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NUTRITION CAUSAL ANALYSIS



## PHILIPPINES

MUNICIPALITIES OF AROROY, CAWAYAN,  
MILAGROS AND MONREAL, MASBATE PROVINCE

Publication : September 2015



FINAL  
REPORT





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## **NUTRITION CAUSAL ANALYSIS**

**Municipalities of Aroroy, Cawayan, Milagros and Monreal  
Masbate Province, Region V  
Philippines**

**Final Report**

**September 2014 – January 2015**

*Funded by*



**Blanche Mattern, NCA Analyst  
February 2015**

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## Table of content

<b>Acknowledgements .....</b>	<b>2</b>
<b>Abbreviations and Acronyms .....</b>	<b>5</b>
<b>Glossary .....</b>	<b>6</b>
<b>Executive summary .....</b>	<b>7</b>
<b>1.1 Study Area .....</b>	<b>12</b>
<b>1.2 Context of the study .....</b>	<b>12</b>
<b>2.1 Main study objective.....</b>	<b>14</b>
<b>2.2 Specific study objectives .....</b>	<b>14</b>
<b>3.1 Overview of the NCA approach .....</b>	<b>15</b>
<b>3.2 Study design.....</b>	<b>15</b>
<b>3.3 Sample .....</b>	<b>16</b>
3.3.1. Selected method and sample size calculation .....	16
3.3.2 Number of household to be surveyed .....	18
3.3.3 Selection of number of clusters to be surveyed .....	18
3.3.4. List of Masbate barangays and random selection of clusters.....	19
3.3.5. Cancellation of the RFS .....	20
<b>3.4 Data collection methods.....</b>	<b>20</b>
3.4.1 Risk Factors Survey (RFS).....	21
3.4.1.1 <i>Training of surveyors and supervisors</i> .....	21
3.4.1.2 <i>Random selection of Households</i> .....	21
3.4.1.3 <i>Information collected within selected households</i> .....	21
3.4.1.4 <i>Severe Acute Malnourished children identification</i> .....	22
3.4.2 Qualitative survey.....	22
3.4.2.1 <i>Research instruments and methods</i> .....	22
3.4.2.2 <i>Data collection</i> .....	23
3.4.2.3 <i>Stakeholder consultations</i> .....	24
3.4.3 NCA team composition .....	24
<b>3.5 Data Management and Analysis .....</b>	<b>25</b>
3.5.1 Quantitative data management and analysis .....	25
3.5.2 Qualitative data management and analysis .....	25
3.5.3 Rating Causal Hypotheses .....	25
3.5.4 Final Stakeholder Workshop.....	25
<b>3.6 Research Ethics .....</b>	<b>26</b>
<b>3.7 Limitations .....</b>	<b>26</b>
<b>4.1 Preliminary technical expert workshop .....</b>	<b>27</b>
4.1.1 Validated and ranked Causal hypotheses .....	27
4.1.2 Hypothesis validation by the technical experts .....	28
4.1.3 Nutrition Vulnerable Groups.....	28
<b>4.2 NCA qualitative survey: communities consultation .....</b>	<b>29</b>
4.2.1 Key Stakeholders consultation.....	29
4.2.2. Background characteristic of participants in qualitative study .....	32
4.2.3 Local definition and understanding of malnutrition.....	33
4.2.4 Description of Child Care Practices .....	36
4.2.5 Description of psychosocial situation and care for women .....	38
4.2.6 Description of health situation and practices .....	40
4.2.7 Description of WASH environment.....	43
4.2.8 Description of Food Security and Livelihoods Situation .....	47
4.2.9 Seasonality of risk factors.....	51
4.2.10 Positive Deviant Behaviours.....	53
4.2.11 Risk Factor Rating Exercise.....	60
<b>4.3 Local causal model .....</b>	<b>62</b>

<b>Annex 1: List of participants to the initial technical workshop</b> .....	<b>69</b>
<b>Annex 2: Hypothesis validated by the technical experts</b> .....	<b>70</b>
<b>Annex 3: Seasonality, Cawayan Poblacion, Cawayan</b> .....	<b>73</b>
<b>Annex 4: Seasonality, Famosa, Monreal</b> .....	<b>74</b>
<b>Annex 5: Seasonality, Mariposa, Aroroy</b> .....	<b>75</b>
<b>Annex 6: Seasonality, Matagabac, Milagros</b> .....	<b>76</b>
<b>Annex 7: Historical trends, Cawayan Poblacion, Poblacion</b> .....	<b>77</b>
<b>Annex 8: Historical trends, Famosa, Monreal</b> .....	<b>78</b>
<b>Annex 9: Historical trends, Mariposa, Aroroy</b> .....	<b>79</b>
<b>Annex 10: Historical trends, Matagabac, Milagros</b> .....	<b>80</b>
<b>Annex 11: List of participants to the final technical workshop</b> .....	<b>81</b>
<b>Annex 12: Criteria of NCA rating exercise</b> .....	<b>82</b>
<b>Annex 13: Preliminary Rating by the NCA Expert</b> .....	<b>83</b>
<b>Annex 14: Risk factors survey and SMART questionnaire</b> .....	<b>84</b>
<b>Annex 15: Qualitative enquiry discussion guide</b> .....	<b>102</b>
<b>Annex 16: Resources management tool</b> .....	<b>120</b>
<b>Bibliography</b> .....	<b>121</b>

### List of tables

<b>Table 1 - Core Indicators</b> .....	<b>16</b>
<b>Table 2 - Calculation of household sample to be surveyed</b> .....	<b>17</b>
<b>Table 3 - Combinations number of clusters and survey duration</b> .....	<b>18</b>
<b>Table 4 - List of the selected villages for the Risk Factors Survey (RFS)</b> .....	<b>19</b>
<b>Table 5 - List of the selected villages for the qualitative survey</b> .....	<b>20</b>
<b>Table 6 - Summary of qualitative data collection</b> .....	<b>23</b>
<b>Table 7 - Classification of causal hypotheses</b> .....	<b>25</b>
<b>Table 8 - Causal Hypotheses rating and ranking</b> .....	<b>27</b>
<b>Table 9 - Community risk factor rating exercise</b> .....	<b>61</b>
<b>Table 10 - NCA expert rating and expert confidence note</b> .....	<b>64</b>
<b>Table 11 - Technical experts rating and discussions</b> .....	<b>65</b>

### List of figures

<b>Figure 1 - Studied municipalities, Masbate Province</b> .....	<b>13</b>
<b>Figure 2 - NCA team composition</b> .....	<b>24</b>
<b>Figure 3 - F-Diagram, disease transmission routes</b> .....	<b>44</b>
<b>Figure 4 - Local causal model to undernutrition</b> .....	<b>63</b>

## Abbreviations and Acronyms

ACF	Action Contre La Faim / Action Against Hunger
ANC	Antenatal Care
CMAM	Community Management of Malnutrition
DSWD	Department of Social Welfare and Development
DRR	Disaster Risk Reduction
FGD	Focus Group Discussion
FSL	Food Security and Livelihoods
HoH	Household
HoP	Head of Project
IUD	Intra Uterine Device
IYCF	Infant and Young Child Feeding
LBW	Low Birth Weight
MAPEH	Music, Art, Physical Education and Health
MHCP	Mental Health and Care Practices
MUAC	Mid Upper Arm Circumference
MYCNISA	Maternal and Young Child Nutrition Security Initiative in Asia
NCA	Nutrition Causal Analysis
NNC	National Nutrition Council
NPA	New People's Army
PCP	Psychosocial and Care Practices
PD	Positive Deviant
PLW	Pregnant and Lactating Women
PPS	Proportion Population Size
ODK	Open Data Kit
RC	Replacement cluster
RFS	Risk Factors Survey
RHU	Rural Health Unit
SAMFAI	Samahan ng mga magsasaka sa Famosa Incorporated
SAM	Severe Acute Malnutrition
SMART	Standardized Monitoring and Assessment of Relief and Transition
TBA	Traditional Birth Attendant
WASH	Water, Sanitation and Hygiene

## Glossary

*Preliminary note: this glossary was made using local definitions from the communities. It reflects the situation in the target area and definition may not be similar to other part of the country. It should be read with cautious and do not constitute a glossary of general definition. The aim of this glossary is to ease the reading and understanding of the present NCA report.*

### Administrative unit

Barangay (formerly barrio): smallest administrative division in the Philippines

Purok: political subdivision of a barangay. It is the smallest unit of governance in the Philippines

Sitio: territorial enclave that forms part of a barangay, similar to purok but more urban

### Climate

Amihan: season dominated by trade winds, cool northeast wind, and moderate temperatures with little or no rainfall

Habagat: west or southwest wind, also known as southwest monsoon, hot and humid weather accompanied by heavy rainfalls

Kwarisma: dry season

### Food items

Lugaw: porridge

Kinilaw: raw fish marinated in vinegar

Gynamos: anchovies

Bagoong: small fermented shrimp

Alugbati (Malabar spinach): green leaves vegetable

Malunggay (moringa): green leaves tree

### Hygiene

Arinola: bowl traditionally used for defecation

### Traditional herbs usage

Ampalaya extract (bitter gourd): cough

Bangkal (nauclea orientalis): contraception

Damong-maria (lakadbulan, artemisia vulgaris): deworming, stomachic, anthelmintic, emmangogue and antispasmodic

Labnog (hauili, ficus septica): fever

Lagundi (vitex negundo): cough

Sambong: diarrhea

*Lagundi, sambong and ampalaya* are among the herbal medicinal plants endorsed by the Philippine Department of Health

### Traditional practitioners

Albularyo: traditional healer (also familiarly called “doctor kwak-kwak”)

Komadrona, parahilot: Traditional birth attendant and masseurs

### Transport means

Habal habal: motorcycle taxi

## Executive summary

Acción Contra El Hambre/Action Against Hunger (ACF) has been working in the Philippines since 2000. Being present in Masbate, Region V, since 2014, ACF intervention focuses in Water, Sanitation and Hygiene (WASH) and Nutrition (nutrition screening and IYCF capacity building)

The province of Masbate belongs to Region V (Bicol) and is known to be one of the neediest provinces of the Philippines with a poverty incidence of 42.5% (NSCB 2009) and 44.2% (NSCB 2012) respectively. ACF decided to implement programs in the four municipalities of Masbate having the poorest socio-economic indicators: Aroroy, Cawayan, Milagros and Monreal. Those are also part of UNICEF's areas for its country program and sites for Maternal and Young Child Nutrition Security Initiative in Asia (MYCNSIA).

ACF also aims at gathering information regarding malnutrition mechanism and therefore, decided to implement a Nutrition Causal Analysis (NCA) in those four municipalities to understand the root causes of undernutrition.

Child undernutrition remains to be a major public health issue in Bicol region with underweight and stunting rate higher than the national average (respectively 24,6% underweight and 39,8% stunting for Bicol region and 19,9% and 30,3% at nation level), while the rate of wasting remains high (7,4% for Bicol region and 7,9% at nation level).

As the rest of the Philippines the island is located along the typhoon belt in the Pacific and often impacted by typhoon of medium intensity. Its geographical location also contributes to its susceptibility of sea level rise, storm surges, flooding and drought what is believed to have an impact of farming and fishing livelihoods.

ACF together with scientific partners, have developed a standardized method of analysing the causes of malnutrition and consequently improving the relevance and effectiveness of stakeholders programming in a given context.

Based on its Nutrition Causal Analysis (NCA) approach and in collaboration with NGO partners, Research Institutes and Municipalities, ACF conducted a NCA, a first of its kind in the Philippines, in Masbate from September 2014 to January 2015.

This report presents the findings from the NCA study.

### Overall Objective

The overall objective of this NCA is to provide a greater level of understanding regarding the possible causes of child undernutrition in the operational ACF-Philippines area of Masbate, Region V, Philippines.

#### *Specific Objectives:*

- To identify main causes of wasting and stunting in order to inform the technical strategy and programs (WASH and Nutrition) for the prevention of the same at a local level
- To understand the local seasonal and historical pathways to wasting and stunting
- To support technical advocacy on causes of wasting and stunting so as to plan technical strategy especially in WASH

### Methodology

The aim of the NCA methodology proposed is not to demonstrate statistically causal association, but rather, to build up a case for causality, based on different sources of information, using the following steps:

**1. Preparatory Phase:** The preparatory phase is to ensure timely recruitment process; objectives are clear and the choice of NCA methodology (comprehensive, qualitative, quick) is selected.

**2. Development of causal hypotheses:** a literature review, data review and stakeholders

interviews (National Nutritional Council, Department of Agriculture and Department of Health, health workers) were undertaken to generate an overall understanding of the local context of undernutrition and design a set of local causal hypothesis of undernutrition. These hypotheses have been validated to be field tested by Technical Experts during a workshop held on the 24th October 2014 in Manila.

**3. Data Collection:** Both quantitative and qualitative data were collected to provide more evidence on levels of undernutrition, key risk factors and community perceptions, practices and constraints.

**4. Identification of highest priority causes of undernutrition, design of recommendations:** Based on the evidence gathered during the data collection, the causal hypotheses were then ranked by order of importance with particular attention to seasonal differences and vulnerable groups. The results were then validated with the local community before being presented at a final workshop on the 26<sup>th</sup> January 2015, where technical and NCA experts tried to reach a consensus on the most important risk factors and priorities for action. On the 27th January 2015, together with the technical experts a consensus was reached on the main recommendations to formulate in order to address and prevent undernutrition in the studied area.

### **Underlying causes of malnutrition**

#### ***Inadequate childcare practices***

The NCA survey shows inadequate childcare practices as a main cause to child undernutrition.

