions of interest, main cocoa production areas**, the agricultural households' size is 7.0 for urban areas and 6.7 for rural areas**.

11.2.4. KIT (2018)

The data collected by the KIT[74] specific to cocoa growing households reveals that the mean household size of **cocoa producing households is 6.8** (KIT 2018).

11.3 Conclusion on household size

Based on the information above, the reference family size or household size for cocoa growers should be between 5.1 and 6.8. The higher end reflects household size from adjusted total fertility rate, as well as the KIT data. Most national surveys indicate the lower end. **It would be reasonable to take the mid-point value of six people as reference family size for the living income benchmark for cocoa growers.**

That said, **the composition of the reference family based on adjusted total fertility rate will be two adults and four children for** the living income benchmark for Côte d'Ivoire cocoa growers. Some data suggest more than two adults in rural households (see RGPH 2014). We could consider simulations with alternative scenarios with a family composed of 2.5 adults and 3.5 children or three adults and three children and evaluate the impact on the base scenario of the living income benchmark for cocoa growers i.e. impacts on model diets cost, housing cost and non-food and non-housing costs.

12. ADJUSTING THE LIVING INCOME BENCHMARK TO ALLOW COMPARISON WITH DATA ON ACTUAL INCOMES

In order to allow calculation of the income gap between actual income and living income, our original living income benchmark was adjusted to align with the KIT's data from their survey of rural cocoa growing households since the household compositions found in the KIT study differs from our reference family size and composition.

Using clustered analysis on the basis of the sex of the household head[75] and productive cocoa land[76,77], KIT's study identified two main types of cocoa households:

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73 Recensement des Exploitants et Exploitations Agricoles (REEA 2017)

74 KIT (2018): https://www.kit.nl/project/demystifying-cocoa-sector/

75 In the KIT study, the head of the household was self-determined by respondents

male-headed, typical households have an average of 2.3 ha of productive cocoa land and male-headed, large households starting at 4.5 ha, with an average of 7.3 ha of productive cocoa land.

A third analytical group, a female-headed analytical group, was identified but not used in the gap analysis by the researchers because the group sampled was relatively too small in size[78].

Male-headed, typical households accounted for 72% of cocoa growing households in the survey, while male-headed, large households accounted for 28% of cocoa growing households in the survey. The average number of persons per age groups in the two main types of cocoa household are summarised in the following Table 14.

Table 14: Average number of adults and children in different types of cocoa growing households

Household composition	Male-headed < 4 ha productive cocoa	Male-headed ≥ 4 ha productive cocoa	All
Children 0-17 years	3.35	3.33	3.24
Adults 18-29 years	0.92	1.2	1.04
Adults 30-60 years	1.8	2.06	1.88
Adults 60+ years	0.34	0.38	0.35
All household members	6.41	6.97	6.51

Source: Tyszler, Bymolt and Laven, 2018

Using the rounding rule of the Anker methodology[79], these two types of households are equivalent in size, i.e. 3.5 children (0-17 years), one young adult (18-29 years), two adults (30-60 years), and 0.5 adult (60+ years).

It was then necessary to develop a separate living income estimate for this type of household of seven members that is different in size and composition from our original reference family.

The estimates involved the following adjustments to the standard living income benchmark for cocoa growing areas:

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[76] Productive cocoa land was defined, in their study, as land used to cultivate cocoa where trees are at least five years old

[77] Other variables were also considered, but the strong grouping variables were sex of the household head and productive land. For details, please consult the KIT study website or contact the authors.

