

# Nutritional status among cocoa farming families and underlying causes in Côte d'Ivoire



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## Executive summary

IDH has a program, the Cocoa Learning and Innovation Program (CLIP) to work towards a more sustainable livelihood for the cocoa farmers. One element of the program approaches the issue malnutrition. In this report a desk research is done to assess the nutritional status and underlying causes among cocoa farming families in Côte d'Ivoire. The main indicators which will be looked at are stunting and anemia. When assessing the underlying causes, dietary diversity is an important indicator.

Since limited information is available on the nutritional status among cocoa farming families, data on national and regional level are used. When levels of malnutrition are high in cocoa producing regions it will be assumed that the situation for the cocoa farming families will not be adequate. Indicators on malnutrition show that the stunting levels are high in cocoa producing regions and that the national average is just below the cut-off point of high, so medium. In addition to the stunting levels anemia in both children under-5 and women is exceeding the 40% prevalence which indicates a severe public health problem. Anemia is known to be directly related to a decrease in productivity.

The underlying causes of malnutrition are analyzed based on the UNICEF conceptual framework: nutrition, care and (infectious) diseases related to water, sanitation and hygiene. Immediate causes of malnutrition are inadequate dietary intake and diseases. The major contributors to the high prevalence rate of anemia are inadequate iron intake and malaria. Another example of a disease influencing malnutrition is diarrhea. 18% of the children under-5 experienced diarrhea in the past 2 weeks and 33% of the children receiving no treatment. The impact of diarrhea with regards to nutrition is malabsorption which leads to loss of nutrients and appetite loss. The basic causes of diarrhea are lack of sanitation, drinking water and handwashing. The lack of the basic causes is higher in rural areas than in urban areas.

The other immediate cause of malnutrition is inadequate food intake. Inadequate food intake is not only the lack of quantity (not enough energy) but also to lack of quality (lack of essential macro – or micronutrients). Overall the diet in Ivory Coast is monotonous and staple-based which indicate low level of household dietary diversity. This is in line with the diet in two cocoa producing villages (Aboisso and Agboville). The primary food groups consumed by the households are carbohydrates (rice, corn, manioc, igname, and plantain), vegetables (okra, eggplant, tomato, leafy vegetables) and little protein from fish.

Household nutrition security is dependent on three factors: availability, access and usage. Regarding availability, most of the food is derived from their own farms and gardens. Access refers to affordability. In general, thanks to the crop production the majority of the rural households in Aboisso and Agboville have sufficient purchasing power to guarantee a steady supply of basic food products. Lastly usage is a factor regarding knowledge, attitude and practice. Despite that varied and sufficient food is available, poor food habits appear to be the major constraint to the adoption of good household nutritional practices. The women, responsible for the household menus, choose meal composition based on tradition and culture, not availability.

## 1. Context

IDH has a program, the Cocoa Learning and Innovation Program (CLIP) to work towards a more sustainable livelihood for the cocoa farmers. There are different innovation areas such as financing, nutrition & gender and sustainable land use. For the innovation area nutrition and gender, CLIP will support a scientific, fact-base prototyping approach to issue malnutrition. Before a nutrition intervention is implemented, it should be assessed whether there is a nutrition problem among the farmers in the supply chain. IDH asked GAIN to perform a situational analysis for Ivory Coast and Ghana to see what the major malnutrition issues are and what are the underlying causes of this malnutrition. The goal of the desk research is to identify primary nutritional deficiencies, causes of malnutrition and barriers to improved nutrition through desk research of existing information, reports from partners, research institutions, local governments and the health and agricultural sector. This desk research provides a foundation for further research in order to design a scientific, fact-based prototype.

GAIN has been working on Nutrition programs in the tea sector for a few years. GAIN started a pilot to improve the nutrition situation for small holder farmers in the tea sector in Indonesia, which resulted in a significant increase in dietary diversity. Building on this experience, Unilever and GAIN started a project in 2014 in Southern India to further develop this approach amongst small holder farmers and workers in tea factories. These programs started with desk research to understand the nutritional and dietary situation of the population in the tea farming regions (specific data for tea farming families were not available).

We follow a similar approach as is applied in the tea sector. We will make use of 3 manuals that were developed to get a better understanding of the nutrition situation among farmers in the tea supply chain. The first manual was developed to guide desk research as an initial appraisal of the health and nutrition situation in country and at regional level using existing data. The findings of the desk research are shown in this report. The next manual is developed to gain better insight in the nutrition situation of farmers in the supply chain. This step will be done in the field and can be performed by a local stakeholder. The last step is also performed in the field and is necessary to provide a deeper insight into the underlying causes of the nutrition problem. This step should be performed by a nutritionist in order to get the most accurate results.

## 2. Research methodology

The first manual developed for tea is the foundation for this desk research and will be addressing the following questions<sup>1</sup>.

### Main research question

- What is the nutritional status among cocoa farmer households in Ghana and Ivory Coast?
- What are the underlying causes of this nutritional status?

### Sub questions

To answer the main research question, different regions will be looked at. The target group is the cocoa producing families but because of limited information on this specific group there will also be looked at the regional levels where cocoa production is highest and the national level. When levels of malnutrition are high in the cocoa producing regions it will be assumed that the situation for the cocoa farmers will not be adequate.

When it has been noted that the malnutrition status is a problem, the UNICEF conceptual framework for maternal and child nutrition is used to support and determine the underlying causes of malnutrition<sup>2</sup>. The UNICEF framework identifies three levels of causes of undernutrition: the immediate causes, underlying causes and the basic causes. The immediate causes consist of disease and inadequate dietary intake. Several diseases have an impact on the nutrition status. The diseases which will be given extra attention are diarrhea and malaria.

### Malnutrition

- What is the nutrition status of children, women and men on country level?
- What is the nutrition status of children, women and men in the cocoa producing regions?
- What is the nutrition status of children, women and men in cocoa producing families?