Early initiation of breastfeeding is common, but infants are not exclusively breastfed. Indeed, the majority of the mothers are giving water to infants. This practice is inappropriate but also highly at risk regarding the quality of the water.

Age of introduction of complementary food was found as inadequate with introduction of semi-solid food around 4 months. Moreover,

meal frequency is inadequate and age of weaning is often inadequate and a consequence of short birth spacing. In few cases, absence of the mother is a direct cause of inadequate infant and young child feeding practices, since caregivers do not know how to replace breast milk when infant formula is not available/affordable.

Finally, inadequate knowledge of reproductive health was found to be an important issue since it was directly related to early pregnancy and short birth spacing, what can both be related to low birth weight and difficulties of afford care for children.

#### ***Inadequate child and maternal food intake***

The link of food insecurity factors at the household level has been shown to have a relationship to inadequate dietary intake.

Limited access to food and poor diet diversity is mainly related to a limited purchase power, inadequate access to markets and a low personal fishing and agriculture production.

NCA findings also showed that limited purchase power was highly related to low income due to lack of income generating activities and instability of income sources.

Isolation location and frequency of disaster are increasing the seriousness of those factors.

#### ***Poor child health***

One of the main issues related to health is the difficulty to access to medical facilities. Communities seem to have an adequate knowledge of correct health seeking behaviours. Indeed, most of the caregivers reported preferring consulting a health professional when their children are sick but not being able to due to distance or lack of income. Therefore, they would often consult a traditional healer or use traditional medicine. On the same time, caregivers will consult a health worker if the situation is serious.

Inadequate antenatal care was also spotted of one of the main health issue. Most of the pregnant mothers will consult a traditional birth attendant to verify the position of the foetus, but consultation of a midwife is rare. This can explained poor nutrient supplementation among an important proportion of pregnant mother. The NCA

demonstrated that caregivers and health workers have a good knowledge of deworming toward children but found such medicine as dangerous for pregnant women. Several studies showed that lack of deworming of pregnant women could be related to low birth weight.

### ***Unhealthy Environments***

The unhealthy environment that the community lives in was evident.

Communities are aware that inadequate sanitation contributes to disease prevalence. Most of them adopt a correct behaviour by trying to go further from their village for open defecation, and use soap to wash their hand. Meanwhile, the health risks associated to the presence of children faeces in the surrounding is not well understood, as knowledge on hygienic environment remains weak.

Knowledge on water management and water safety were founded as insufficient with absence of proper water treatment. Participants are assuming that water is safe for human consumption if it is clear. On the same time, communities are able to see the relation between unsafe water consumption and diarrhea and seem to adopt more appropriate behaviour during rainy season, such as boiling water as the water is often mixed with mud.

NCA findings showed that inadequate sanitation should be considered as one of the major contributor of child undernutrition. Indeed open defecation and inadequate waste management are directly related to unhealthy environment.

Finally, lack of hygiene and inadequate animal waste management, in particular poultry, were considered as important causes of child undernutrition level.

### **Conclusion**

**Through literature and secondary data review, qualitative enquiries, along with the validation of a wide range of experts, the following risk factors have been identified major and important causes of undernutrition in Aroroy, Cawayan, Milagros, Monreal, Masbate Province – Region V:**

### ***Major***

- Inappropriate breastfeeding practices
- Inappropriate complementary feeding practices
- Inadequate hygiene practices
- Open defecation
- Poor or inadequate sanitation
- Poor liquid/solid wastes management
- Inadequate/poor access to safe water
- Low income due to instability of income sources and/or lack of income generating activities
- Low personal agricultural production and fishing
- Limited access to food
- Poor diet diversity

### ***Important***

- Poor psychosocial care
- Early Pregnancies
- Short birth spacing
- PLW micronutrients deficiencies
- LBW and IUGR
- Inadequate healthcare behaviour
- Inadequate management of animal waste
- Inadequate family resource management

Due to a lack of information, especially quantitative data necessary to address the “weight” of the following hypothesis, the technical experts and the NCA analyst were not able to reach a consensus on:

- PLW acute malnutrition

### **Recommendations**

#### ***Recommendations associated to risk factors classified as “major”***

#### **Food, security and livelihood**

- Improvement of access to irrigation system
- Better access to veterinary services (treatments, drugs)
- Improvement on post disaster cropping provision
- Capacity building on provision of IGA, among vulnerable households

- Improvement on awareness about illegal fishing impact as a part of total coastal resource management program (CRM)
- Capacitate community to access external market
- Increase access resources to strengthen existing coping mechanism
- Promotion of disaster resilient cultural practices
- Encourage locally produced food consumption

### **Nutrition and care practices**

- Implementation of Positive Deviance (PD) strategies to better support PLW on adequate child and maternal care practices
- Reinforcement of awareness program on IYCF
- In addition to the last recommendation, capacity building toward community health workers on behavioural change and adequate promotion of IYCF
- Promote alternative breastfeeding method when absence of mother as primary caregiver

### **WASH**

- Implementation of dry latrines in public places and households
- Improvement of knowledge toward construction of latrines with indigenous materials
- Promote awareness on hand washing, specifically before breastfeeding and strengthen hand washing behaviour
- Promote household water treatment (through chlorination, boiling, SODIS) and proper water storage
- Promote importance of improved water sources
- Provision of emergency water supplies during occurrence of hazards and increase access to safe water supplies during Kwarisma and rainy seasons
- Improve garbage collection system and implementation of liquid and solid waste safe disposal
- Promote awareness on risk related to improper liquid waste disposal

### **Recommendations associated to risk factors classified as “important”**

#### **Food, security and livelihood**

- Awareness rising on saving habits and household budgeting

#### **Health**

- Promote adequate reproductive health practices toward family approach. Awareness on danger and disadvantage related to early child bearing and short birth spacing
- Strengthen access to ANC in order to improve health condition and nutritional status of the mothers and the foetus
- Strengthen health system:
  - improve access to health structure
  - improve availability of care workers (doctors, midwives, nurses) in RHUs
  - advocate for assignment of a permanent health provider in remote area
  - advocate for an increase of budget allocation
- Promote appropriate usage and handling of herbal medicine in partnership with traditional practitioners

#### **Nutrition and care practices**

- Awareness through FGD and campaign on appropriate maternal nutrition to reduce low-birth weight
- Promote dietary diversification and improve nutrition knowledge and behavioural change at community level with a specific target on pregnant mother, children under 5 and their caregivers
- Improve micronutrient supplementation of women in age of reproductive health by increasing supplies and compliance
- Capacity building of health workers toward importance of deworming of PLW and increase awareness of the community on importance of deworming
- Strengthen deworming program to insure proper follow-up and monitoring on worm infections
- Improve the relationship TBA/traditional practitioners with registered midwives to improve referral system and ANC.

- Integrate TBA and traditional health worker in health system to improve ANC by making them barangay health workers

### **WASH**

- Promote awareness on risk related to free range chickens and support on implementation of safe animal waste disposal

### **ACF recommendations on additional survey needs**

- Implement a comparative NCA of the causality of undernutrition in barangay islands in order to design evidenced based programs in WASH and nutrition
- Additional research and understanding on maternal wellbeing. Qualitative findings do not reflect an alarming situation what can be due to resigned or coping behaviour. Living conditions may have a strong impact on maternal wellbeing that can impact care practices.

# 1. Introduction

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Acción Contra El Hambre/Action Against Hunger (ACF) has been working in the Philippines since 2000. Being present in Masbate, Region V, since 2014, ACF intervention focuses in Water, Sanitation and Hygiene (WASH) and Nutrition (nutrition screening and IYCF capacity building)

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This report presents the findings from the NCA study.

## 1.1 Study Area

The province of Masbate belongs to Region 5 (Bicol) and consists of 3 major islands and 21 barangays: the Mainland Masbate is composed of 15 municipalities; The Ticao Islands with 4 municipalities- in the northeast side of the mainland, and Burias Island with 2 municipalities in the north-western side. Aroroy, Cawayan and Milagros on the mainland and Monreal on Ticao Island were selected for the present NCA study as ACF is active in those municipalities and the study will serve as important baseline study for future interventions and advocacy.

As a part of the mainland, Aroroy is located in the North West, Milagros and Cawayan on the central south. Monreal the most west located municipality of Ticao Island.

## 1.2 Context of the study

Child undernutrition remains to be a major public health issue in Bicol region with, in 2013<sup>1</sup>, underweight and stunting rate higher than the national average (respectively 24.6% underweight and 39.8% stunting for Bicol region and 19.9% and 30.3% at nation level). According to the WHO, prevalence of stunting can be classified as “high prevalence”; rate of wasting remains high (7, 4% for Bicol region and 7, 9% at nation level). Moreover, according to the FNRI (2013), Bicol is on the top 3 of the highest rate of underweight and stunting for the age category 0-5 years and top 3 for the same plus wasting for the age category 5-10 years old.

The baseline data MYCNSIA conducted in 2012 indicated that underweight prevalence rate increase after 6 months with pic between 24-35 months. Anaemia is shown as severe with rate at

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<sup>1</sup> 8th National Nutrition Survey Philippines 2013 (FNRI)

50.2% among 6-35 months while IYCF practices were found as very low. Early Initiation of Breastfeeding rate was founded as 50.8% with only 48% of mothers aware of exclusive breastfeeding. Knowledge of adequate age for complementary feeding introduction was also founded as very low (35.7%).

In term of health measles vaccination coverage and vitamin A supplementation (12-35 months) were founded, while deworming were only 58.2%. Since they are good proxy regarding health access and utilization, this contradictory information can question the exact situation in terms of medical support. Supplementation during pregnancy remained really low with only 44% of the mothers who took iron supplementation and a total of 56.4% who took at least one type of micronutrient supplement.

WASH indicators were also found as low with significant issue related to access to latrines (more than half of the households did not have toilet facilities at the time of the MYCNSIA). Knowledge of diarrhea determinants is adequate and mainly related to hygiene (85,7%) despite the fact that hand washing behaviour seems inappropriate with only 28% of people washing their hand before cooking and 14,2% before feeding for all Masbate.

As the rest of the Philippines the island is located along the typhoon belt in the Pacific and often impacted by typhoon of medium intensity. Its geographical location also contributes to its susceptibility of sea level rise, storm surges, flooding and drought what is believed to have an impact of farming and fishing livelihoods. MYCNSIA shows that 58.7% of the households were engaged on chicken raising, 52.1% on livestock rising and 48% on vegetable gardening. Pigs are also usually raised in the area, as poultry and livestock they are mostly raised to be sales. MYCNSIA survey already identified these income-generating activities as a possible source of infection, pointing out the hygiene of pigpens and chicken houses. Actually, chicken free range and risk of chicken faeces in the environment could be related to undernutrition.

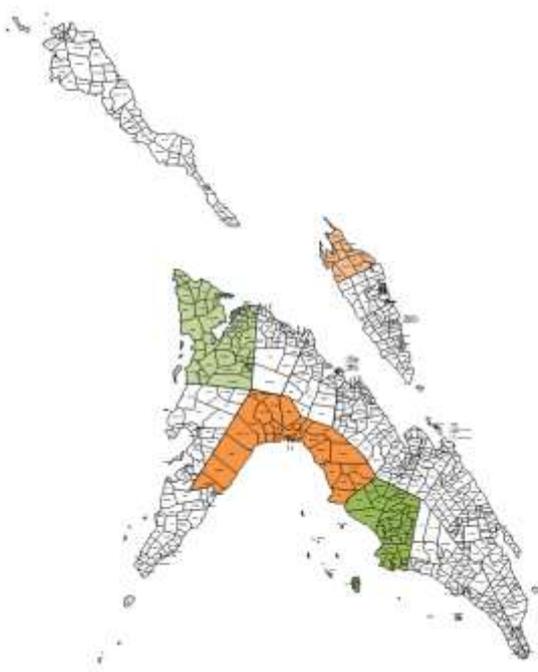


Figure 1 – Studied municipalities, Masbate Province

## 2. NCA objectives

## 2.1 Main study objective

The main objective of the NCA is to identify the most important causes of child undernutrition, in particular wasting of children age 0-59 months, in the municipalities of Aroroy, Cawayan, Milagros, Monreal – Masbate, the Philippines. Indeed, severe wasting is associated with more than nine times higher risk of death<sup>2</sup>. The NCA is considering vulnerable nutritional groups identified as children less than 23 months, the findings are applicable to all the communities but are focussing on farmers and fishermen.

## 2.2 Specific study objectives

This NCA study specific objectives include:

- To identify main causes of wasting and stunting in order to inform the technical strategy and programs (WASH and Nutrition) for the prevention of the same at a local level
- To understand the local seasonal and historical pathways to wasting and stunting
- To support technical advocacy on causes of wasting and stunting so as to plan technical strategy especially in WASH

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<sup>2</sup> Joint statement WHO – UNICEF, 2009. “Child growth Standards and the identification of severe acute malnutrition in infants and children”

## 3. NCA Methodology

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### 3.1 Overview of the NCA approach

A NCA is a structured, participatory, holistic, multi-sectorial study, based on the UNICEF causal framework, to build a case for nutrition causality in a local context.

- **Structured** – the steps of the methodology are precisely defined and have all been tested in the field.
- **Participatory** – the study is giving a real opportunity to national technical experts as well as caregivers in the community to express their opinion on the causes of undernutrition, and to discuss, review and finally validate the conclusions of the study.
- **Holistic** – undernutrition is here studied globally to avoid a sectorial approach, and to highlight the inter-relations between risk factors.
- **Multi-sectorial** - a nutrition causal analysis (NCA) investigates and presents a “multi-sectorial” overview of the contributing factors affecting nutritional status within a given community.
- **Building a case for nutrition causality** – the core exercise of an NCA is to identify and rank causal hypotheses by order of importance.
- **Specific to a local context** - causes of under-nutrition are often different from one location to another. The purpose of the methodology is to go beyond generic interventions by identifying context specific causes in order to propose adequate solutions.