[78] Since the number of observations within the female-headed analytical group was too small, the researchers decided to not report further statistics from this group, since the confidence level and representativeness was too low and analysis would be misleading

[79] For the male-headed households < 4 ha: 3.35 children (0-17 years) rounded to 3.5 children (0-17 years); 0.92 adults (18-29 years) rounded to 1 adult (18-29 years), 1.8 adults (29-60 years) rounded to 2 adults (29-60 years) , 0.34 adult (60+ years) rounded to 0.5 adult (60+ years). That is summing to a household size of seven people i.e. (3.5+1+2+0.5). For the male-headed households > 4 ha: 3.33 children (0-17 years) rounded to 3.5 children (0-17 years); 1.2 adults (18-29 years) rounded to 1 adult (18-29 years), 2.06 adults (29-60 years) rounded to 2 adults (29-60 years), 0.38 adult (60+ years) rounded to 0.5 adult (60+ years). That is summing to a household size of seven people i.e. (3.5+1+2+0.5)

- The model diet was adjusted to allow sufficient calories (2392 calories) for the relevant household size and composition, with adults in the household disaggregated by age group and physical activity level.[80]
- The cost of housing was adjusted to accommodate more than two adults in the household, with an additional 10 m^2 allowed with an average rental cost of CFA 25,000[81] per month.
- For housing utilities, we took an increase of 25% of the original family expenditure for electricity, cooking fuel and water[82].
- Non-food non-housing costs were adjusted based on the revised cost of the model diet.
- Post-checks on education and healthcare give a necessary increase of CFA 7,900 and 2,800, respectively.

Table 15: Summary of living income benchmark and adjusted living income estimates developed to allow comparison with data on actual incomes in cocoa growing households (cost per month)

Items	Reference family size: 2 adults, 4 children		Male-headed, typical: 3.5 children, 3.5 adults	
	CFA	US$	CFA	US$
Model diet cost	**124,625**	**216**	**149,850**	**260**
Housing cost (Rent)	21,000	36	25,000	43
Electricity	5,350	9	6,544	11
Water	705	1	882	2
Cooking fuel	2,795	5	3,494	6
Total Housing Cost	**29,850**	**52**	**35,920**	**62**
Preliminary NFNH cost	84,402	146	101,486	176
Education adjustment to NFNH	7,900	14	7,100	12
Health adjustment to NFNH	2,800	5	4,000	7

[80] It was assumed that all three children have moderate physical activity level (PAL), one adult aged 18-29 has vigorous PAL, for older adults (30-60): one with vigorous PAL, and one with moderate PAL and 0.5 adults aged 60+ years has a sedentary PAL.

[81] The minimum house size for decency was increased from 50 m^2 to 60 m^2. The average rental cost is 423 x 60 = CFA 25,396, rounded to CFA 25,000

[82] The household size increased from six members to seven members, an increase of 17%. Because we were replacing 0.5 child with 1.5 adults, the increase on utility from the base model would be greater than 17%. We allowed for an increase of 25% of the original family expenditure for electricity, cooking fuel and water.

Total NFNH after post-check adjustment	**95,102**	**165**	**112,586**	**195**
Total living income before margin for sustainability	249,577	433	298,356	517
Margin for sustainability (5%)	12,479	22	14,918	26
Total Cost	**262,056**	**454**	**313,273**	**543**

Source: The Authors

Section IV: Estimating Gaps Between Living Income and Actual Incomes

In order to understand the gap between the living income benchmark and actual income, a gap analysis was prepared for the Living Income Community of Practice by Marcelo Tyszler, Roger Bymolt and Anna Laven from the Südwind Institute, the KIT Royal Tropical Institute. The KIT's study used data that they collected between November 2016 and March 2017 on current income diversification strategies and crop production activities involving 3,045 farming households in cocoa growing areas in Ghana and Côte d'Ivoire[83]. The following notes are the key findings reproduced from their report[84]. We will rely on the approach used by the KIT team to measure Côte d'Ivoire households' income estimation and on their analysis of the gap between the living income benchmark and actual income.