### Underlying causes

- What are the statistics in cocoa producing regions on the different diseases influencing malnutrition? (malaria, diarrhea).
- What are the causes of inadequate dietary intake?
- What are the barriers to improved nutrition?

### Indicators

The main indicators which will be looked at are stunting, anemia and dietary diversity score. An explanation of the indicators is given in this section.

Stunting (short for age) levels are used as an overall indicator of chronic malnutrition. Stunting is an indicator for lack of macro- or micronutrients as a consequence of poor diet, lack of care or diseases (UNICEF framework). A poor diet does not only refer to lack of quantity (not enough energy) but also to lack of quality (lack of essential macro – or micronutrients). It is an easy measurable indicator and is continuously collected making it easy for regional and cross-country comparisons.

Another indicator of the nutritional status in Ivory Coast is anemia. Anemia is used as an indicator because it is seen as a severe problem and it is directly related to productivity in adults. Anemia is a condition of low levels of hemoglobin in the blood. This results in a reduced amount of oxygen being transported in the body. Iron deficiency causes at least 50% of all anemias in Africa<sup>3</sup>. When the person is iron deficient, an insufficient amount of blood cell production takes place. Another important cause of anemia in developing countries is malaria; in this case excessive red blood cells are being destroyed due to the malaria.

Dietary diversity score is used as a key indicator of the nutrient adequacy of the diet. Good nutrition is best provided by a balanced diet, consisting of many different types of foods. The difference is the mix: the more varied one's diet, the healthier it is<sup>4</sup>. A dietary diversity score measures the amount of food groups eaten the previous day but says nothing about the quantity. A daily consumption of at least 5 food groups out of ten is seen as adequate to obtain all the necessary micronutrients. It is a simple count of food groups and therefore easy to perform.

### Source of information

The methodology for the research will be following the GAIN CCVN methodology<sup>1</sup>. Resources that were used were the Global Nutrition Report, World Bank (Nutrition at a Glance), the Demographic and Health Surveys (DHS) for both national as regional level. The DHS of 2011 is used for this desk research.

Normally the DHS is every 5 years, but the collection of more recent data has not been started yet. In addition articles were used which were already available within GAIN, such as GAIN Landscape Analysis for different developing countries<sup>5,6,7</sup>. A search was performed in databases such as PubMed, Scopus and Web of Science for relevant published literature or websites. And finally a request is made for additional information via partners, who had access to studies or other relevant information that was not published in the scientific literature or on the internet.

In the databases PubMed, Scopus and Google Scholar a search was undertaken to identify relevant studies. The keywords such as cocoa, cocoa producing regions, cocoa producing households, cash crops, Ivory Coast, malnutrition, stunting, anemia, dietary intake, dietary diversity and food security were used in different combinations. A systematic approach was done with the keywords related to the dietary intake.

- Stunting AND Ivory Coast
- Anemia and Ivory Coast
- Malnutrition AND Ivory Coast
- Dietary intake AND Ivory Coast
- Dietary diversity AND Ivory Coast
- Diet AND Ivory Coast
- Consumption patterns AND Ivory Coast
- Eating habits AND Ivory Coast

In addition, a bibliographic search of all the included studies was performed to identify any additional literature. The search was undertaken in March-April 2016.

All studies were screened on relevance related to the research questions based on the title and apparently irrelevant articles were removed. The remaining papers were reviewed by abstract to identify in more detail those that could be useful for the desk research.

For the systematic approach the inclusion and exclusion criteria are shown below.

Inclusion criteria were:

- Language: articles have to be in English
- Study was conducted in Ivory Coast
- Types of outcomes such as malnutrition indicators and dietary indicators

Exclusion criteria were:

- Articles that used the DHS older than 2008
- Articles older than 2011 (The search was limited to articles published in and after 1993)
- Disease specific information such as HIV, sickle cell anemia and Parkinson's

For the French literature a small search is done in Google Scholar and google. The main databases such as Pubmed and Scopus had no additional articles in French.

### 3. Country context

The Republic of Côte d'Ivoire, sometimes referred to as the Ivory coast, is a country located in the West Africa. Formerly it was a French colony and gained its independence in 1960. The land area consists of 322,462sq km with the capital city Yamoussoukro. The country borders Burkina, Faso, Ghana, Guinea, Liberia and Mali. Generally the climate is warm and humid and is, overall transitional from equatorial to tropical. Côte d'Ivoire, for the region, has a relatively high income per capita (US\$1014.4 in 2013) and plays a key role in transit trade for neighboring, landlocked countries. Côte d'Ivoire is essentially an agricultural country. Most of the population engaged in agriculture, livestock rearing<sup>8</sup>. The market-based economy relies heavily on agriculture, with smallholder cash crop production being dominant. The country is the largest exporter of cocoa beans<sup>9</sup>. The population consists of more than sixty ethnic groups and the main religion is Muslim.



Figure 1 Côte d'Ivoire

## 4. Nutritional status

### 4.1 Overview of the national nutritional situation

Table 1 presents indicators of health, food security, nutrition status and vitamin and mineral status. Health indicators indicate the general health of the population such as life expectancy and under-five mortality. The life expectancy at birth is 51.5 and the under-five mortality is 100 per 1,000 live births. To consume food it is important that it is accessible and affordable. Therefore food security indicators are related to income. 35% of the people in Ivory Coast have an income below 1.25 US dollar (extreme poverty) and 59% of the population below 2.00 US dollar a day which indicates poverty. The prevalence underweight, stunting and wasting in Côte d'Ivoire can be indicated as medium. Anemia is present in 75% of the children aged 6-59 months and 54% among women. At last indicators are shown for vitamins and breastfeeding. Only 12% of the children are exclusively breastfed during the first six months of life.