### 3.2 Study design

The NCA methodology involves four key steps:

**1. Preparatory Phase:** The preparatory phase is to ensure timely recruitment process; objectives are clear and the choice of NCA methodology (comprehensive, qualitative, quick) is selected.

**2. Development of causal hypotheses:** a literature review, data review and stakeholders interviews (National Nutritional Council, Department of Agriculture and Department of Health, health workers) were undertaken to generate an overall understanding of the local context of undernutrition and design a set of local causal hypothesis of undernutrition. These hypotheses have been validated to be field tested by Technical Experts during a workshop held on the 24th October 2014 in Manila.

**3. Data Collection:** Both quantitative and qualitative data were collected to provide more evidence on levels of undernutrition, key risk factors and community perceptions, practices and constraints.

**4. Identification of highest priority causes of undernutrition, design of recommendations:** Based on the evidence gathered during the data collection, the causal

hypotheses were then ranked by order of importance with particular attention to seasonal differences and vulnerable groups. The results were then validated with the local community before being presented at a final workshop on the 26<sup>th</sup> January 2015, where technical and NCA experts tried to reach a consensus on the most important risk factors and priorities for action. On the 27<sup>th</sup> January 2015, together with the technical experts a consensus was reached on the main recommendations to formulate in order to address and prevent undernutrition in the studied area.

### 3.3 Sample

#### 3.3.1. Selected method and sample size calculation

The method selected was random cluster sampling. A sample size has been calculated for a list of key indicators present on the NCA indicators guide. This list was a sufficient basis to calculate the sample to be surveyed.

*Table 1 – Core Indicators*

Type of indicator	Indicator	Targeted population
Measurement of risk factors	HDDS	Household
	HFIAS	Household
	MAHFP	Household
	Early initiation of breastfeeding	0-24 months
	Exclusive breastfeeding under 6 months	0-6 months
	Continued breastfeeding at 1 year	12-15 months
	Introduction of solid, semi-solid or soft foods	6-8 months
	Minimum dietary diversity or IDDS	6-23 months
	Meal frequency	6-23 months
	Reported responsive feeding	6-59 months
	Mother's food intake during pregnancy and/or lactation	Mother
	Caregiver's completed years of education	Caregiver
	Perceived social capital	Mother
	Caregiver's perceived workload	Caregiver
	WHO5 and MDI if WHO5 ≤ 13	Caregiver
	Caregiver-child interactions scale	Caregiver
	ARI past 14 days	0-59 months
	Diarrhea past 14 days	0-59 months
	DPT3 immunization status	12-23 months
	ANC/PNC attendance	Mother
	Barriers from going to the health centre	Caregiver
	Access to a safe water source	Household
	Water management score	Household
Quantity of water per capita per day	Household	
Use of hygienic and safe sanitation facilities	Household	
Presence of soap or ashes in the house	Household	

The Household (HoH) average size has been considered as 4.9 members/HoH<sup>3</sup>. The number of children from each group/HoH has been deduced from the NSO Census of 2010 data according to the total number of children from following age group: 0-59 months, 0-6 months, 0-23 months, 6-8 months, 6-23 months, 6-59 months, 12-15 months, 12-23 months<sup>4</sup>.

*Table 2 - Calculation of household sample to be surveyed*

Example of Indicator	Population targeted	D <sup>1</sup>	d <sup>2</sup>	p <sup>3</sup>	Nb of measured needed <sup>4</sup>	Nb of measures /HoH visited <sup>5</sup>	HoH sample size <sup>6</sup>
Presence of soap in the house	Household	2.0	0.10	0.609	199	1.0	<b>199</b>
ANC attendance	Caregiver	2.0	0.10	0.563	206	1.0	<b>206</b>
ARI in the past 14 days	0-59 months	2.0	0.10	0.50	209	0,68	<b>307</b>
Early initiation of breastfeeding	0-23 months	2.0	0.10	0.508	209	0,27	<b>774</b>
Exclusive breastfeeding	0-5 months	2.0	0.10	0.421	204	0,07	<b>2914</b>
Continued breastfeeding at 1 year	12-15 months	2.0	0.10	0.484	209	0,05	<b>4180</b>
DPT3 coverage	12-23 months	2.0	0.10	0.50	209	0,14	<b>1493</b>
IDDS	6-23 months	2.0	0.10	0.191	129	0,20	<b>645</b>
Wasting	6-59 months	1.5	0.03	0.074	478	0,62	<b>771</b>
Introduction of solid, semi-solid or soft foods	6-8 months	2.0	0.10	0.50	209	0,03	<b>6967</b>

<sup>1</sup>Design effect

<sup>2</sup>Desired precision

<sup>3</sup>Estimated prevalence

<sup>4</sup>Calculated from ENA Software

<sup>6</sup>The household sample sizes have been defined by dividing the number of measured needed divided by the number of measures than could be taken per household visited.

Prevalence of wasting (6-59 months) comes from the “8th National Nutritional Survey: Philippines 2013” done by the Food and Nutrition Research Institute (FNRI).

Prevalence of the following indicators: early initiation of breastfeeding (0-23 months), exclusive breastfeeding (0-5 months), continued breastfeeding at one year (12-15 months), minimum

<sup>3</sup> NSO Census 2010

<sup>4</sup> *ibid*

dietary diversity (6-23 months), presence of soap within the household (Household) and ANC attendance (caregiver) come from the MYNCNSIA baseline report.<sup>5</sup>

Without specific data, a conservative estimated prevalence of 50% had been used for the following indicators: ARI/Diarrhea (0-59 months), coverage of DPT3 (12-23 months), introduction of semi-solid, solid and soft food (6-8 months).

### 3.3.2 Number of household to be surveyed

In the table 2, only the blue rows are considered. The sample sizes calculated on the orange rows are too big to be surveyed within the human resources, budget and time available for the present NCA.

The highest sample size within the blue rows is considered, that is 774.

A margin of 10% is taken account (non-respondent households and data entry errors).

As “774\*1.10 = 851.4”, 852 HoH at least have to be surveyed.

### 3.3.3 Selection of number of clusters to be surveyed

Each interview would least in average 45 minutes each team would effectively work 4h30 per day.

So, each team should conduct at least 6 interviews per day. 18 days have been foreseen in the budget and the initial planning.

By considering 2 teams in each village and 2 to 3 days of investigation / village, the combination shown in table 3 had been obtained.

*Table 3 - Combinations number of clusters and survey duration*

N. team	N. team/ cluster	N. survey/ day/team	N. survey days/cluster	Total investigation days	N. HoH/cluster	N. Cluster	Sample
8	2	6	2	18	24	<b>36</b>	864
8	2	6	3	18	36	24	864

The first option considers 8 teams of 2 surveyors. 2 teams would survey one cluster for 2 days, 24 families would be surveyed in each cluster (2\*6\*2=24). 36 clusters would be considered to survey 864 HoH (approx. 535 children 6-59 months). The survey would be conducted in 18 days.

The initial objective is to survey 852 HoH (approx. 528 children 6-59 months). Both options give a higher sample than the initial one with 12 HoH in extra (approximately 8 children 0-59 months).

Each team will survey 9 clusters during 18 days, 2 teams will be present in the same time in each cluster.

Among these clusters, 4 will be randomly selected for the qualitative survey.

<sup>5</sup> Infant and Young Child Feeding practices and anaemia prevention and control in regions 5, 6 and 9, 2011: Baseline Data for the Maternal and Young Child Nutrition Security Initiative in Asia (MYCNSIA) Philippines, 2011. FNRI, EU, UNICEF. November 2012

### 3.3.4. List of Masbate barangays and random selection of clusters

The NCA targets the municipalities where ACF International is working, i.e. Aroroy, Cawayan, Milagros and Monreal. Therefore, the random selection was done only in those municipalities. The smallest administrative unit being the “barangay” (village), each cluster is corresponding to a specific barangay. An exhaustive list of barangays was established using by using official data. This list follows the official administrative cutting-up.

The list of barangays was entered in ENA software that randomly selected 36 clusters (36 barangays) accordingly to the Proportion Population Size (PPS).

4 reservation clusters (RC) was randomly selected by ENA. All the RC will be visited in case of 10% of the selected clusters are not reachable.

5 barangays was selected in Monreal, 11 barangays in Cawayan, 9 barangays in Milagros and 11 barangays in Aroroy.

*Table 4 - List of the selected villages for the Risk Factors Survey (RFS)*

Municipalities	Geographical unit	Population size <sup>6</sup>	Cluster
<b>Monreal - 1</b>	Famosa	1027	<b>1</b>
	Morocborocan	1671	<b>2</b>
	Poblacion Monreal	5924	<b>3</b>
	Real	2924	<b>4</b>
	Togoron	1750	<b>5</b>
<b>Cawayan - 2</b>	Poblacion Cawayan	3948	<b>6</b>
	Maihao	1596	<b>7</b>
	Behia	2656	<b>8</b>
	Recodo	2246	<b>9</b>
	Dalipe	1992	<b>10</b>
	Libertad	1456	<b>11</b>
	Taberna	1594	<b>12</b>
	Naro	3352	<b>13</b>
	Punta Baisan	2601	<b>14</b>
	Gilontongan	4193	<b>15</b>
	Chico	2262	<b>16</b>
<b>Milagros - 3</b>	Bangad	4325	<b>17</b>
	Bon-Bon	2049	<b>18</b>
	Capaculan	2040	<b>19</b>
	Jamorawon	3835	<b>20</b>
	Matagbac	1687	<b>21</b>
	Narangasan	2479	<b>22</b>
	Poblacion West Milagros	4100	<b>23</b>
	San Antonio	840	<b>24</b>
	Tawad	1562	<b>25</b>
<b>Aroroy - 4</b>	Ambolong	3071	<b>26</b>
	Baga-Uma	2300	<b>27</b>

<sup>6</sup> According to official data provided by each municipality

	Capsay	2143	<b>28</b>
	Gumahang	2007	<b>29</b>
	Luy-a	2729	<b>30</b>
	Mariposa	1612	<b>31</b>
	Matalangtalang	1915	<b>32</b>
	Panique	6688	<b>33</b>
	Puro	6661	<b>34</b>
	Talabaan	1264	<b>35</b>
	Tinago	1678	<b>36</b>
<b>Cawayan</b>	Villahermosa	1068	<b>RC</b>
<b>Aroroy</b>	Cabangcalan	1326	<b>RC</b>
	Pinanaan	1098	<b>RC</b>
	San Augustin	1678	<b>RC</b>

Among the list of 36 clusters, 4 clusters were randomly selected for the qualitative survey. The random selection was made using a “random selection” formula in Excel.

*Table 5 - List of the selected villages for the qualitative survey*

<b>Municipalities</b>	<b>Geographical unit</b>	<b>Population size<sup>7</sup></b>	<b>Cluster</b>
<b>Milagros</b>	Matagbac	1687	21
<b>Aroroy</b>	Mariposa	1612	31
<b>Cawayan</b>	Poblacion Cawayan	3948	6
<b>Monreal</b>	Famosa <sup>8</sup>	1027	1

### 3.3.5. Cancellation of the RFS

Due to the passage of the typhoon Ruby/Hagupit, the data collection had been stopped after 8 days. Giving the impact of the seasonality on indicators, it was finally decided not to resume the data collection and to use data from UNICEF baseline study and MYCNSIA report. These data were collected 2-3 years ago. Since no major change has impacted this area, data are believed to be accurate enough to give an indication on the situation of Masbate. These data still have to be taken with caution since they may be slightly different from the actual reality. Data collected during the RFS had been analysed to confirm that the qualitative analysis was coherent. Since, the RFS was not completed and the results are not representative they cannot be used for other purposes. Only one hypothesis could not be analysed due to a lack of data (i.e. nutrition status of PLW). Surveyed barangays are enlightened in orange in the table 4.

## 3.4 Data collection methods

To assess the causes of undernutrition in Masbate, the NCA methodology applied a mixed-methods study design. A quantitative component was designed to objectively assess malnutrition status and the prevalence of known risk factors, while the qualitative component aimed to uncover the community’s own conceptualization of malnutrition, the degree to which they perceive it as a problem, and what are observed to be the causes. Thus, the qualitative and quantitative components are intended to generate complementary data.

<sup>7</sup> According to official data provided by each municipality

<sup>8</sup> Famosa, Monreal, benefits from several programs from the Philippine Red Cross and DSWD

### **3.4.1 Risk Factors Survey (RFS)**

Data collection took place between the 25<sup>th</sup> November and the 3<sup>rd</sup> January 2014 after 7 training days. 340 households were surveyed within 14 clusters, 134 questionnaires were fully completed with a sample size of 184 children 0-59 months surveyed.

#### ***3.4.1.1 Training of surveyors and supervisors***

The surveyors and supervisors will be trained during seven days.

Three days will be dedicated to the RFS and three days to the anthropometric measurement, standardisation and one day to the pilot test. The best candidates were selected as team supervisors. Sixteen surveyors and four supervisors were selected.

Since data were collected with tablets, all the surveyors and supervisors were trained on Open Data Kit software.

#### ***3.4.1.2 Random selection of Households***

The selection of households was done following a two-stage cluster sampling, depending on the size of the village.

The first stage is the cluster selection using ENA and according to the PPS.