The KIT team used the following approach to estimate total annual income for cocoa households:

a) Only households which reported knowing their own production figures were considered (only 56% of cocoa producing households surveyed);

b) They computed the total cocoa production (kg/year) per household;

c) Total value of production (CFA/year) per household was computed by applying a fixed price of CFA 1,000/kg;

d) Annual input cash expenses (CFA/year) per household were computed for granular fertiliser, liquid fertiliser, herbicides, pesticides and fungicides;

e) Annual hired labor expenses (CFA/year) per household were also calculated for land clearing, land preparation, planting, granular fertiliser application, liquid fertiliser application, manure/compost application, herbicide application, fungicide application, weeding, pruning, harvesting, pod breaking and transporting;

83 The study can be accessed via https://www.kit.nl/sed/project/demystifying-cocoa-sector

84 For more details, visit the KIT's website

f) Net income from cocoa per household was computed as the value of annual production, minus annual expenses in inputs, minus annual expenses in hired labor;

g) Total household income was extrapolated using the estimated contribution of cocoa sales to the total household income;

h) To be comparable with the living income benchmark data, all values above were corrected using the variation in the Consumer Price Index (CPI) and converted to US$ using the same exchange rate as the Living Income Benchmark report.

i) To be comparable with the living income benchmark data, all values above were corrected using the variation in the Consumer Price Index (CPI)[85] and converted to US$ using the same exchange rate as the Living Income Benchmark report.

Before moving to the results found in the KIT study, it is important to notice that calculating actual household income is a complex task given that most smallholder farmers farm multiple crops simultaneously as well as having various sources of off-farm income and that KIT's comprehensive survey data was not specifically designed to measure actual income. It appeared that KIT's study is forthcoming about their limitations in accurately evaluating actual income.

An important limitation of their study is the fact that the value of crops produced and consumed at home was not included in the estimation of farmers households' annual incomes. The study authors highlighted that it was complex[86] to accurately compute for the exact value of home consumed food. Knowing that cocoa households produced a significant proportion of the food they consume, this can be a major meaningful shortcoming in the figures found. **This means that their findings should be taken as estimates only**.

Nevertheless, the impact of this omission will be less critical because households buy some of their food items at market. That is the case for high-quality proteins included in the model diet like meat, fish or milk. It is also the case for common stipend food like rice and bread that are also purchased. Furthermore, farmers mentioned during focus group discussions that they purchase a percentage of almost all food items consumed, including those commonly produced on their farms, at certain times of the year during times of lack.

Table 16 summarises the findings of KIT's analysis, for (i) 'typical' male-headed households with less than four hectares of productive cocoa and (ii) 'large' male-headed households with at least four hectares of productive cocoa.

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85 Data obtained from IMF, http://data.imf.org/regular.aspx?key=61545849. The CPI for Côte d'Ivoire in the reference period of the KIT study, (first quarter of 2016) was 111.35. The CPI for the second quarter of 2018, period of the living income benchmark data collection was 112.92. This implies an increase in almost 1.5% of the cost of living.

86 Refer to the full report on the complexity of estimating home consumed food

Table 16: Estimate of average prevailing incomes in different categories of cocoa growing households and gap between average incomes and adjusted living income estimates