**Table 1 Indicators of health, food security, nutrition status and vitamin and mineral status in Ivory Coast**

Indicator	Value	Year
<b>Health indicators</b>		
Human Development Index	172 <sup>th</sup> out of 188 countries	2014 (10)
Life expectancy at birth	51.5	2014 (10)
Under-five mortality rate	100 per 1,000 live births	2013 (11)
<b>Food security indicators</b>		
Population below \$1,25 a day	35%	2008 (12)
Population below \$2 a day	59%	2008 (12)
Prevalence of undernourishment (below minimum dietary energy consumption)	15%	2013 (13)
<5% = Not significant, 5 – 9% = Low, 10 – 19% Moderate, 20 – 34% High, >= 35% Very high		
Hunger and Nutrition Commitment Index	24 <sup>th</sup> out of 45 developing countries	2016 (14)
1 – 8 = High commitment, 9 – 20 = Moderate commitment, 21 – 29 = Low commitment, 30 – 45 = Very low commitment		
<b>Nutrition indicators</b>		
Percentage of children under five affected		
Stunting	29.6%	2011 (15)
<20% = Low, 20 – 29% = Medium, 30 – 39% = High, >=40% = Very high		
Wasting	7.6%	2011 (15)
<5% = Low, 5 - 9% = Medium, 10 - 14% = High, >=15% = Very high		
Underweight	14.2%	2011 (15)
<10% = Low, 10 - 19% = Medium, 20 - 29% = High, >=30% = Very high		
Low birth weight (<2500 g)	14.2%	2011 (15)
<b>Vitamins and minerals</b>		
Vitamin A deficiency in children aged 6 – 59 months	52%	2013 (16)
Anemia among children age 6-59 months	75%	2011 (15)
<5% = normal, 5-19% = mild, 20-39% = moderate >40% = severe		

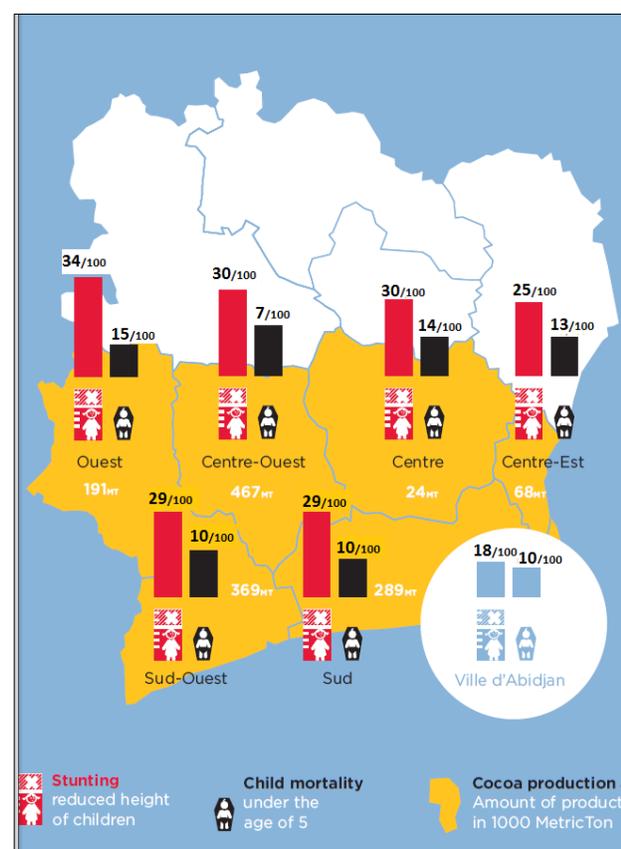
Anemia among women age 15-49 years <5% = normal, 5-19% = mild, 20-39% = moderate >40% = severe	54%	2011 (15)
Anemia among men <5% = normal, 5-19% = mild, 20-39% = moderate >40% = severe	29%	2011 (15)
Iodized salt consumption	84%	2011 (15)
<b>Intervention Coverage</b>		
Severe acute malnutrition, geographic coverage	2%	2012 (16)
Antennal care (4+ visits)	44%	2011 (17)
Children fully vaccinated age 12-23 months	51%	2011 (15)
Vaccination coverage DTP3	67%	2014 (18)
Vaccination coverage measles	63%	2014 (18)
Children under 5 with diarrhea receiving ORS	17%	2011 (17)
Vitamin A supplementation	99%	2013 (17)
<b>Breastfeeding</b>		
Early initiation (started breastfeeding within 1 hour of birth)	31%	2011 (15)
Exclusive breastfeeding for the first six months	12%	2011 (15)
Continued breastfeeding at 1 year	86%	2011 (17)

## 4.2 Nutritional status in cocoa producing areas

Côte d'Ivoire is the world's leading producer of cocoa, with an average annual production of 1.5 million metric tonnes, accounting for approximately 40% of the world production. Cocoa provides employment to more than 900,000 farmers and 3.5 million inhabitants live directly off the crop. Around 95 % of production comes from small scale farms<sup>19</sup>.

Cocoa production is spread over six out of ten regions in Côte d'Ivoire. The regions are Ouest, sud-ouest, centre-ouest, sud, centre and centre-est<sup>20</sup>. Specific nutritional data for cocoa farmers are not available but an analysis of the households in regions with higher prevalence of cocoa farmers indicates poor dietary diversity, high levels of stunting, child and maternal anemia and anemia in women of reproductive age.

In figure 2 the stunting and under-5 mortality divided per region is shown<sup>15</sup>. In the region centre, centre-ouest and ouest the stunting levels are higher than national average. The national average of 29% is bordering high levels of stunting in the country using the WHO cut-off points for stunting<sup>21</sup>. This indicates that the entire country has low levels of nutrition security, resulting in chronic long-term malnutrition. In cocoa producing regions the



WHO Cut-off point stunting in children under-5 (percentage below 2SD) <20% = Low, 20 – 29% = Medium, 30 – 39% = High

**Figure 2 Stunting and mortality prevalences in cocoa producing regions in Ivory Coast**

prevalence is 30% and in the Northern regions the highest prevalence in stunting is seen. The lowest levels are seen in Abidjan with 18%.