For barangay with large population (more than 250 HoH), the first step of stage two is to subdivide the population into segment of the approximate same number of household. Therefore, for each barangay exceeding 250 HoH, segmentation was done according to logical limitations (existing unit as purok, natural landmark as rivers or public place as markets). Then, one segment was randomly selected to perform the survey according to the PPS.

For the second step of stage a simple random sampling using a table of random number determined the households to survey. For barangay with a population less than 250 HoH, the second step was the second stage, as segmentation is not required.

Only household with at least one child under 59 months will be surveyed.

#### ***3.4.1.3 Information collected within selected households***

A quantitative RFS questionnaire was designed to collect information on key risk factors related to the following domains:

- Food security and livelihoods (FSL)
- Water, Sanitation and Hygiene (WASH)
- Health
- Infant and Young Child Feeding (IYCF) practices
- Mental health

The questionnaire was translated into local languages (Masbateno, Cebuano, and Tagalog) and back translated into English. The questionnaire was pretested, adapted and finalised.

The RFS questionnaire was divided in 6 sections, each section being addressed to different members of the household and built as followed:

#### **Household questionnaire:**

This section had been addressed to primary caregivers as they are in charge of meal preparation and water collection.

#### Child questionnaire 0-23 and 0-59 months:

This section had been addressed to the primary caregivers for each child <59 months present in the household.

#### Caregiver questionnaire:

This section had been addressed to primary caregivers of the child. MUACs of women were also taken.

#### Anthropometrics

Measurements (MUAC, weight for height, height for age) were taken and presence of oedema checked for each child aged 6-59 months present in the household. If there was no child aged more than 5 months, the other parts of the questionnaire are still addressed.

#### Observation questionnaire:

Addressed to the primary caregiver or to the person in charge of collecting water.

Regarding the water source observations, for each cluster, surveyors drew a map of the different water points. Surveyors showed this map to the interviewed person asking her/him what was the principal source of water used by the household. Water source observations were filled according to a direct observation of the water source designed.

#### ***3.4.1.4 Severe Acute Malnourished children identification***

Severe Acute Malnourished (SAM) children identification protocol followed the protocol used for other ACF-SMART done in the Philippines. By checking a WHO weight-for-height table, identified SAM children were referred to health workers through a reference form document, since no CMAM protocol is implemented yet in Masbate.

### **3.4.2 Qualitative survey**

Qualitative survey took place between the 10th November and the 17th December 2014. Due to the passage of typhoon Ruby/Hagupit, the data collection had been stop from the 3rd till the 15th December 2014. Key informants consultations, Focus Group Discussion (FGD) and in-depth interviews were organized in 4 clusters.

#### ***3.4.2.1 Research instruments and methods***

To understand and collect rich contextual data on community perceptions, practices and constraints with regards to child undernutrition, the NCA used FGDs and interviews methods. FGDs and individual interview guidelines were developed and pre-tested, with a particular emphasis placed on traditional beliefs conceptions.

FGD guidelines were developed covering 9 key sessions:

- Good nutrition and malnutrition
- Food Security and Livelihoods
- Health
- WASH
- Care Practices including IYCF and care for women
- Mental Health
- Perception of fathers and grandfathers
- Seasonal and historical trends
- Risk factors rating by the communities

The method chosen for interview was semi-structured interview as it allows new ideas to be brought up during the interview and make the interviewer able to follow topical trajectories in the conversation.

### 3.4.2.2 Data collection

In total, five days were spent in each village where FGDs were organised with primary and secondary caregivers of children under five (mothers, fathers, grandparents). Each FGD welcomed an average of 10 women. For the men, two FGD per cluster were originally planned. Since participants meet difficulties to arrive on time due to their daily schedule, it was decided to combine each two groups for the discussion and to split the participants in two groups for the exercise.

Semi-structured individual interviews were held with mothers of positive deviant (PD) children as well as key stakeholders including *albularyo*<sup>9</sup>, *parahilot*<sup>10</sup>, day care and health workers and community leaders.

Following the analysis, results were presented to the four clusters and validated with the communities.

In total, 47 FGDs and 25 interviews were held in four villages. The participation is detailed in the table below:

*Table 6 - Summary of qualitative data collection*

	Cawayan Poblacion	Matagbac, Milagros	Famosa, Monreal	Mariposa, Aroroy	Total
Day 1 Stakeholders Interviews	6	4	5	2	17 interviews
Day 2 Malnutrition, FSL (women)	25 women (3 FGD)	29 women (3 FGD)	29 women (3 FGD)	32 women (3 FGD)	115 women (12 FGD)
Day 3 WASH, Health, Care Practices (women)	35 women (4 FGD)	42 women (4 FGD)	30 women (4 FGD)	44 women (3 FGD)	151 women (15 FGD)
Day 4 Mental Health, rating exercise (women)	31 women (4 FGD)	41 women (4 FGD)	32 women (4 FGD)	45 women (4 FGD)	149 women (16 FGD)
Day 5 Malnutrition and its causes, rating exercise, seasonal calendar (men)	16 men (1 FGD)	16 men (1 FGD)	8 men (1 FGD)	20 men (1 FGD)	60 men (4 FGD)
Day 5 Positive Deviant Interviews	2	2	2	2	8 interviews
<b>Total FGD</b>	<b>12 FGD</b>	<b>12 FGD</b>	<b>12 FGD</b>	<b>11 FGD</b>	<b>47 FGD</b>

<sup>9</sup> Traditional practitioner

<sup>10</sup> Traditional Birth Attendant (TBA)

### 3.4.2.3 Stakeholder consultations

Involvement of stakeholders (NGO, technical agencies, academic institutions, community members, frontline workers) is a key aspect of the NCA methodology.

To contribute to the development of causal hypotheses, key stakeholders were interviewed in the preliminary stages of the survey. In addition, two technical expert workshops were organized. The initial workshop aimed at validating causal hypotheses to be field-tested and final workshop at rating causal hypotheses based on evidence gathered by the NCA study and at validating findings by providing a confidence note for each result.

### 3.4.3 NCA team composition

The NCA analyst led the qualitative data collection with the assistance of one translator and a community facilitator, who all received an induction to the survey and qualitative methods. In addition, in each village a volunteer “community mobilizer” to helped gathering the community. Finally, an “in-training” assistant participated to the entire process to gain more knowledge on the NCA methodology. He was in charge of the restitution of the results to the communities, attend several FGD and assist the RFS head of project in the field survey monitoring.

A total of eight field teams conducted the risk factors survey under the supervision of four supervisors. The risk factor survey was under the supervision of a RFS head of project (HoP).

The following diagram displays the NCA field team composition.

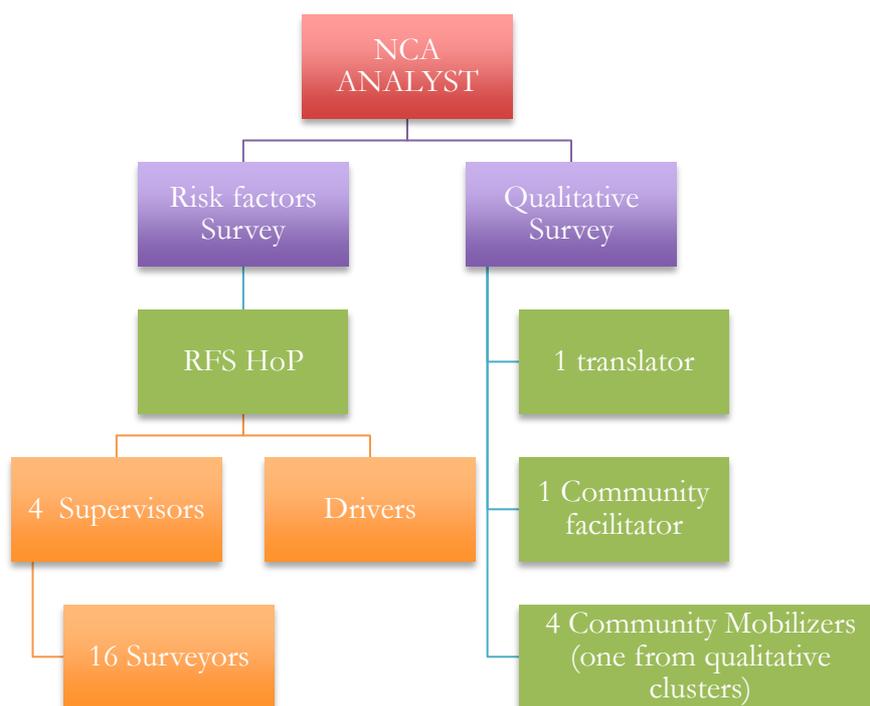


Figure 2 – NCA team composition

## 3.5 Data Management and Analysis

### 3.5.1 Quantitative data management and analysis

A database was developed in Excel 2013. Data were collected on tablets using ODK software and transferred to the excel database.

Anthropometric measurements was analysed with ENA software. Quantitative data analysis of risk factors was conducted using Excel then Epi Info v.3.5.3.

### 3.5.2 Qualitative data management and analysis

The process of qualitative data analysis was on going and iterative. Every evening, transcripts were written down and summary of key themes were developed.

Data were coded on a weekly basis according to the selected key themes and in order to address the main study questions. Lastly, the data were analysed using content analysis methods.

### 3.5.3 Rating Causal Hypotheses

Based on the results of the NCA, the NCA analysis then rated the causal hypotheses by order of importance and through triangulation of:

- The prevalence of risk factor from secondary data;
- The strength of association between the risk factor and under-nutrition;
- The seasonality of causal hypothesis related to seasonality of undernutrition;
- The participatory rating exercise with communities.

Data from the RFS were used as indicators to verify the pertinence of the NCA analyse.

Causal hypotheses were rated based on the following classification:

*Table 7 - Classification of causal hypotheses*

Category	Definition
Major causal pathway to child undernutrition	The causal pathway is interpreted as a major contributor to child undernutrition prevalence in the study area.
Important causal pathway to child undernutrition	The causal pathway is interpreted as an important contributor to child undernutrition prevalence in the study area.
Minor causal pathway to child undernutrition	The causal pathway is interpreted as a limited contributor to child undernutrition prevalence in the study area.
Rejected causal hypothesis	The causal hypothesis is interpreted as a not relevant or significant contributor to child undernutrition in the study area.
Untested causal hypothesis	Information gathered is not sufficient to reach a plausible conclusion.

### 3.5.4 Final Stakeholder Workshop

The results of the rating exercise were presented and validated by several stakeholders during a final technical expert workshop hold on the 26<sup>th</sup> and 27th January 2015. Technical experts were invited to inform the level of confidence they had in each result through a confidence note attribute to each of the findings.

Draft recommendations of the NCA analyst was also reviewed and validated. Modification or adding was done together with the NCA analyst and the technical experts.

Confidence notes provide an evaluation of how reliable technical experts think the rating is, based on the strength of the information gathered for each result.

### **3.6 Research Ethics**

A protocol including the NCA survey and a parasitology study was submitted to the University of the Philippines Manila-Research Ethics Board (UPM-REB) to ensure adherence to ethical standards and protection of human participants.

Prior approval was sought from the mayors of each municipality as well as leaders of each barangay surveyed. Additionally, informed voluntary consent was obtained from all NCA participants.

Children who were found as severely malnourished were referred for medical attention as per the protocol defined at section 3.4.1.4 of the presented NCA survey report<sup>11</sup>.

### **3.7 Limitations**

The methodology used is indeed a causal analysis although causality is not demonstrated from an epidemiological point-of-view. A low confidence note for certain results would mean that the information gathered is not convincing enough and advocate for complementary research to be conducted.

The NCA presented is valid only for the population studied in Aroroy, Cawayan, Milagros and Monreal, Province of Masbate, Region V, Philippines. All the results should be considered at this geographic level and not beyond without complementary analysis.

Weather conditions (heavy rain and typhoon) delayed to rollout of the study and led to a smaller sample size than intended. Since this sample was too small to obtain an accurate quantitative analysis, results from the risk factors survey were used only to verify the coherence of the analysis. Instead, data from UNICEF study in the same area were used for triangulation and final analysis. Therefore some hypothesis could not be demonstrated. Moreover, NCA findings cannot be accurately linked to actual prevalence of risk factors in the study area.

Since ACF is an NGO active in WASH' activities in some part of the survey area, a possible bias in the results may be considered. Participants from the communities may have perceived some benefit from taking part of the survey. This potential threat to the research was mitigated as far as possible by providing detailed information to study participants on the objectives of the NCA, and that the participation would be independent to any NGO or Government support. Furthermore, this potential bias was mitigated in the analysis stage.

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<sup>11</sup> Section 3.4.1.4 *Severe Acute Malnourished children identification*, p.22

## 4. NCA Findings

### 4.1 Preliminary technical expert workshop

On the 24th of October 2014, ACF hold an initial technical workshop with 19 national and local experts from the following domains: Food Security and Livelihoods, WASH, health, nutrition, MHCP/PCP and DRR.

The technical workshop aimed at identifying nutrition vulnerable groups and validating a list of causal hypotheses to be field-tested.

#### 4.1.1 Validated and ranked Causal hypotheses

Based on the results of a secondary data and literature review on risk factors and pathways to undernutrition, a list of 17 hypothesised risk factors and a hypothesised causal model, were presented to the technical experts<sup>12</sup>. These 17 hypothesised risk factors were debated and individually rated from 1 (hypothesis believed to contribute marginally to under-nutrition) to 5 (hypothesis believed to be a major contributor to under-nutrition).

In regard to the average note, the hypothesis M, A and J were considered as major contributor to undernutrition and hypothesis D and E as contributing marginally to undernutrition.