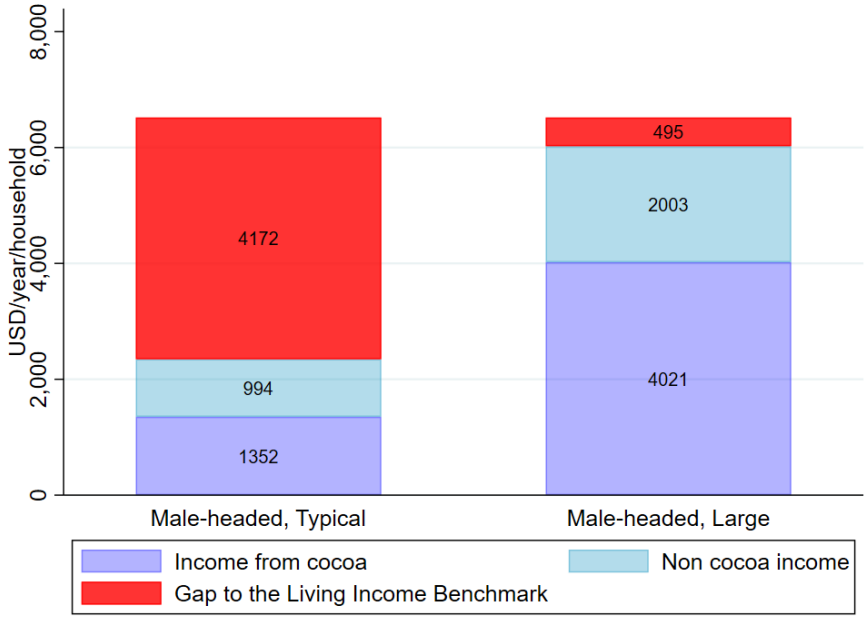
	Typical male-headed Household (< 4ha cocoa)	Large male-headed Household (≥4ha cocoa)
Productive land (ha/household)	2.3	7.3
Total cocoa production (kg/year/household)	798	2,407
Cocoa yield (kg/ha)	344	331
Producer price (US$/kg)	1.76	1.76
Value of production (US$/year/household)	**1,403**	**4,232**
Input costs (US$/year/household)	53	151
Hired labour costs (US$/year/household)	13	26
Total costs (US$/year/household)	**64**	**176**
Net income from cocoa (US$/year/household)	**1,352**	**4,021**
Share of cocoa in household income (%)	66%	72%
Total annual income (US$/year/household)	**2,346**	**6,023**
Total monthly income (US$/household)	**196**	**502**
Adjusted living income estimate(US$/month)	**543**	**543**
Gap between average household income and adjusted living income estimate (US$/household/month)	**347**	**41**
Average household income as a percentage of adjusted living income estimate	**36.1%**	**92.4%**

Source: Tyszler, Bymolt and Laven, 2018.

Notes: Each item (row) is calculated per household and the group average is presented in the table. Therefore, differences can occur from calculating totals based on the averages. This is because of a slight difference in number of observations per item, due to removing outliers or missing values that could not be inputted. The net income per year per household is the most relevant and complete number, while other numbers help in the buildup to understand the differences between groups.

The KIT study estimates that, on average, typical male-headed households earn CFA 1,353,357 (US$2,346) per year or CFA 112,780 (US$196) per month. Male-headed households with large land size earn CFA 3,474,346 (US$6,023) per year or CFA 289,529 (US$502) per month. Comparing with the adjusted benchmark of US$543 per month, the typical male-headed households earn 36.1% of the adjusted benchmark whereas male-headed households with large land size achieve almost the benchmark at 92%. Figure 10 represents gaps between average annual incomes and the adjusted benchmarks (converted to annual values) for the two types of households.

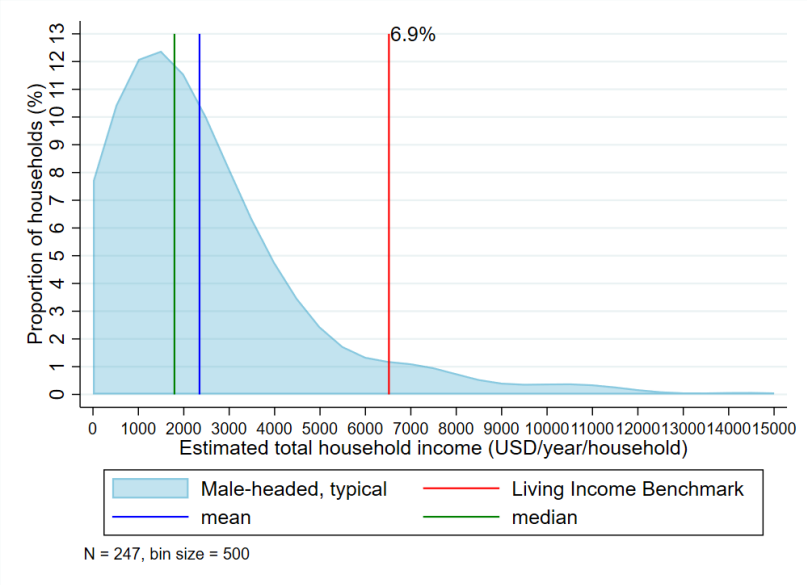
Figure 10: Average household income from cocoa and non-cocoa sources, and gap between actual incomes and the adjusted living income benchmarks, for typical male-headed households, and large male-headed households (US$ per year per household)