The anemia percentages are shown for both children under-5 and women aged 15-49 divided per region in figure... Anemia levels above 40% are seen as a severe problem according to the WHO<sup>22</sup> which is the case in all regions as well as the national average for children and women. The national average of anemia in men is 29%. Anemia impairs adult productivity immediately, and intervening to reduce anemia may increase adult productivity by 5-17 per cent. The most common causes of anemia in Ivory Coast are inadequate dietary intake of iron, malaria and intestinal worm infestation<sup>3</sup>.

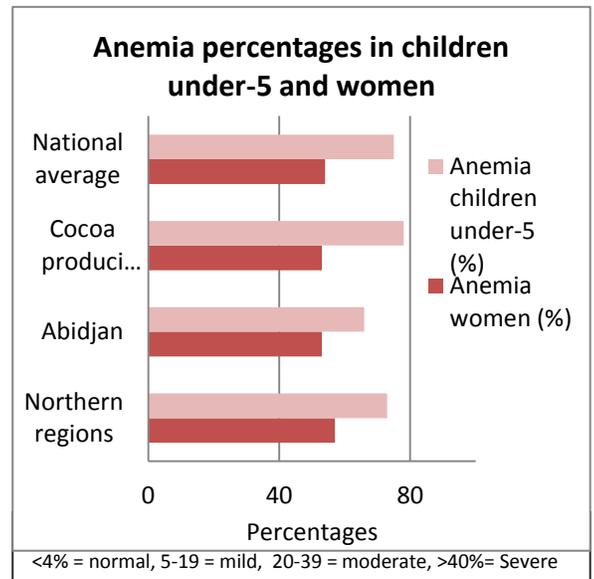


Figure 3 Anemia percentages in children under-5 and women in different regions in Ivory Coast

## 5. Causes of malnutrition

Malnutrition has many causes divided into immediate, underlying and basic causes. In the UNICEF conceptual framework<sup>2</sup> on maternal and child malnutrition all causes are addressed (figure 4).

Immediate causes of malnutrition are inadequate dietary intake and diseases. Diseases can be caused by inadequate care or unhealthy household environment (hygiene).