The following table shows the results of the rating exercise and the ranking of each hypothesis<sup>13</sup>.

*Table 8 – Causal Hypotheses rating and ranking*

Causal hypothesis	Average rating	Rank
Hypothesis M: Inadequate/poor access to safe water	4,87	1
Hypothesis A: Inappropriate complementary feeding practices	4,8	2
Hypothesis J: Open defecation	4,8	2
Hypothesis B: Inappropriate breastfeeding practices	4,67	4
Hypothesis K: Poor or inadequate sanitation	4,6	5
Hypothesis H: Inadequate healthcare behaviour	4,53	6
Hypothesis I: Inadequate hygiene practices	4,53	6
Hypothesis C: Poor psychosocial care	4,47	8
Hypothesis P: Limited access to food	4,33	9
Hypothesis L: Poor liquid/solid wastes management	4,27	10
Hypothesis Q: Poor diet diversity	4,27	10
Hypothesis N: Low income due to inadequate family resources management, instability of income sources and/or lack of income generating activities	4,2	12
Hypothesis F: Lactating and pregnant mothers micronutrient deficiencies	4,07	13
Hypothesis O: Low personal agricultural production and fishing	4,07	13
Hypothesis G: LBW and IUGR	3,93	15
Hypothesis E: Short birth spacing	3,87	16
Hypothesis D: Early Pregnancies	3,8	17
<b>Average note</b>	<b>4,36</b>	

<sup>12</sup> Cf. Annex 1: list of participants to initial technical workshop, p69

<sup>13</sup> Ranking was done following the average rating note

### 4.1.2 Hypothesis validation by the technical experts

A debate helped to reach a consensus on the hypotheses to be field-tested. Some definitions were modified in order to be more precise. It was decided not to validate most of the pathways, as it was difficult to reach a consensus and to validate them after the final workshop.

Hypotheses were validated, modified or added as followed:

<b>Validated</b>	C,D,E,F,G,H,I,J,K,L,M,O,P,Q
<b>Reviewed</b>	A,B,N
<b>Added</b>	R,S,T

To follow a correct chronology, hypothesis A “Inappropriate complementary feeding practices”, became hypothesis B. In its definition, age of weaning was modified by age of introduction of complementary food, believed to be more precise. The pathway “misconception on adequate complementary feeding” was added.

Hypothesis B “Inappropriate breastfeeding practices” became hypothesis A.

Lack of knowledge regarding the importance of childcare was identified as a pathway to hypothesis C “Poor psychological Care”.

The pathway “low usage of contraception” to hypotheses D “Early pregnancies”, E “Short birth spacing” and E “Lactating and pregnant mothers micronutrient deficiencies” was deleted.

Definition of hypothesis H “Inadequate healthcare behaviour” was modified to include the deworming among Pregnant and Lactating Women (PLW). After the workshop, it was also decided with the UP parasitology group to investigate the lack of capacity and understanding of health workers to implement deworming drugs administration. As it may contribute largely to the lack of deworming among children and PLW, this specific pathway had been tested during the qualitative survey.

Definition of hypothesis K “Poor or inadequate sanitation” was modified to focus on the faecal waste management instead of the liquid/solid wastes management.

Hypothesis N “Low income due to inadequate family resources management, instability of income sources and/or lack of income generating activities” became hypothesis N “Low income due to instability of income sources and/or lack of income generating activities” and hypothesis S “Inadequate family resources management”

Hypothesis R “LPW acute malnutrition” and hypothesis S “Inadequate management of animal wastes” were defined as new hypotheses as they are believed to be major contributors to undernutrition.

Hypotheses validated to be field-tested are presented on the annex 2 “Hypothesis validated by the technical experts”<sup>14</sup>.

### 4.1.3 Nutrition Vulnerable Groups

The following group was identified as a nutrition vulnerable group: children less than 59 months (with a particular emphasis on children under 24 months).

<sup>14</sup> Cf. Annex 2 “Hypotheses validated by the technical experts”, pp.70-72

## 4.2 NCA qualitative survey: communities consultation

The following section presents community perceptions, practices and constraints regarding child undernutrition. It also addresses the relation between qualitative findings, secondary data and the 20 initial hypotheses defined during the first workshop.

The qualitative survey took place in four barangay among Masbate province. In total, 47 FGDs and 25 interviews were organized.

### 4.2.1 Key Stakeholders consultation

Interviews of key informants were an important source of information for the NCA since it allowed enhancing knowledge of undernutrition, traditional beliefs and roles of traditional practitioners and health workers. In total 17 interviews of health and day care workers, traditional birth attendant and traditional practitioners had been realized.

#### Understanding and causes of undernutrition

Terminology related to undernutrition is not well defined for health and day care workers, probably due to the fact that the province efforts toward malnutrition mainly focus on underweight.

Health workers cannot define the term undernutrition, but can define underweight. Some of the day care workers are identifying two forms of malnutrition: “undermalnutrition” or underweight and “overmalnutrition” or overweight. Kwashiorkor and marasmus are not familiar terms. Health workers are able to defined chronic malnutrition but without using terms such as “chronic” or “stunting”. Generally, chronic malnutrition and acute malnutrition were not differentiated. In another hand, day care workers were showing more knowledge about chronic malnutrition what they defined as a repetition of undernutrition episodes due to continuous lack of basic cares, food and health cares. Day care workers are identifying children growing in large family or/and in unhealthy environment as more at risk of chronic malnutrition and are also mentioning a heredity link (if the parents did not growth properly then the child can suffer from the same).

Difference between undernutrition and underweight had been clearly explained and understood by the stakeholders interviewed after asking them their own definition; therefore discussions were related to undernutrition.

One of the main issues mentioned by health workers and day care workers is the lack of employment and of regular income. Indeed, various foods in acceptable quantity are available in all the municipalities but families cannot afford them. Therefore, families tend to mainly rely on rice, vegetables and dry fishes.

Traditional practitioners identified lack of knowledge toward care practices and lack of food as main causes of undernutrition.

#### Health workers

Undernutrition is considered as a lack of weight with main causes related to food: absence of nutritious food or insufficient food intake. Secondary causes are related to care provided by mothers such as way of feeding, time dedicated to the child and her/his supervision. In this way, health workers are identifying improper identification of child needs: mother will feed her child with inappropriate food and not regularly consider her/him as fed enough; lack of time particularly for single mother and widow; inadequate hygiene practices: main caregivers will let play the child outside while the area is known to be contaminated by open defecation.

Knowledge is not equal regarding who can be affected by undernutrition. Some health workers are considering that undernutrition can affect only children while others will consider it can affect everyone. Poor families are identified at risk of malnutrition. Undernutrition is considered as an important issue and children affected are believed to be more at risk of being affected by disease. Health workers are identifying a link between condition of the mother (nutritional status, age, workload) and the weight at birth. Indeed, if a mother is too thin and does not have a correct food intake during her pregnancy, it can affect the development of the foetus and the children can have a poor health condition. The same statement was done for mothers aged more than 40 years old and teenagers. Some of the health workers are also mentioning that an undernourished mother will have difficulties to take care of her children, especially when they get sick. Consumption of alcohol and of cigarettes was also mentioned as causes of low birth weight.

Health workers advice to the caregivers not to consult *albularyo* who will not be able to cure their children, as they will just provide elixir made from water and magic formula. They will explain to the parents that only a doctor can help their children.

To their knowledge, worm infections are related to unhealthy environment and unhygienic practice. If a child is playing outside in an area of open defecation she/he has great chances to be affected. As children will take their food with dirty hands, parents should always wash their hands with soap. They will advise to the caregiver to go to the health centre where they can find deworming tablets. To their knowledge there are no side effects if the child is not suffering from medical complications but deworming should not be given to pregnant women.

Regarding infant and young children feeding practices, health workers do know that exclusive breastfeeding should be done till 6 months, complementary feeding introduce at 6 months and breastfeeding continue till 2 years. Issue related to inadequate feeding practices are known, for example working mothers are mentioned to introduce complementary feeding very early (sometimes at 2 months).

To their knowledge, domestic violence is not an issue. Even if couple may fight for several reasons what includes mainly alcoholism and gambling, domestic violence is not a norm and in any case referent person such as DSWD workers can refer to the police. Finally, decision power is shared inside the household and couple mainly discuss family expenses.

### Day care workers

Day care workers defined a child affected by undernutrition as a child suffering from a lack of weight, major pain and globally looking like non healthy. Undernourished child can also present various symptoms such as: big belly, tired eyes, and bluish nail colour. As the child looks very thin, her/his ribs will often be visible. Expanded stomach is considered as a consequence of worm infections.

Main causes identified by day care workers are related to unhealthy environment, lack of money, absence of permanent job, lack of food and large family. Regarding this last point, large families are identifying as a risk since it will be more costly for the parents to raise all their children. Main cause of maternal undernutrition is related to short birth spacing (1 year between two children) not allowing the mother to rest enough between two pregnancies and therefore affecting her health condition. Secondary causes are defined as lack of knowledge, lack of food and lack of

employment (i.e. lack of income). Pregnant women suffering from undernutrition are believed to give birth to unhealthy and/or low birth weight infant.

Children with poor health condition are believed to be more at risk even if any child can be affected.

If a case of undernutrition is suspected, day care workers advice to the caregiver to do a check-up at the health centre, to provide more vitamins, a balance diet and more food to the child.

Unhealthy environment is also believed to contribute to undernutrition risk and worm infections. Some of the day care workers mentioned that a lot of families are keeping their poultry close to their house what contribute to unhealthy environment. To prevent worm infections, they recommend having a proper hygiene and taking deworming medicine such as albendazole every 6 months. Mostly, day care worker do not mentioned any side effects to deworming medicine. It is still important to notice that one of the interviewee mentioned that deworming medicine should not be taken without seeking first for medical advice and stool testing, since she believed active worms could get out of the ears.

### Traditional practitioners<sup>15</sup>

Traditional practitioners interviewed were having several functions: *albularyo* (traditional healer), *hilot* (massagers) and *komadrona* (traditional birth attendant).

One of the traditional practitioners began recently a barangay health worker. She is also a *komadrona* but do not delivery anymore since it is forbidden in her barangay. She is identifying two forms of underweight: severe and moderate. In general, malnutrition is believed to affect any one, independently to their age.

Traditional practitioners identified lack of education and lack of food as main causes of undernutrition. Lack of education was mainly referring to caregivers' knowledge in terms of care practices.

Traditional healers are mainly using herbal medicine and massage for health treatments. They explained being able to cure some conditions such as sprain or post-partum depression and being able to ease some diseases. All the traditional healers interviewed explained that if the health condition is too serious or if they do not have the required knowledge to treat some diseases they will recommend to the patient to consult a doctor. Among the herbal leaves mentioned by traditional healers, some have already been identified for their medical properties. As example *damong-maria* (also known locally as *lakadbulan*, and generally as *Artemisia vulgaris*) is known for her deworming properties and is considered to be stomachic, anthelmintic, emmangogue and antispasmodic in the herbal medicine literature.

Diarrhea is believed to be caused by a misplacement of certain organs but cannot be cured by the traditional medicine. There is a range of disease that cannot be efficiently treated by traditional healer and for what they will advise the caregiver to consult a doctor: severe episode of diarrhea, asthma, high fever. Treatments of some diseases might be affected by certain conditions. As examples, traditional healer cannot cure asthma especially when there is no moon, sprain is traditionally handled by *hilot* but only a doctor can totally cure a sprain if the child stayed to long in the water. By doing some rituals, *albularyo* can ease some diseases. One of the *albularyo* explained putting a piece of snake gall balder in hot water, then drinking and eating the

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<sup>15</sup> The following section describes some beliefs, knowledge and treatments. Readers should take in account that descriptions bellow vary from one traditional practitioner to another.

mixture before practicing a ritual that will ease asthma. Some massage can also be done to ease such condition.

An important function of the traditional practitioner is to be able to chase bad spirits. There are several rituals to identify if someone is possessed or followed by a spirit whether it is a good one or not. For example, the *albularyo* can put some coconut oil and an egg in a plate, then some oil the person's hand. If the egg moves while the person approach his/her hands, then a spirit may be around. Then, the *albularyo* should localise where the spirit is coming from. Spirits can be located everyone in the environment, for example in trees. Once the localisation is known and the spirit is identify as good or bad, the affected person should apologize for having disturbed it. Bad spirits are not linked to accuracy of "normal" diseases. In certain cases, the person possessed can suffer from diseases qualified as "extraordinary" by the *albularyo* interviewed. Extraordinary diseases were defined as disease that cannot be identified and cured by a doctor. Undernutrition is not one of them.

Traditional birth attendants (TBA) have two main functions. During pregnancy they verify if the head of the infant is down and provide massage to insure a good position. They are also in charge of helping the mother to deliver. Most of them were trained by their own mother and grandmother or by other TBAs. Some attend seminar in trained *hilot* or had been trained by a midwife or a doctor.

Regarding reproductive health, TBAs can provide some concoction used as contraceptives and made from bitter leaves or tree skin, such as *bangkal* (also known as *Nauclea Orientalis*<sup>16</sup>). The same might also be provided for abortion, but most of the TBAs interviewed think that it is risky and may have side effect on the foetus if it is not working. Therefore, they do not recommend it. Some of the TBAs are practicing specific massage believed to have a contraceptive effect. There is no consensus among the TBAs regarding this practice: some never heard about it, while some other practice massages to help the mother becoming pregnant.

Finally, some of the TBAs are recommending more traditional and modern contraception means such as contraceptive pills, IUD, lactating amenorrhea method, calendar methods etc. Since, there are some beliefs attached to contraceptive means. As example, one of the TBAs mentioned that if a pills is not well digest it can be stuck in the ovaries, and that IUD can be dangerous in absence of check-up as it can move and be dangerous.