Source: Tyszler, Bymolt and Laven, 2018

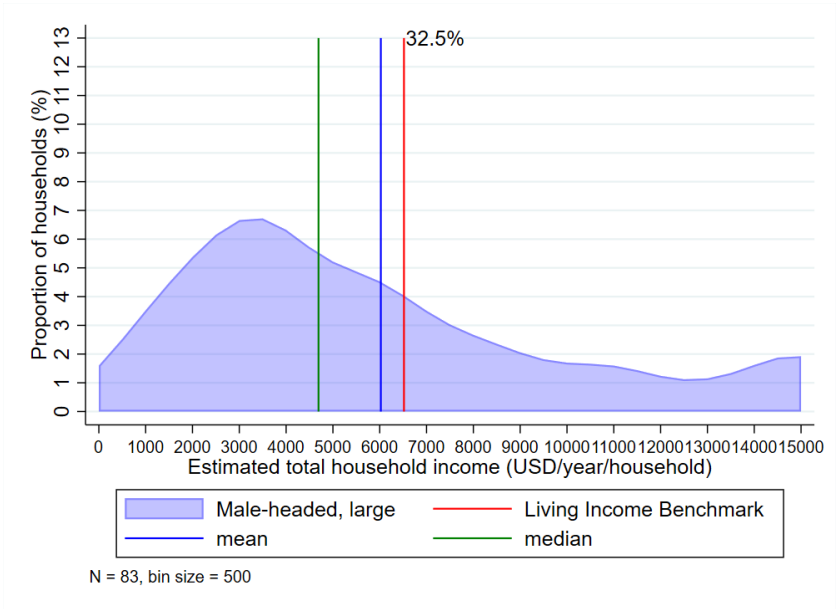
Figures 11 and 12 show the distribution of annual household incomes of each group compared to their group benchmarks and also highlight the percentage of households that are above the benchmark; we can notice that 32.5% of the male-headed, large households achieve the benchmark. For the male-headed, typical households, only 6.9% of them achieve the benchmark. Their study revealed that across the whole sample, only 13% of the households achieve the benchmark.

Figure 11: Distribution of estimated total household income for male-headed cocoa growing households with less than 4ha productive cocoa, and percentage of households with income at or above the adjusted living income estimate



Source: Tyszler, Bymolt and Laven, 2018

Figure 12: Distribution of estimated total household income for male-headed cocoa growing households with at least 4ha productive cocoa, and percentage of households with income at or above the adjusted living income estimate



Source: Tyszler, Bymolt and Laven, 2018

13. LIVING INCOME IN CONTEXT AND COMPARED TO OTHER WAGES

13.1 Living income ladder

To put our living income benchmark for rural Côte d'Ivoire cocoa growing regions into context by comparing it to other poverty indicators for the country, we prepared the living income ladder presented in Figure 13.

13.1.1. Minimum wage

The minimum wage[87] in Côte d'Ivoire since November 2013 is CFA 60,000 per month. We converted this into a minimum family income of CFA 99,000[88] per month, using for our reference a family size of 1.65 full-time equivalent workers[89].

13.1.2. National poverty lines

In Côte d'Ivoire, according to ENV 2015, the upper poverty line is CFA 269,075 per person per year while the extreme poverty line is at CFA 122,385 per person per year. Using our reference family size, this gives an upper poverty line family income of CFA 134,538 per month and a lower poverty line family income of CFA 61,193 per month in 2015. Adjusting for inflation[90], this gives an upper poverty line monthly family income of CFA 138,202 and a lower poverty line monthly family income of CFA 62,860 in 2018.