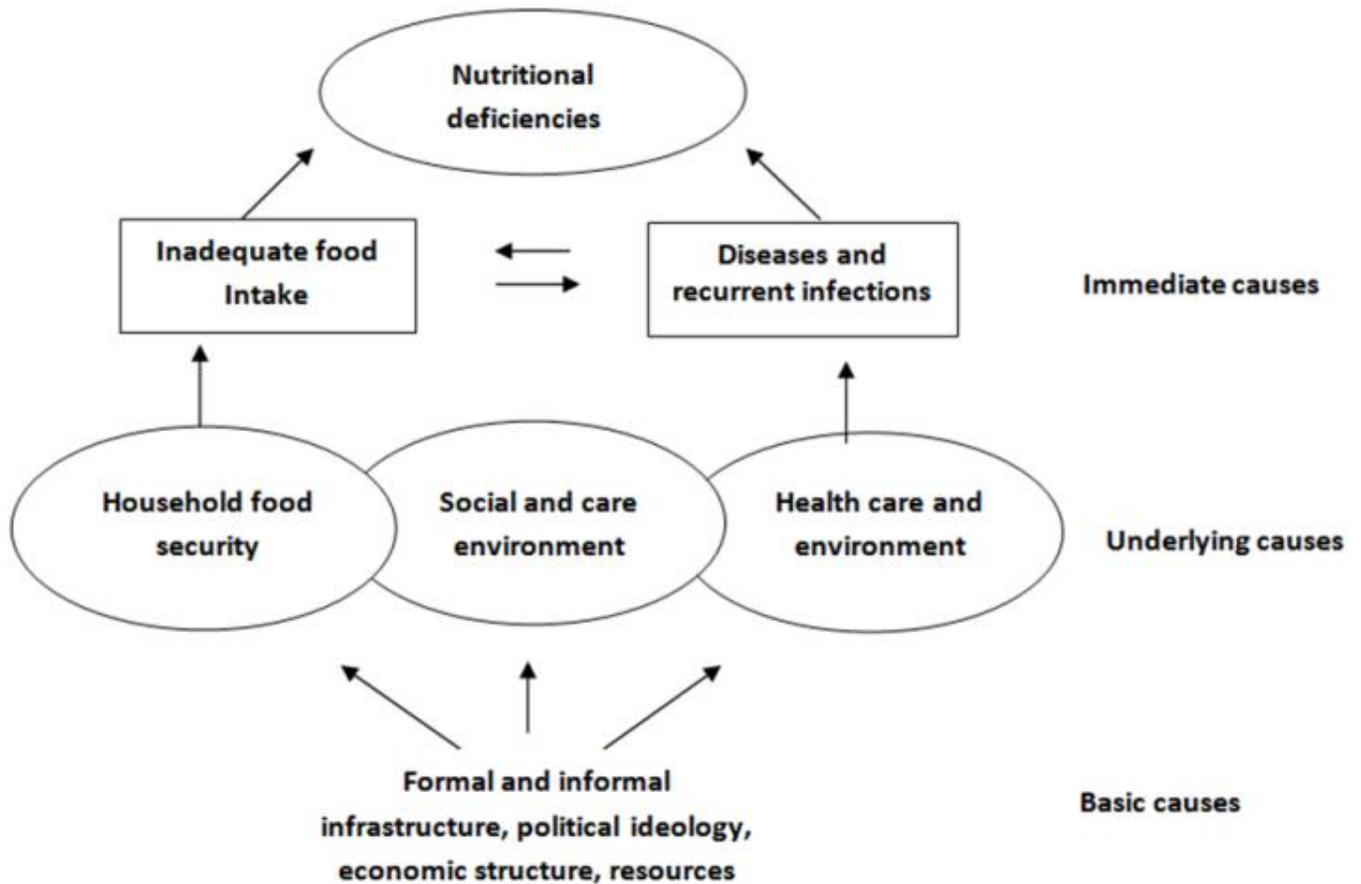


Figure 4 UNICEF conceptual framework causes of malnutrition

### 5.1 Diseases influencing malnutrition

The major contributors to the high prevalence rate of anemia are inadequate iron intake and malaria. Malaria fits under the heading diseases and can be decreased by interventions such as mosquito nets. Another example of a disease influencing malnutrition is diarrhea. 18% of the children under-5 years experienced diarrhea in the past 2 weeks and 33% of the children receiving no treatment<sup>15</sup>. The impact of diarrhea with regards to nutrition is malabsorption which leads to loss of nutrients and appetite loss. The basic causes of diarrhea are lack of sanitation, drinking water and handwashing<sup>23</sup>.

Hand washing is one of the most efficient ways to stop germs from spreading and protect people from contracting communicable diseases. Among the observed households, 48% of the households did not have water, soap or other cleansing agents<sup>15</sup>. More than half of the households did not have improved sanitation facilities in Ivory Coast. With a big difference found between urban and rural, 24% and 78% respectively. The same accounts for clean drinking water. 7% of the urban and 32% of the rural households don't have access to clean drinking water and the national average is 21%<sup>15</sup>. The percentages of households not using water or soap, having non-improved sanitation facilities and not having access to clean drinking water are shown in figures 5, 6 and 7.

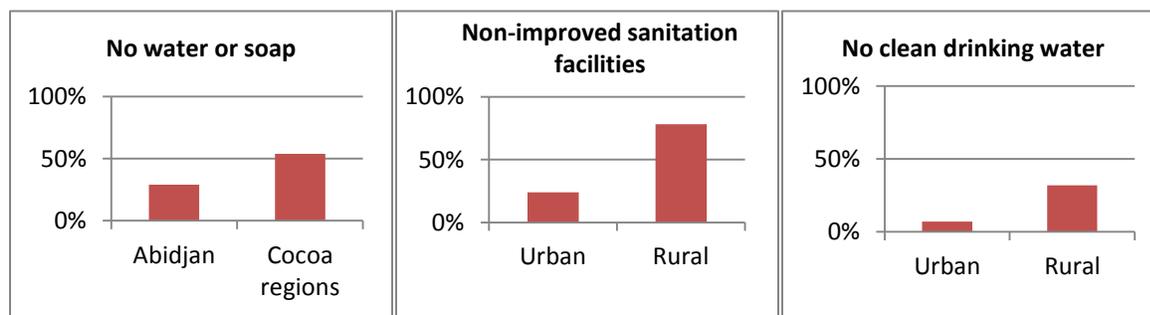


Figure 5 Percentage of households not using water or soap for handwashing

Figure 6 Percentage of households having non-improved sanitation facilities

Figure 7 Percentage of households having no access to clean drinking water

## 5.2 Inadequate food intake

The other immediate cause of malnutrition is inadequate food intake. Inadequate food intake is not only the lack of quantity (not enough energy) but also to lack of quality (lack of essential macro – or micronutrients). Over the period 2001-2007 the level of national food availability expressed in calories per person per day was averaged on 2542 calories<sup>24</sup>. On the contrary, the national survey of 2015 stated that 12.8% of the households were food insecure<sup>25</sup>. This percentage is higher in rural areas than in urban areas (15% and 10.6% respectively). The analyses of the professions show that households in agriculture and services are more vulnerable to food insecurity than other professions, both above the average of 12.8%, this is also stated in FAO plan Côte d'Ivoire<sup>26</sup>. The household food security became worse in comparison to the data in 2009, this can be due to the crisis in 2011. There tends to be a difference in food consumption patterns between food secure households and food insecure households. Food secure households consume 5 food groups (staples, protein, green leafy vegetables, tubers and oils), where food insecure households consume 3 food groups (staples, tubers and green leafy vegetables<sup>25</sup>).

Overall the diet in Ivory Coast is monotonous and staple-based which indicate low level of household dietary diversity<sup>25, 27</sup>. The diet consists out of 73.6% of the total consumed energy out of carbohydrates, 18.3% fat and 8.2% proteins. Comparing these percentages to the norms it can be concluded that the diet consists of too much carbohydrates and too little proteins and fat<sup>28</sup>. In the age category 6-23 months it is stated that approximately 66% of the children have a non-diverse diet. The quality of the diet of the child is related to the household diet<sup>26</sup>. Especially in the northern, western and south-western part of Ivory Coast there are high percentages of children without a diverse diet. In Soubré a cocoa producing

village, the percentage of people consuming less than 3 food groups was 94.3% and the percentage for people consuming 4-5 food groups was 5.7%<sup>29</sup>. The very low inadequate micronutrient intakes can primarily be explained by this limited diversity.

One study conducted in Aboisso and Agboville, two cocoa producing villages, give more in depth information about food habits and consumption patterns. The analysis was done during a time when food was relatively available and accessible in the communities. There are a few nutrition indicators which give an overall view of the diet. At first the quantity will be discussed. People in these two villages tend to meet their energy needs, apart from some exceptions during the off-seasons. This energy is met by energy foods such as carbohydrates: rice, cassava, plantain and igname. These are the most dominant food in the rural households. 60% of the 23 surveyed households have consumed rice at least once during the last seven days and 80% of the households consumed cassava, plantain or igname in the last seven days. There tend to be a difference between migrants and natives. Natives consume overall more plantain and migrants more rice<sup>30</sup>. It is important to note that this is a household survey and not a survey done for the individual. Within a household not everyone consumes the same and therefore this should be taken with caution.