#### 4.2.2. Background characteristic of participants in qualitative study

The qualitative survey took place during 5 days and a half per barangay. One day was dedicated to interview of key informants (health workers, day care workers, traditional practitioners); three days and half to focus group discussion; half a day to in-depth interview of mothers of positive deviant; and half a day for restitution of the results to the communities. Due to a potential evolution of practices during the past years, mothers and grandmothers of children under 5 years old attended different Focus Groups Discussion (FGD). Fathers and grandfathers attend a separate FGD since their understanding and conception of the topic may be slightly different from the women. The inclusion of grandfathers and grandmothers has been made, based on their large implication on the life of their grandchildren. The qualitative inquiry showed that a large proportion of grandparents were the main caregivers of their grandchildren.

To avoid stigmatising the participants, groups were not segregated according to their socio-economic position. Groups had been designed according to main livelihoods when several

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<sup>16</sup> Such plants are mentioned by folk medicine literature to be used worldwide with a range of properties as stomach pains or coughs treatment

livelihoods were represented in the cluster. Each FGD lasted for almost 1h30 with 2 or 3 themes discussed in 20-30 minutes session. It allowed participants to come by group and not to wait the entire day.

Estimated age of mothers and fathers was between 17 and 50 years old. In average, mothers seemed being aged from 25 to 45 years old. The estimated age of grandparents was between 50 and 75.

The number of children ranged from 1 to 14, with number of children correlated with the age of the parents

Most of the families are following a traditional family structure (two parents with their children). Single parental families were rarely represented among the participants. Mostly, teenage mothers where leaving in extended families.

The level of education ranged from elementary school to college, with most of the mothers reporting having left school around classes V-VI. Only one participant never attended school. Youngest mothers and fathers appeared to be more educated.

Almost all the women describe themselves as housewives. Some of them mentioned helping occasionally their husband for farming or selling some snacks in the evening. Only few women are working. Fathers are farmers or fishermen, few are manual workers, *habal habal* or tricycle drivers. In costal barangays, a large proportion of men explained sharing their time between several occupations according to job opportunities and do not have regular job. Majority of grandparents are still working.

#### **4.2.3 Local definition and understanding of malnutrition**

An initial focus group discussion with community members explored the perception and understanding of malnutrition.

Pictures of acute malnourished<sup>17</sup>, obese and healthy children were used to introduce the topic. Since the FGD was using pictures, participants asked for the exact terms describing the state of each child. Therefore, definitions of acute malnutrition, chronic malnutrition and underweight were explained once enough information was collected to identify a local definition of malnutrition.

##### Local definition of malnutrition

Participants were not familiar with the term “undernutrition” and not able to identify the different form of this condition. Children suffering from acute malnutrition are mainly identify as “malnourished” while obese child was described as “overnourished” or “overfat” and considered suffering from malnutrition. Only few participants were able to defined underweight as a low weight regarding the age of the child.

Undernutrition is considered as a state of weakness characterized by a lack of weigh and can affect anyone independently from the age. Communities considered it as an important problem in their barangay but also in the rest of the province.

Overweight is considered as a health issue characterized by an important excess of fat and is not usually seen in surveyed clusters.

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<sup>17</sup> Only pictures of Filipino children were used to ease identification of the communities. Since clear picture of kwashiorkor case was not available, only pictures of SAM children with marasmus were used.

Participants are identifying chronic malnutrition as “children who do not normally growth”. Even if the causes related to chronic malnutrition are globally the same as the ones mentioned for undernutrition, participants were not able to clearly define it as a malnutrition form. Children and families with low income are identified as main nutritional vulnerable group. Some participants also considered elderly and tuberculosis patients also at high risk.

### Local perception of good nutrition

In general, communities describe good nutrition as a “diverse diet” in adequate quantity. An adequate meal should contain “nutritious” aliments rich in vitamins such as fruits or vegetables. Meat is seen as the best source of proteins, followed by fish. Since most of the participants are not able to afford meat, they try to include, as much as they can, sea products in their meal.

According to the discussion, a child older than 23 months is able to eat the same meal of his/her parents if the food is sliced and given in adequate proportions. A correct meal for a child should contain rice, vegetables and at least fish. If possible, meal should also include fruits. Only few participants are mentioning eggs as a rich source of proteins. Most of the family are cooking specific meal for their children once they start eating alone. Such meal will contain *lugaw* mixed with small amount of fish, or meat when available, and vegetables, if available.

Most of the participants consider “junk food” and soft drinks as dangerous for children since it can make them loose appetite and may not be easy to digest. Families mentioned that time-to-time; they are not able to feed properly their children and have to give them only *lugaw* and sweet potatoes. Caregivers explained this situation by facing lack of income to afford an adequate meal to their child and are conscious of the risk of this way of feeding.

Women assume that pregnant and lactating women should not change considerably their diet, but that pregnant women need to increase their vitamins intake by consuming more fruits and vegetables. Respondents do not consider that food diet should be differently balanced and increased for lactating women.

### Causes and consequences of malnutrition

Causes of malnutrition are mainly identified as a lack of vitamins (whether from medicine or from vegetables/fruits) and lack of food (lack of rice). Secondary causes are identified as improper care provided by the main caregivers.

Regarding food intake, communities identified lack of fruits and vegetables consumption, what can be due to the prices of this kind of food, as the main issue contributing to children undernutrition. Inadequate meal frequency was also mentioned as impacting child food intake. Some of the mothers explained that the way of cooking was important to maintain children healthy and that even if meals are also based on the same aliments, they can be cooked in different ways. Finally, mimicry of parents’ food habits and conception of meals according to the child preferences were mentioned an issue. Here, participants referred to parents who does not eat balanced meal or who feed their children only with the food of their choice.

Regarding lack of care, large families are believed to face more difficulties since they might face a lack of time to spend with each of their child and therefore, to feed them correctly.

Communities clearly defined a link between the age of the mother, her nutritional status and the weight and health of the new born. Teenage mothers, mothers aged more than 45 and mothers suffering from malnutrition are believed to have greater chance to deliver an infant with a low weight and in a poor health condition. For all this cases, communities also identified a risk for the health status of the mothers. Lactating women suffering from undernutrition are believed to produce milk of lower quality with less nutriment, with some participants thinking that “whatever the mother eat will be found in breast milk”. Therefore, nutritional status of lactating

women is believed to be a cause of child undernutrition. Only few participants mentioned that a lactating mother suffering from undernutrition might be too weak to care properly about her child.

Communities identified other causes such as low immune system leading to recurrent diseases. Unhealthy environment is also believed to contribute to undernutrition since children playing outside may put their dirty hands to their mouth and be more at risk of worm infection. Regarding worm infections, some of the participants insisted on the importance to provide clean food to avoid such health issues and to deworm children regularly. Worm infections have been often mentioned as probable cause of undernutrition and child with expanded belly are mostly identified as infected by parasites.

Finally, gambling and alcoholism were mainly identified as underlying causes of undernutrition. Indeed, both compartments are impacting family resource and care practices. Communities mentioned that in some families parents are gambling instead of taking care of their children, leaving the eldest alone to manage the meals of the youngest.

Overall, lack of regular employment and income are considered as major causes of undernutrition since income is needed to buy various foods and for health care. Communities explained that even if a family provide really good care to a child, if they cannot afford food, the child will suffer from undernutrition.

#### Recognition and attitudes toward malnutrition

Majority of participants are able to recognize acute malnutrition and obesity when looking at the pictures, even if they were not familiar with the exact terminology.

Children suffering from undernutrition are described as very thin, with sunken eyes, hollow cheeks and wrinkled skin, weak, not able to walk, with no appetite and sometime with a big belly. If the child is suffering from a severe form, ribs will also be visible. Some of the participants explained that the skin colour of the child might change showing anaemia, defined as “lack of iron”. Expanded belly and sunken eyes are seen as sign of worm infections.

To confirm that a child is suffering from malnutrition, participants would refer to a health worker or a doctor for a health check-up and to advices on the proper behaviour to have to handle the situation. Participants would advise the same if they identify a child suffering from undernutrition in their family or in their neighbourhood.

They would also recommend giving to the child fruits, vegetables, vitamins and more food, at regular interval and in better quality. Finally, they will provide share information on deworming and hygiene such as cutting child’s nail and giving regular bath. If the family is suffering from a shortage of food and if they can, they will share their food with them.

It is important to mention that some participants explained that they would not insist a lot since undernutrition can be seen as stigmatising and that family might not accept receiving advices.

#### Hypothesis R: LPW acute malnutrition

Maternal nutrition during pregnancy has a significant impact on foetal growth and birth weight. Also undernutrition may result in chronic energy deficiency, which likely affects ability to provide appropriate care. According to stakeholders’ and communities’ consultation, undernutrition among pregnant and lactating women (PLW) is an important issue in their barangay. Mothers participating to the FGDs did not mentioned eating less during their pregnancy or during lactating period, except if they were feeling nauseous. Meanwhile, most of

the participants explained not being able to eat regularly a balance meal due to the cost of the product and time to time having to ration their food due to lack of income.

Even if qualitative findings tends to show a potential risk of undernutrition among adults, absence of data for the given area do not allowed the NCA to clearly state that hypothesis R “PLW acute malnutrition” is one of the causes of undernutrition in Masbate.

#### 4.2.4 Description of Child Care Practices

Primary caregivers of young children are in general mothers. Grandparents have a central place in the family. Communities’ consultation showed that some children are raised by their grandparents for several reasons. The most commons reasons are related to work migration or divorce/separation. In this last case, grandparents mostly explained that after the separation parents left their children and created another family. Finally, in few case children are orphans. Mostly, grandparents do not receive support from their children to raise their grandchildren. Generally, teenage couples are living in extended families and are supported by their parents.

When the parents need someone to take care of their children, children are left under the responsibility of their grandparents or elder siblings. Parents might ask to their children aged more than 10/12 years to take care of their younger siblings in their absence. In case of large families, caregivers may share some responsibilities between their children. In such case, eldest can be in charge to feed the youngest. Caregivers mentioned that this situation is not ideal since some children may forget to feed their siblings on time.

The majority of the mothers will breastfeed their child from their birth. Few respondents reported giving *ampalaya* extract after birth to clean the infant stomach. A large proportion of the respondents also give water to their infant. Caregivers do not measure the important negative impact of giving water to their infants. Generally, breastfeeding is totally stopped between one year and half and two and half years. Breastfeeding can be stopped very early, even after only few months, in case of short birth spacing. Short birth spacing is also seen as an important constraint to take care of very young children. Indeed, the mother may privilege the youngest one since he/she needs to be breastfeed. Grandparents mainly know that they can replace breastfeed by baby formula. Since such products are difficult to afford, or even sometimes not available, they will opt for *lugaw*, and when they can afford it, cerealac<sup>18</sup>.

Complementary feeding usually begins when the child is aged between four to five months, sometimes even before. Mother will introduce first *lugaw*, *am* and infant products such as cerealac. Solid food as vegetables, fruits, fish, meat, eggs, rice, and noodles will be generally introduced between nine months and one year. Sweet potatoes and maize is generally not given before 1 year, since it is believe to be too hard to digest by young children. Junk food, candies and soft drinks are considered as harmful for young children and responsible of diseases such as diarrhea.

Children are considered to be able to eat a proper meal when they begin to try to eat the food of their parents. Then, they will eat the same meal as her/his parents but sliced and often the time mixed with *lugaw*. Mostly, meal will contain rice, few vegetables and dry fish. Only few mothers mentioned introducing complementary feeding at 6 months. Majority of the women will gradually increase the quantity of semi-solid and solid food while decreasing breastfeeding. Children are believed to be able to eat alone when they are able to use a spoon, most of the time after two years old.

Correct meal frequency is defined as three times a day for a normal meal and upon request for breast milk. Children will be fed till the caregivers think they do not want to eat more. Caregivers

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<sup>18</sup> Brand of infant blended food

used to cook specifically for children if the meal is not adapted or if it is constituted from *lugaw*. As example, *kinilaw* and some fishes containing too many bones are considered not suitable for young children.

In case of large families, caregivers had difficulties to pay attention equally to each child. Participants explained large family is also a constraint when one of the child is sick, since the caregiver meet difficulties to have enough time to provide adequate care to the sick child but also to her other children. Most of the participants considered that it is better to have a first child after 25 years old in order to have less children and more maturity.

In Mariposa, Aroroy and Poblacion, Cawayan, several mothers bottle-feed their children since birth or after 6 months. Bottle-feeding before 6 months were related to medical conditions or because the mother had twins and was too tired to breastfeed them. Otherwise bottle-feeding was chosen by the mother as it is seen as a more practical way to feed young children. Mother explained boiling and filtering the water mixed with infant formula. Bottle-feeding was very rare within the participants.

#### Hypothesis A: Inappropriate breastfeeding practices

According to UNICEF data, rate of early initiation of breastfeeding (first day) is acceptable in the four municipalities with a minimum rate of 79.7% for Aroroy and a maximum of 92.2% for Monreal. Qualitative results show that most of the mothers do know the correct timing to initiate breastfeeding.

Although exclusive breastfeeding is recommended for the first six months of child's life, qualitative findings clearly demonstrated that a large portion of infants under six months is not exclusive breastfed. Caregivers usually introduce complementary feeding very early, and introduce intake of water very early, without noticing the related risk. These findings can be correlated with UNICEF findings showing very low rate for exclusive breastfeeding (lowest rate: 25.7% for Monreal and a highest rate: 52.3% for Cawayan). MYCNSIA (2011) findings showed that only 48% of the mothers had adequate knowledge of exclusive breastfeeding in Masbate.