13.1.3. World Bank poverty lines

The World Bank uses US$1.90 (2011) PPP per person per day as extreme poverty line or an international poverty line and US$3.20 (2011) PPP per person per day as its poverty line for lower middle countries, like Côte d'Ivoire. The World Bank PPPs are based on 2011 prices. Using the PPP conversion factor[91] and after adjusting for inflation in the USA[92], we have for our family of six people an international poverty line of CFA 81,538 per month, and a lower middle-income country poverty line of CFA 137,328 per month.

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87 Décret n°2013-791 du 20 novembre 2013 portant revalorisation du salaire minimum interprofessionnel garanti

88 Family income = minimum wage x Number of full-time equivalent worker i.e. (60,000 x 1.65)

89 Number of full-time equivalent workers per family = 1+ proportion of full-time work per working age adult. Proportion of full-time equivalent work per working age adult = Average adult Labor Force Participation Rate (LFPR) × (1 − unemployment rate) × (1 − [part-time employment rate÷2]). With: LFPR = 70.9%; unemployment rate (U)= 3.0% and part-time employment rate (PT) = 10.9%; The LFPR for 25 years old and over for rural Côte d'Ivoire, from the ILO website, is 70.9. Unemployment rate nationwide is 6.9% according the ENV 2015, where rural unemployment is at 3%. Underemployment rate defined as rate of people who worked for less than 40 hours represented here in the ENV 2015 by SU2 is taken as a proxy for part-time employment rate. The value is 14.3% for total Côte d'Ivoire but 10.9% for rural Côte d'Ivoire. Number of full-time equivalent workers per family = 1 + 0.65 = 1.65

90 Assuming three years of inflation since the ENV in 2015 using CPI inflation rate from 2015 to 2017 from the IMF website at https://www.imf.org/external/datamapper/PCPIPCH@WEO/CIV. Rates of inflation were 1.2% for 2015, 0.7% for 2016 and 0.8% for 2017.

91 PPP conversion factor, private consumption (LCU per international US$) of 235.15 in 2016 from the World Bank website at https://data.worldbank.org/indicator/PA.NUS.PRVT.PP?locations=GH-CI.

92 Rates of inflation in the USA were: 2.1% in 2012; 1.5% in 2013; 1.6% in 2014; 0.1% in 2015; 1.3% in 2016 and 2.1% in 2017 according to the IMF website: https://www.imf.org/external/datamapper/PCPIPCH@WEO/OEMDC/ADVEC/WEOWORLD/USA

Figure 13: Living income benchmark compared to other economic indicators in CFA

Source: The Authors

As we can see from Figure 13, our living income benchmark for rural cocoa growing areas of Côte d'Ivoire is higher than all of the other reference points taken. It is almost two times the national poverty line and the World Bank poverty line for middle-income countries. And nearly four times the national extreme poverty line and more than three times the World Bank international poverty line.

Note that we could not include KIT's estimate of average incomes in the cocoa sector in the living income ladder, as their figures relate to different household sizes and are therefore not comparable with the other reference points used.

14. CONCLUSIONS

Our living income for rural cocoa regions in Côte d'Ivoire for August 2018 is CFA 262,056 (US$454) per month, representing the net income required for a basic but decent standard of living for a typical family of two adults and four children. Table 17 provides a summary of the calculation of the living income benchmark estimates comprising CFA 124,625 (US$216) for food, CFA 29,850 (US$52) for housing, CFA 95,102 (US$165) for non-food non-housing expenses (healthcare, education, clothing, transport, communications, furniture and other household expenses) and an additional CFA 12,479 (US$22) included to allow the family to face unplanned or occasional events (e.g. weddings, funerals, illnesses, etc).