Another indicator is varied and balanced. Households rarely vary food groups and menus focus on the energy foods with strength foods under consumed and protection foods almost inexistent. Strength foods can be based on plant origin such as beans, lentils, peanuts and soybeans or animal origin consisting of fish, shrimp, egg, poultry, meat, milk. Fish is available and accessible but is often consumed in very small quantities. Households derive most of their protein from a daily consumption of the fish with 100% of the households indicating having consumed fish during the last seven days. Red meat and poultry consumption is rare. Essential food groups such as dairy products (milk, butter, cheese) and eggs are absent from the household diet. This can be due to believes for example that if a child consumes eggs, they will become a thief. The protection foods consist of vegetables such as leafy vegetables, okra, eggplant and tomatoes and fruit. The consumption of vegetables is frequent particular through sauces. The consumption of fruits is not habitual; it is limited to periods of abundance and is eaten in the field to satiate hunger during work. The food pyramid below outlines the primary groups and types of food consumed by households<sup>30</sup> (figure 8).

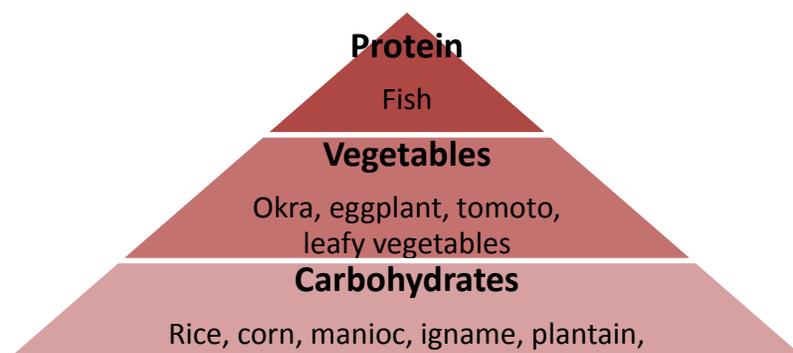


Figure 8 Food pyramid outlining the primary food groups consumed by households

### 5.2.1 Household Nutrition Security

Household nutrition security is dependent on three factors: availability, access and usage. Again the study performed in Agboville and Aboisso is used to assess these factors applying on the cocoa villages. Food availability relates to the supply of food through production and distribution. Agriculture is the primary economic activity in Agboville and Aboisso. All surveyed households derive most of their food from their own farms and gardens. In addition, the markets of Aboisso and Agboville are sufficiently supplied with other necessary foods such as meat, fish, salt, tomato and seasonings. Fruits grow in abundance and diversity, and are generally obtained without major financial or physical effort<sup>30</sup>.

Food access refers to the affordability. Thanks to large crop production (cocoa) the majority of the rural households have sufficient purchasing power to guarantee them a steady supply of basic food products. The majority of the respondents reported they generally consume three meals per day.

Lastly usage is a factor regarding knowledge, attitude and practice. Despite that varied and sufficient food is available in the studied communities, poor food habits appear to be the major constraint to the adoption of good household nutritional practices. The women, responsible for the household menus, choose meal composition based on tradition and culture, not availability. So despite the availability of diverse food products on the market, the menus stay monotonous. Finally, food hygiene represents an urgent need as food is often prepared and sold under unhealthy condition. Food is often not covered and exposed to dust, flies and other insects. In the households cooking utensils are unclean and domestic animals mingle inside the kitchens<sup>30</sup>

### 5.2.2 Household nutrition security for cash crops

In the previous paragraph general factors on food security are explained. Cash crop production has more factors that influence food security and this is explained in this paragraph. People in the cocoa sector produce a cash crop and generally have an increased household income and therefore an increase in purchasing power. This increase in purchasing power does not one on one relate to decrease in malnutrition. Several things play a role concerning the food security when switching to cash crop farming (figure 9). For example farmers tend to have increased vulnerability to food prices, are more dependent on the local markets and generally household income shifts from the female to the male contributing to a decline in food security. Mostly men spend income on personal things such as alcohol, cigarettes or status consumer goods. Women on the other hand are more likely to purchase goods for the household, and particularly for children<sup>31</sup>.

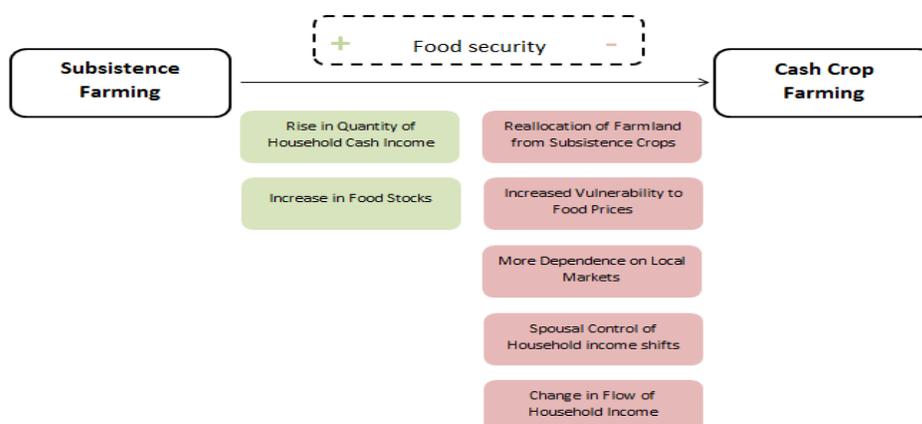


Figure 9 A schema illustrating multiple pathways through which transitioning from subsistence to semi-subsistence farming and cash cropping can affect

## 6. Institutional, policy and program

### 6.1 government policies and expenditures

#### Policies

Côte d'Ivoire has several policy and legislative provisions regarding nutrition, as shown in table 2. Currently Côte d'Ivoire has a National Nutrition Policy (2010) and a strategic five-year plan for high-impact nutrition actions. A new protocol for dealing with malnutrition was adopted in 2009 and revised in August 2013. Côte d'Ivoire also has a 2012-2015 National Agricultural Investment Programme (NAIP). Legislation that is favorable to nutrition includes regulation for the marketing of breast-milk substitutes, maternity leave, the fight against deficiency, oil and flour fortification and school feeding programs. Various sectorial policies also have nutritional objectives (health, agriculture, social protection, education and environment). Côte d'Ivoire has a raising awareness and communication strategy aimed at enhancing nutrition nationally<sup>33</sup>. There are several types of messages, and carriers that are used in the field. The common feature of all these messages and media is that they were not always based on formative research / situation analysis and pre-tested prior to mass reproduction or evaluated.