UNICEF findings show high rate of children ever breastfeed, comprised between 93.2% for Aroroy and 100% for Monreal. Qualitative findings showed that a small proportion of children were not raised by their mother and might have never been breastfed. Same children are at risk not to receive adequate intake in their first 6 months of life since caregivers are not always able to afford/find infant formula and do not use any replacement feeding method such as circling method.

Although breastfeeding is recommended to be continued till two years of age, behaviours are not homogenous among the participants and the municipality. In this way, participants mostly indicated stopping breastfeeding between 1 year and half and 2 year and half but short birth spacing was mentioned several times as a reason of stopping breastfeeding. UNICEF findings show that the situation may be totally different from one municipality to another with rate of continued breastfeeding at one year from 53% in Aroroy and 90.1% in Milagros.

#### Hypothesis B: Inappropriate complementary feeding practices

The transition between exclusive breastfeeding and complementary feeding is a crucial period for the infant as inappropriate and/or inadequate feeding practices is a common cause of malnutrition. According to WHO, introduction of complementary feeding should begin around 6 months when breast milk is no longer sufficient to maintain optimal growth. Furthermore, early or late introduction of complementary feeding could contribute to undernutrition. Caregivers need to give a special attention to meal frequency and better understand how to balance their infant diet.

Secondary data clearly show that a large proportion of children are not exclusively breastfeeding below six months. Qualitative data enlighten early introduction of complementary food as an important issues within the communities with semi-solid food introduction between 4 to 5 months. MYCSNIA results show that only 35.7% of the mothers know that complementary feeding should be introduced at 6 months. Finally, secondary data found Individual dietary diversity score (IDDS) as very low (minimum of 51.9% in Monreal and maximum of 58.4% in Cawayan). Qualitative findings show that most of the family had difficulties to diversify the food provided to their children due to low power purchase. Usual children meal is made from *lugam*, *am* or rice, vegetables and dry fish.

#### Hypothesis C: Poor psychosocial care

Qualitative results demonstrate that some caregivers, mainly in large families, may have difficulties to reach an adequate meal frequency. In addition, young children are often under surveillance of elder sibling and may skip some meals.

With absence of data and longer-term analysis, it is impossible to clearly state on the impact of poor psychosocial care on undernutrition. Nevertheless, it is assumed that such situation can have an important impact on children wellbeing and absence of care can affect the behaviour of a child and the mother/child bonding.

#### **4.2.5 Description of psychosocial situation and care for women**

Participants mainly attend school till grade V-VI. Respondents reported stopping school for financial reason or due to early pregnancy and related difficulties to find a job since they do not have any qualifications. Younger participants seem to be more educated that can be explained by a better access to school premises. In Matagabac, Mariposa, participants explained that some of them had to stop school due to the fights between the NPA and the army. Indeed, school was closed for several years and nearby schools were very difficult to reach due to road issues.

Women reported to have a lot of work to handle at their home, mainly because they have to raise many children. Some of the women and men qualify housework than more difficult than a regular job since it is a non-stop occupation. Normal routine is shared between cooking, cleaning the house and clothes, helping youngest children to eat and to bath and helping school students for their homework. An important proportion of women explained that having a large family was an important source of stress since they were not able to sleep enough and were often worry about financial issues, specifically regarding food, health and school fees. In Poblacion, Cawayan, some grandparents noticed that men were helping more at home since women are working.

Decisions are shared within the household. Regarding decision power related to expenses, most of the couples agreed on a specific budget and specific expenses, such as emergency expenses for health, are discussed before spending. In some families, women are handling the budget and expenses are commonly agreed.

Participants explained that verbal fight often occurred in a couple with various reasons what are mainly related too financial issues. Consumption of alcohol and gambling is a common subject of dispute and concern women and men. Other subjects of fight are more common (jealousy, miscommunication). Domestic violence is not considered as a norm in the surveyed barangays

and referent persons are well identified (DSWS, barangay police, captain barangays, health workers and families)<sup>19</sup>.

#### Hypothesis D: Early Pregnancies; Hypothesis E: Short birth spacing; Hypothesis G: LBW and IUGR

Inappropriate reproductive health practices can result to short birth spacing and early childbearing, which in turn can contribute to LBW and affect household resources and ability to provide adequate care. MYCNSIA results show a preoccupant rate of LBW rate of 31.9% for Masbate.

The main issue related to care for women identified by the qualitative survey is related to reproductive health. Most of the participants conceptualize the perfect family with numerous children, but agreed that it would have been better to have fewer children to be able to afford better individual care. Women mostly agreed that the appropriate age to have a first child should be around 25 years old and never below 18 since it can be risky for the mothers and the infants. Participants, and particularly fathers and grandparents, mentioned that very young couple are lacking maturity to take properly care of a child. Mainly, participants had their first child in their early twenties. It is important to note that according to communities and stakeholders' consultation, early pregnancy seems to increase.

Young mothers mentioned not having enough knowledge regarding contraception before their first pregnancy, explaining that it is also one of the reasons they get pregnant. In absence of knowledge, they did not think about asking and did not know to whom to ask.

Participants have a good knowledge of different contraceptive means, including modern contraception such as IUD, condoms and contraceptive pills. Meanwhile, usage of contraception is not homogenous; half of the participants seem using condoms or contraceptive pills, while other participants are mainly using more natural contraceptive means such as withdrawal, cycle beads or calendar method<sup>20</sup>. Finally, few mothers were using folk contraceptive means such as herbal medicine<sup>21</sup> or traditional massage<sup>22</sup>, the last ones being rarer. Very rare participants stopped having intercourses to avoid a new pregnancy since they do not know what else they can do.

Surprisingly, grandparents seem to be more aware of modern methods and will found them more precise and efficient.

Grandparents explained having largely benefited from family planning counselling while parents explained not having the same access to information. Only few participants explained having benefited from counselling. This can explain the generational gap on knowledge related to reproductive health.

Referent persons are well identified (*partira*, midwives, DSWD workers). Qualitative inquiries showed that health workers and *partira* promoted the same kind of contraceptives, except regarding folk contraceptive means, mainly relayed by traditional practitioners or relatives.

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<sup>19</sup> It is interesting to note that some men mentioned an absence of referent persons for men suffering from domestic violence

<sup>20</sup> Cycle beads and calendar method are both calendar-based methods estimating women's likelihood of fertility and based on counting days between two menstrual cycles in a certain way. In optimal use, failure rate is around 15%

<sup>21</sup> Some leaves or tree skins are believed to have a contraceptive effect. Skin or leaves should be dried, mixed with alcohol and drank every morning. There is no scientific proof assessing efficiency of such method

<sup>22</sup> Massage performed by certain *partira* are believed to move ovaries in a position that prevent pregnancy

The way of understanding adequate contraception methods seems to have an impact on short birth spacing. Finally, qualitative inquiries reflected that undesired pregnancy was mainly due to unused or incorrect use of contraceptive.

#### 4.2.6 Description of health situation and practices

The following section enlightens the place of inadequate health practices behaviour (hypothesis H) and PLW mother micronutrient deficiencies (hypothesis F) in the NCA causal model.

Caregivers described as healthy an active child who is playing, active and eating normally. Loss of appetite and fever are identified as symptoms of sickness. Communities are able to recognize diarrhea determinants, mostly related to unsafe water or food consumption. Fever, cold, cough and stomach pain are common among children, and vary seasonally.

Only rare participants mentioned never consulting a traditional healer, and almost all the participants are consulting a traditional healer in case of sprain or muscular pain. Depending on the condition of their child and their financial situation, participants explained practicing self-medication, consulting a health worker or a traditional healer. Since practices vary from one barangay to another and within the participants, they cannot be generalized.

When the condition of the child is not considered as serious and main symptoms can be identified, most of the caregivers will opt for self-medication or consult a traditional healer. Participants mentioned giving paracetamol in case of fever or giving a treatment formerly prescribed by a doctor if symptoms are the same, for example loperamide in case of diarrhea.

In case of cough, cold, stomach pain and fever caregivers would generally give herbal treatments, if they know what to give, or consult a traditional healer.

For example, *labnog* (also known as *hauili*, or *ficus septica*) is given for fever, extract of *ampalaya* (bitter melon), oregano and *lagundi* (also known as *vitex negundo*) for cough and *sambong* for diarrhea. *Lagundi*, *sambong* and *ampalaya* are among the herbal medicinal plants endorsed by the Philippine Department of Health<sup>23</sup>.

Herbal treatments are learnt from elderly, through books or radio.

Majority of the participants explained preferring to consult a doctor rather than a traditional healer if the situation is serious or for other health issues than the ones mentioned earlier. In the same time, caregivers explained facing several barriers that are not allowing them to consult a health worker or a doctor. Indeed, in some barangay there is no permanent health worker and it may be costly to reach another rural health unit or the hospital. Also, in some remote places, it is not always possible to travel by road, especially if the weather is not good. Finally, some participants explained not being able to afford the cost of the treatment.

*Albularyo* and *hilot* are mainly consulted in case of sprain, muscular pain, fever, skin diseases or cough. Traditional healers are providing herbal treatment, with or without oration and massage in case of disease, sprain or muscular disease and oration and protection (necklaces, medals...) against bad spirit.

In some barangays, respondents explained consulting traditional healer in case of snakebites, since treatments are not available and they do not have another choice. Participants are conscious that oration provided may not work but prefer to try at least something, in such case traditional healer is seen as their best chance.

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<sup>23</sup> [http://www.philippineherbalmedicine.org/doh\\_herbs.htm](http://www.philippineherbalmedicine.org/doh_herbs.htm)

Traditional healer would also be consult if doctor treatment does not work, if a case of possession is suspected or to obtain protection against bad spirit. Participants explained that such case have different symptoms<sup>24</sup> as traditional diseases. As explained in the section “4.2.1. Key Stakeholders consultation”<sup>25</sup>, traditional healers are advising to their patient to consult a doctor if the treatment is not under their scope of competencies or if the case is already too serious.

Traditional birth attendants (TBA) and health workers are generally both consulted for antenatal care with clearly defined functions. Indeed, TBAs are consulted to identify the position of the child while health workers are consulted for immunization, routine health check-up and supplementation.

TBAs are consulted every 3 months or monthly and are practicing massage to insure that the baby will be in an adequate position for delivery.

Most of the mothers reported taking only iron during their last pregnancy. This should be taken with cautious since respondents probably gave this information in purpose. Qualitative findings reported that very rare women took other supplementation aside from iron. Finally, not all the participants reported receiving immunization during their last pregnancy and none of them took deworming medicine. Deworming drugs are considered as dangerous for pregnant women. General belief considers that if deworming drugs are made to kill worms they can also have very harmful side effect on the foetus, and may even cause spontaneous abortion. Only few participants are questioning such belief and are not sure about its accuracy. Most of the respondents reported having this information from health workers, in particular midwives. It is important to note that participants continued to eat fish *kinilaw* (raw fish recipe) that are vectors of parasites infections what can be particularly risky since parasite infection can affect intra-uterine growth development and then, can be one of the reason of low birth weight<sup>26</sup>.

Some respondents explained not being able to received proper antenatal care since the midwife was coming only once in a month, they were leaving far from the proper barangay and they were not able to reach the health centre.

Finally, most of the participants explain that ideally it would be better to combined antenatal care with midwife and partira consultation but that midwife visit are rare and in some case not regular.

All this information should be taken with cautious since the participants may know the importance of antenatal care and supplementation and giving this information in purpose. Indeed, MYCSNIA results (2011) showed that 50.4% of the women surveyed were anaemic and that only 44% of them took iron and folic acid during their last pregnancy. Information regarding deworming is collaborated by health worker consultation<sup>27</sup>.

Place of delivery depends mainly on the financial resource of the family and on the possibility to reach a health facility. In Mariposa, Aroroy and Matagbac, Milagros, mothers delivered mainly at home since midwives are not available and both barangay are difficult to reach. In Famosa, Monreal and Poblacion, Cawayan, mothers mainly delivered in a health facility what are more accessible. Participants mentioned financial issues as their main barrier. Indeed, delivery by a *partira* is less costly than by a midwife, according to the respondent. Place of delivery is not directly related to child undernutrition but is an interesting proxy to understand if caregivers are

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<sup>24</sup> This information should be taken with cautious since at least one participant described symptom of diarrhea as “extraordinary symptoms”.

<sup>25</sup> Cf. pp.29-32

<sup>26</sup> Ndibazza, J. Muhangi, L. Akishule, D. Kiggundu, M. Ameke, C. Oweka, J. Kizindo, R. Duong, T. Kleinschmidt, I. Muwanga, M. Elliott A.M. 2010. *Effects of Deworming during Pregnancy on Maternal and Perinatal Outcomes in Entebbe, Uganda: A Randomized Controlled Trial*. Clin. Infect. Dis; 50(4)

<sup>27</sup> Cf. Section “4.2.1. Key Stakeholders consultation”, pp.29-32

able to benefit from early counselling in breastfeeding and general access to health care. Also, giving birth at home is considered as a risk because the environment is less hygienic. In the general configuration described by the respondent, taking in account access to health facilities and place of delivery, it is obvious that most of the new born did not benefit from early health check-up and can complicate early diagnosis of undernutrition and counselling, especially in the case of low birth weight infants.

Practices and knowledge related to helminth infections were also explored during the FGD related to health practices. Taking in account the global environment and hygiene practices, worm infections were mentioned as a hypothetic pathway to child undernutrition. Indeed, helminth infections can be related to low absorption of nutrients. MYCSNIA surveyed showed alarming rate of anaemia among children aged from 6 to 35 months (50,2%) and low deworming coverage among children aged from 12 to 35 months (58,2%). Since these data were collected 3 years before the present NCA study and deworming programs are implanted in the study area, figures should be taken with caution.