Table 17: Summary of living income estimates

Item	Local currency	US$
PART I. FAMILY EXPENSES		
Food cost per month for reference family (1)	**124,625**	**216**
Food cost per person per day	692.36	1.2
Housing costs per month (2)	**29,850**	**52**
Rent per month for acceptable housing	21,000	36
Utilities and minor repairs per month	8,850	15
Non-food non-housing costs per month taking into consideration post-checks (3)	**95,102**	**165**
Preliminary estimate of non-food non-housing costs	84,402	146
Healthcare post-check adjustment	2,800	5
Education post-check adjustment	7,900	14
Additional 5% for sustainability and emergencies (4)	**12,479**	**22**
Total household costs per month for basic but decent living standard for reference family (5) [5=1+2+3+4]	**262,056**	**454**

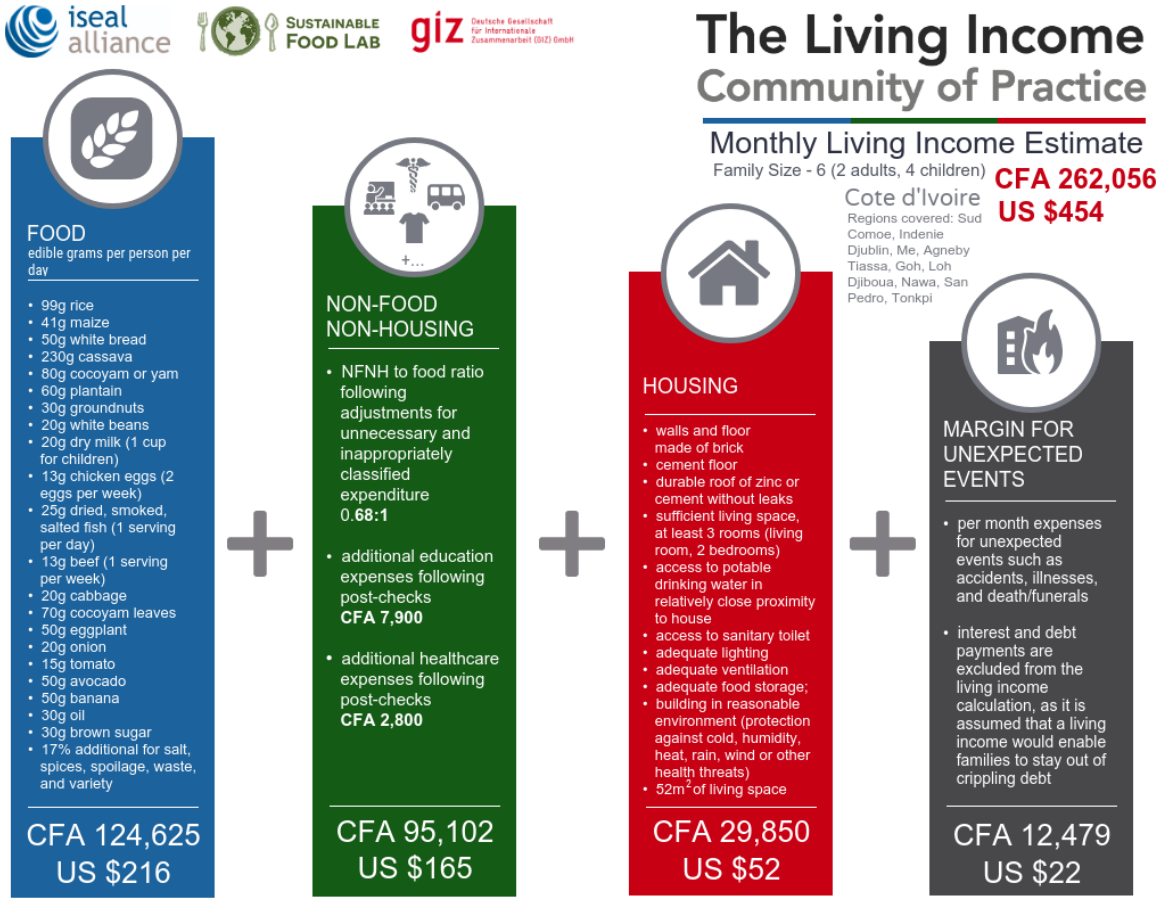
Source: The Authors

Table 18: Key values and assumptions

KEY VALUES AND ASSUMPTIONS	Comments
Location	Rural forest cocoa areas in the followings regions: Gôh, Loh Djiboua, Nawa, Mé, Agnéby, Tonkpi, Indénié-Djuablin, Sud-Comoé and San-Pedro.
Exchange rate of local currency to US$	CFA 576.81 to US$ (17 August 2018)
Reference family size	6
Number of children in reference family	4
Ratio of non-food non-housing costs to food costs	0.76

Source: The Authors

Figure 14: Detail composition of living income estimates



Source: The Authors

Our living income benchmark for rural cocoa regions is around four times the national extreme poverty line and equivalent to around twice the World Bank's US$3.20 PPP poverty line for middle-income countries and the national upper poverty line. The KIT Royal Tropical Institute, based on data collected on cocoa growing households in 2017 estimated actual income, found that, on average, typical male-headed households, with less than four hectares of productive cocoa earn 36.1% of the living income benchmark, while male-headed households with large land size (more than four hectares), on average earn 92% of the living income benchmark. Furthermore, 32.5% of the male-headed, large households achieve the benchmark. For the male-headed, typical households, only 6.9% of them achieve the benchmark. Across the whole sample, only 13% of the households achieve the living income benchmark. Even though the KIT study estimating actual income presents some limitations[93], it appears that there is an important gap between actual income and living income. That does not mean the living income was unrealistic or over-estimated.

It is important to emphasise that our living income estimates are based on conservative assumptions adapted to the local context. The benchmark cost calculations follow a rigorous methodology combining high quality national and international secondary data and firsthand data collected locally with cocoa growers,

[93] An important limitation of their study is the fact that the value of crops produced and consumed at home was not included in the estimation of farmers households' annual incomes because it was complex to accurately compute for the exact value of home consumed food