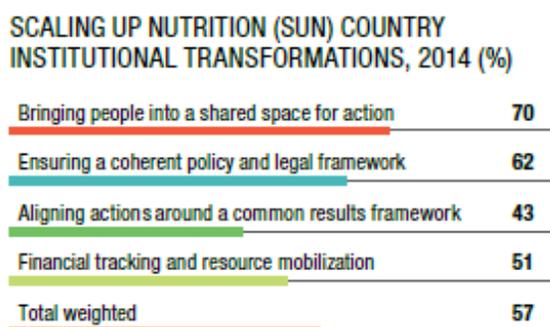
Table 2 Overview of policies and legislative provisions

Policy and legislative provisions		
School feeding program in Côte d'Ivoire	2016-2020	(32)
Multi-sectorial strategic plan	2015-2020	(24)
Wheat fortification legislation	2015	(16)
National implementation of International Code of Marketing of Breast-milk Substitutes	2014	(16)
Joined SUN movement	2013	(33)
National Agricultural Investment Program	2012-2015	(33)
National Nutrition Policy	2010	(33)
Nutrition five year strategic plan	2009-2013	(33)

### *SUN Movement*<sup>34</sup>

On 7 June 2013, the Republic of Côte d'Ivoire joined the SUN Movement. SUN is a global movement uniting national leaders, civil society, bilateral and multilateral organizations, donors, businesses, and researchers in a collective effort to improve nutrition. At the time, the Ivorian government had developed a National Development Plan (NDP) for 2012-2015, which promoted action on food security.

Figure 4.2 shows the progress that has been made until 2014, according to the SUN framework of monitoring and evaluation.



Source: SUN 2014.

Figure 10 Progress made until 2014 according to SUN framework

## 6.2 GAIN activities in Côte d'Ivoire<sup>35</sup>

### *Complementary foods in Côte d'Ivoire*

GAIN has been working with Protein Kissè-La (PKL) and Helen Keller International (HKI) in Côte d'Ivoire to address malnutrition among infants and young children in Côte d'Ivoire through the production and promotion of a locally produced fortified complementary food for infants aged six to 24 months. Fortification of for example porridges, or fortified foods for adults, which are specifically formulated to fulfill the energy and nutrient requirements can provide a useful solution, where local nutritious ingredients are not available or too expensive.

## 6.3 Current nutrition programs cocoa and non-cocoa related

### WCF<sup>36</sup>

Organizes farmers in cooperatives, provides training, education and invests in community health and welfare. All cocoa farmers are organized in co-operatives with a chief farmer at the local, district, regional, and national levels. These arrangements assist farmers, to get access to some commodities, and to present grievances as a collective body.

WCF has different programs such as the Cocoa livelihoods program and cocoa action. **Cocoa Livelihoods** is working to increase farm level productivity and improved farmer resiliency with a focus on food crop productivity. The food crop diversification helps to reduce farmer food insecurity by improving diets and promoting greater gender equity as women produce the most crops. **Cocoa action** facilitates partnerships between governments, cocoa farmers, and the cocoa industry to boost productivity and strengthen community development in Côte d'Ivoire. Cocoa Action works on improved planting material and fertilizer, empowerment of communities through education, child labor monitoring and women's empowerment.

### Café Cacao Council (CCC)

Trains volunteers who were trained on health and nutrition issues, to promote home gardening and BCC activities on nutrition such as monitoring and promoting the growth of children and pregnant women weight gain; supplementation with vitamin A and iron.

### FARN (Foyer Alimentaire de Réhabilitation Nutritionnelle):

Creates groups of women in charge to assist malnourished children and improve their nutrition. The groups receive knowledge on the basis of proper nutrition and agro pastoral production techniques to be implemented in community vegetable gardens created in support of the program. Furthermore village's health workers receive trainings in sensitization, early detection and referral of malnutrition cases to therapeutic feeding centers (if any).

### CHANGE-HKI

CHANGE works on improved access to food rich in nutrients, dietary diversification, increasing household income, women's empowerment, adoption of appropriate nutritional practices and the use of nutrition in preventive health.

### Certification Systems

There are three certification systems in Côte D'Ivoire: UTZ (approximately 250 cooperatives certified, Rainforest Alliance (85,000 Ivorian farmers certified until 2013 and Fairtrade (33,300 Ivorian farmers under Fairtrade certification). The cocoa certification systems follow two main philosophies to arrive at improving incomes: either they aim to give farmers a better price for their cocoa (Fairtrade) or they aim to improve product quality and productivity to drive overall market-based income gains (Rainforest Alliance, UTZ Certified).

## References

1. GAIN 2016. Introduction and STEP 1 of the Manual for the Initial Nutrition Screening in Unilever Supply Chains: Towards Improving Nutrient Adequacy of the Diet of Farmers through the Promotion of Dietary Diversity
2. UNICEF Conceptual Framework
3. Righetti, A. A., Adiossan, L. G., Ouattara, M., Glinz, D., Hurrell, R. F., N'Goran, E. K., ... & Utzinger, J. (2013). Dynamics of anemia in relation to parasitic infections, micronutrient status, and increasing age in south-central Côte d'Ivoire. *Journal of infectious diseases*, 207(10), 1604-1615.
4. Biesalski, H.K. (2013): *Hidden Hunger*. Stuttgart
5. M-nutrition initiative. (2015) Nutrition Landscape Analysis: Part 1 Côte D'ivoire (draft)
6. M-nutrition initiative. (2015) Nutrition Landscape Analysis: Part 2 Côte D'ivoire (draft)
7. M-nutrition initiative. Nutrition Landscape Analysis Ghana
8. Ounissi, S. (2008) Food crisis forest Africa farm aid rethink
9. Statistista. Global cocoa bean production from 2012/2013 to 2014/2015, by country (in 1,000metric tons. Retrieved on 07-03-2016 from <http://www.statista.com/statistics/263855/cocoa-bean-production-worldwide-by-region/>
10. UNDP Human development report 2015 Retrieved on 07-03-2016 from [http://hdr.undp.org/sites/all/themes/hdr\\_theme/country-notes/CIV.pdf](http://hdr.undp.org/sites/all/themes/hdr_theme/country-notes/CIV.pdf)
11. UN inter-agency group for child mortality estimation 2014 retrieved on 07-03-2016 from [http://www.unicef.org/media/files/Levels\\_and\\_Trends\\_in\\_Child\\_Mortality\\_2014.pdf](http://www.unicef.org/media/files/Levels_and_Trends_in_Child_Mortality_2014.pdf)
12. World Bank 2015
13. The World Bank. Data. Prevalence of undernourishment (% of population). Retrieved on 07-03-2016 from <http://data.worldbank.org/indicator/SN.ITK.DEFC.ZS>
14. Hunger and Nutrition Commitment Index (HANCI). HANCI rankings. Retrieved on 07-03-2016 from <http://www.hancindex.org/>
15. Ivory coast Statistical Service (2015) Demographic and Health Survey (DHS). Côte d'Ivoire. 2011
16. Global nutrition report. 2015 Nutrition Country Profile Ivory Coast. Retrieved on 07-03-2016 from <http://ebrary.ifpri.org/utis/getfile/collection/p15738coll2/id/129915/filename/130126.pdf>
17. UNICEF 2015
18. WHO and UNICEF. Immunization surveillance, assessment and monitoring. Retrieved on 07-03-2016 from [http://www.who.int/immunization/monitoring\\_surveillance/en/](http://www.who.int/immunization/monitoring_surveillance/en/)
19. Barrientos, S.W., Asenso-Okyere, K. Asuming-Brempong, S., Sarpong, D., akua Anyidoho, N. Kaplinsky, R. and Leavy, J. (2008). Mapping sustainable production in Ghanaian cocoa – a report to Cadbury. Institute of Development Studies and the University of Ghana. Cadbury, London
20. FAIR LABOR Association. (2015). Situational assessment of women and youth farmers and family nutritional status in two cocoa producing communities in Côte d'ivoire
21. WHO (2016) global Database on Child Growth and Malnutrition. Retrieved on 20/04/2016 from <http://www.who.int/nutgrowthdb/about/introduction/en/index5.html>
22. de Benoist B et al., eds. (2008) Worldwide prevalence of anaemia 1993-2005. WHO Global Database on Anaemia Geneva, World Health Organization
23. WHO (2014) Preventing diarrhea through better water, sanitation and hygiene: exposures and impacts in low- and middle-income countries.
24. Alliance Globale pour l'initiative Resilience / AGIR Sahel et Afrique de l'Ouest (2014) Rapport des priorites resilience pays (PRP)
25. Ministere d'etat, ministere du plan et du developement (2015) Enquete sur le niveau de vie des menages en côte d'Ivoire (ENV 2015)

26. FAO (2010) Plan d'action pour la Côte d'Ivoire 2010-2011
27. Ministère de la santé et de l'hygiène publique () Politique nationale de nutrition
28. Kouame Koffie Gabriel, ENO Moïse Georges (2011) Dynamique de la consommation alimentaire en Côte d'Ivoire: principales tendances
29. Conseil Café Cacao (2015) PPT Quelle diversification pour une production durable du cacao retrieved on 21/04/2016 from [http://www.conseilcafecacao.ci/docs/2015/Diversification\\_4eme\\_session\\_PPPP.pdf](http://www.conseilcafecacao.ci/docs/2015/Diversification_4eme_session_PPPP.pdf)
30. FAIR LABOR Association. 2015. Situational assessment of women and youth farmers and family nutritional status in two cocoa producing communities in Côte d'Ivoire
31. Anderman, T. L., Remans, R., Wood, S. A., DeRosa, K., & DeFries, R. S. (2014). Synergies and tradeoffs between cash crop production and food security: a case study in rural Ghana. *Food Security*, 6(4), 541-554.
32. U.S. Embassy in Côte d'Ivoire (2016) McGovern – Dole (2016-2020) School Feeding Program in Côte d'Ivoire retrieved on 21/04/2016 from <https://ci.usembassy.gov/mcgovern-dole-2016-2020-school-feeding-program-in-côte-divoire/>
33. SUN movement compendium 2014 – Ivory Coast
34. Scaling up Nutrition, 2015. Côte d'Ivoire. Retrieved on 07-03-2016 from <http://scalingupnutrition.org/sun-countries/côte-divoire>
35. GAIN. Complementary foods in Côte d'Ivoire. Retrieved on 07-03-2016 from <http://www.gainhealth.org/knowledge-centre/project/complementary-foods-côte-divoire/>
36. World cocoa Foundation. WCF Cocoa Livelihoods Program. Retrieved on 07-03-2016 from <http://www.worldcocoafoundation.org/wcf-cocoa-livelihoods-program/>

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