food sellers, healthcare providers, education managers, local housing renters, and other key informants on local living conditions. We allow for a low-cost nutritious diet consistent with local food preferences but which meet international standards including relatively inexpensive food items that cocoa growers already consume. For this reason, cassava and rice provide close to 35% of the diets' calories when a sufficient amount of proteins is provided, mainly by cheap smoked or dried fish commonly consumed and supplemented with low-cost protein sources such as beans and groundnut. The housing costs estimates are derived from local rental prices for basic but decent dwellings respecting minimum standards and include the related housing utility costs for water, cooking fuel and electricity. We also assume that cocoa growers' children attend government public schools not private schools and their family has the minimum means for their healthcare expenses that are not currently covered by medical insurance.

It should not be surprising that there is a significant gap between actual income and our living income, given that cocoa smallholder farmers currently do not earn enough to afford a basic standard of decency in their living conditions. Most cocoa farmers we visited during the fieldwork live with their families in mud houses with just one or two small rooms with toilets and other household equipment in very poor conditions. Meeting their family's basic food needs is difficult, mainly during lean seasons. Likewise, although state education is in theory free, households are spending a considerable amount of their income on their children's education. Healthcare is a major source of concern for most of them as they don't benefit from any medical insurance coverage. Many cocoa families supplement their cocoa income with other economic activities, including growing and selling other crops and being involved in petty trades.

That said, closing the gap between actual income and living income is not the responsibility of only one actor. It will be a joint effort of all the stakeholders of the cocoa sector in the country, including the producer in the focus. No single factor will be determinative in improving the current situation. The strategy will be to identify all potential sources of improvement along the chain, from the production side to the marketing side, and act collegially to move forward in improving living standard conditions of cocoa smallholder farmers.

Our hope is that this report, and our estimates of a living income benchmark, will be an important tool in measuring progress along the way to help the ongoing process of stakeholder dialogue in improving fair income distribution in the cocoa sector in Côte d'Ivoire.

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