Qualitative enquiry showed that caregivers have a good knowledge of risk to parasites infections. Participants mentioned that a proper hygiene is compulsory to avoid such infections: parents should avoid letting their children play outside and always wash their hands since they may touch dirty things and put their hands in their mouth; they also should avoid drinking dirty water and eating dirty food. Caregivers who are bottle-feeding their children insisted on the importance to use clean bottles. To their knowledge anyone can be infected but pregnant mother should avoid taking deworming, since it can have harmful side effect on the foetus. As seen earlier, participants reported getting these advices from health workers.

Most of the respondents know that deworming is available at health centres, pharmacy and deworming programs were implemented in school. Most of the participants believed there were no side effects, except for pregnant women. Caregivers did not agree if whether or not deworming can have a side effect on lactating women, some of them thinking the drug can pass in the milk and infant may be too young to “drink” it. Discussion showed an important lack of knowledge on this specific issue, since a large part of participants finally wonder if there were real side effects or not.

Some superstitions are attached to worm infections. As example some participants mentioned that eating too much fish could cause such infections. In reality, consumption of raw sea product may be a vector of helminth infections. Few participants are also thinking that worm can go out of the ears in case of massive infection. Most of them think that in case of infection, dead worms can go out of the nose or being vomited. This is not seen as a side effect but as a result showing that deworming is working. It is important to note that few participants do not want to deworm their children since they are disgust by worms.

Even if caregivers showed a good knowledge on parasites infections, doubts subsisted on the correct drugs intakes especially regarding monitoring. Only one participant mentioned that if a child is infected, the treatment should be repeated. Appropriate age of deworming is not well known since some participants stated that deworming should begin at one year while other think it should begin at 2 years old. Some participants also explained giving deworming made for animals since they heard it was also efficient for human or just believed it will worked since it is working on animals.

NCA findings showed that caregivers have a lot of good knowledge regarding helminth infections but that a lot of doubt and misunderstandings subsist. Since participants explained having this information from health workers, quality of knowledge and message relayed may be questioned.

#### 4.2.7 Description of WASH environment

A focus group discussion explored the WASH situation among the four surveyed barangays and the perception of good hygiene by the communities. Healthy environment plays a role crucial in preventing illness. Indeed, poor water, sanitation and hygiene negatively impact child nutritional status due to exposure to pathogen. NCA findings identified hypothesis J (Open Defecation) and L (Poor liquid/solid waste management) as direct consequences of a lack of adequate sanitation infrastructures (hypothesis K “Poor or inadequate sanitation”) rather than a lack of adequate hygiene practices knowledge.

##### Hypothesis M: Inadequate/poor access to safe water

Use of unsafe water can negatively impact general health situation of the communities. Indeed, exposure to pathogens may cause illnesses, including water-related diseases such as diarrhea, which may lead to undernutrition<sup>28</sup>. Moreover, an increased number and duration of diarrheal episodes is a significant risk factor for childhood stunting.

Most of the villagers have a regular access to water through the year, with less water available during *kwarisma*<sup>29</sup> season. Time to get water (time to go to the source, get water and get back to the house) was rarely mentioned as more than 30 minutes with in general one to two trips in a day. Some of the participants explained having to go farther during *kwarisma*, as their usual source of water might be empty.

Source of drinking water vary from one barangay to another and mainly are improved sources such as protected spring, tube well, well or pipelines. According to UNICEF survey, population largely use improved sources (between 68% for Milagros and 79.1% for Aroroy). Usage of bottled water as a main source of drinking water remains low with 2.4% for Monreal and 8.3% for Aroroy.

Qualitative findings explain that people do not often consume bottled water due to the cost and the availability. Indeed, in the four barangays survey, bottled water was available only in Cawayan Poblacion (1 gallon for 25 pesos).

Cost of drinking water varies from one barangay to another. For example in Cawayan Poblacion, one gallon of faucet water costs 3 pesos.

Not all participants reported treating the water before consumption, also habits vary depending on the weather conditions. Indeed, participants mainly assumed that clear water is safe for direct consumption while trouble water should be treated, explaining that it is mainly the case when it is raining or just after a typhoon. Water is kept in cover containers and treatment methods used at home are mainly clothes filtration followed by boiling. Some of the participants combined both methods while some others will let settle the water first. Finally, some of the participants explained boiling water only for their young children. UNICEF data<sup>30</sup> confirmed that a large part of the population do not use any water treatment method (between 29,9% for Milagros and 55,5% for Cawayan) with a majority of them using improvised filter through cloth, foam, sponge (15% for Monreal and 42,2% for Aroroy) or boiling (14,8% for Aroroy and 30,9% for Monreal).

Qualitative findings for Famosa, Monreal showed a different situation, since the barangay is benefiting from the Philippines Red Cross’ programs. In 2012, a well was renovated and

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<sup>28</sup> Checkley W, Gilman RH, Black RE, Epstein LD, Cabrera L, Sterling CR, Moulton LH. 2014. *Effect of water and sanitation on childhood health in a poor Peruvian peri-urban community*. Lancet, vol 363, no9403

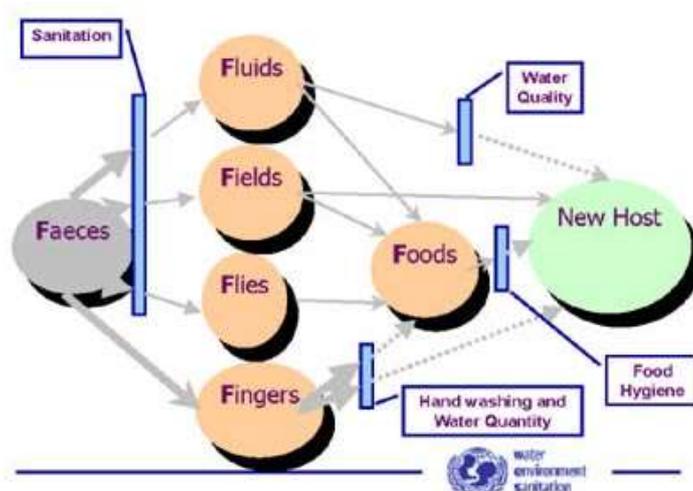
<sup>29</sup> *Kwarisma* season refers to the dry season that length usually from February to April

<sup>30</sup> This data excludes households with bottled/purified water as main source of drinking water

transformed in a borehole, with 20% invested by the barangay. 20L of water cost 1 peso, collected for maintenance. A committee, constituted by twelve yearly elected members, are in charge of the maintenance and operating the borehole. The collected amount is deposited to a specific account. The barangay captain's wife mentioned that approximately 15,000 pesos were already deposited to this account. The barangay plans to build another borehole when the amount will be sufficient. Indeed, since there is only one functioning twice a day<sup>31</sup> and is the only source of water in the area, queue can be very large and some villagers still need to travel to the nearby barangay to collect their water. Therefore, a large proportion of the community travel to Real to collect water at the *Matang Tubig* open spring, located at 30 minutes from Famosa by motorbike. Participants explained that they might need two to three hours to collect water in their barangay. Some respondents mentioned filtering the water while most of them are not doing anything, assuming the water should be safe since the source is regularly inspected by a sanitary inspector. Most of the women allocated usually half a day twice a week to wash clothes at the same spring.

### Hypothesis J: Open defecation

UNICEF results showed alarming rate of open defecation ranging from 40.1% (Aroroy) to 69.3% (Cawayan). Inappropriate disposal of human excreta and personal hygiene is associated with a range of diseases including diarrheal diseases and polio. Indeed, if the outlet of faeces is not well isolated from the environment by the use of appropriate sanitation facilities, it can contaminate foods and water through several routes represented in the figure below<sup>32</sup>, commonly called the F-diagram:



**Figure 3 – F-Diagram, disease transmission routes**

Qualitative enquiry reported that open defecation is considered as one of the main issues of health hazards in the communities that can cause spreading of diseases. Indeed, most of them do not have their own toilets and public latrines are relatively rare and faeces are believed to cause presence of fly, bad smell and a risk to be mixed with the source of water, especially in case of open well. Respondents also explained trying to keep open defecation areas, as much as they can, far from their living area to avoid the development of an unhealthy environment. Finally,

<sup>31</sup>At the time of the survey, water could be collected from 6 to 10:30 AM and from 3 to 6 PM

<sup>32</sup> UNICEF, 1999. *Towards better programming: A manual on hygiene promotion*. Water, Environment and Sanitation Technical guidelines series – No6

respondents mentioned that open defecation may be dangerous due to the presence of snake and because they have to go alone outside at night, what can also be unsafe. In coastal areas, participants use to go to the seashore, expecting that faeces will be washed out by the sea during high tides. In other areas, respondents reported going to the forest. Some of them reported digging a hole then covering it. Such adequate behaviour is not adopted by the all community. Washable diapers are mainly used for infants. Disposable diapers are less used due to lack of availability and costs. In both cases, parents do not dispose it safely, increasing the risk of environment contamination. Indeed, washable diapers might be washed with other clothes, sometimes close to the main source of water or in the river, while no specific safe disposal areas are identified to throw disposable diapers. In coastal areas, they are often thrown in the seashore. Children also practice open defecation, most of the time close to the premises. Some parents explained that in such cases they are covering the faeces. Meanwhile, some caregivers explained using an *arinola* (bowl) for them and their children and throw the faeces in the seashore, outside of their premises or in the forest. Only few participants reported disposing diapers in a trashcan. Children's faeces are actually more dangerous than adults as they tend to contain a higher concentration of pathogenic agents.

Qualitative survey showed that open defecation mostly results of difficulties of building latrines rather than a lack of knowledge. The main reason mentioned was the cost, as participants did not know how to build latrines with indigenous materials, or even did not know it was a possibility. Another important reason was the lack of ownership of the land. Indeed, an important proportion of participants reported not being allowed by the landowner to build their own latrines.

Knowledge of indigenous latrines construction was founded as more important in Poblacion Cawayan, which can be explained by ACF campaign about "zero open defecation" in the barangay. Usage of latrines was found are more usual in Famosa since a DSWD program facilitate the constructions of 25 latrines in 1998 by providing the material. Even the participants reported that today most of these latrines are damage as the bowl was in plastic, DSWD program seems to have initiated a dynamic among the barangay, where a large proportion of participants reported having built their own latrines.

### Hypothesis I: Inadequate hygiene practices

Most cases of endemic diarrhea are transmitted between individuals due to lack of personal and household hygiene<sup>33</sup>. The faecal oral route of disease transmission from infected humans operated mainly through poor sanitation and hygiene practices. This can occur when animal or human excreta are near the home and caregivers do not adopt hand washing appropriate behaviour. When soap and water are available, there is strong evidence that hand washing alone can reduce the frequency of diarrhea by approximately 30 to nearly 50% among children under 5<sup>34</sup>. UNICEF survey shows alarming and disparate rates of usage of cleansing agents (bar or liquid soap, detergent) for hand washing (Cawayan 27.8%, Monreal 42.5%, Milagros 46%, Aroroy 54.6%). Hand washing practices are optimal when practiced with water and soap after defecation, cleaning a child, before eating or handling and before feeding a child. Communities' enquiry showed that caregivers have an adequate general knowledge of adequate hygiene practices, except before breastfeeding. Indeed, only rare caregivers reported washing their hand before breastfeeding their infant, what is a crucial moment since mothers might touch the mouth of their child at this moment. Also, caregivers are not always able to wash their hand just after

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<sup>33</sup> Cairncross, S. Hunt, C. Boisson, S. Bostoen, K. Curtis, V. CH Fung, I. Schmidt, WP. 2010. *Water, sanitation and hygiene for the prevention of diarrhea*. International Journal of Epidemiology, volume 39, suppl. 1.

<sup>34</sup> Ejemot, RI. Ehiri, JE. Meremikwu, MM. Cirtchley, JA. 2008. *Hand washing for preventing diarrhea*, International Journal of Epidemiology 37. Cochrane Column.

defecation since water is not always available in the area. Indeed, regarding the distance between the place of defecation and their home, timing before hand washing is not appropriate. Participants going to the seashore explained bringing shampoo or soap with them and washing their hand in seawater, that have high risk to be contaminated by pathogens due to fact that seashore is also their area of defecation. Finally, most of the participants explained not being able to buy soap all over the year since it is an expensive product. Most of them will usually buy laundry soap or detergent since they can also use it for personal hygiene, despite the fact that such products can be aggressive for the skin, especially for children. Caregivers explained also using only water or leaves when they cannot afford soap and that they may forget to wash the hands of all their children when they have numerous children. Participants from Famosa (Monreal), Mariposa (Aroroy) and Matagbac (Milagros) mentioned that soap is particularly expensive since it is not a local product and should be brought from Poblacion.

Finally some caregivers reported spending one to two afternoons to do their laundry in a nearby source of water (river or spring), what might have two impacts. First in terms of care practices: while the caregiver is at the water source, oldest children may have to supervise their younger siblings. Secondly, and more critical, in term of water source pollution: indeed such washing practices will directly lead to water contamination by chemical products and pathogens. This observation should be taken in consideration, since some participants will use the same sources for drinking water or for bathing.

Food contamination is an additional risk factor that may result from storing food at ambient temperature or unsafe handling of food. Concerning this point, qualitative inquiries showed that participants seem to adopt a correct behaviour. Indeed, meals are mainly cooked just before being eaten. Caregivers do not keep leftovers for more than one meal and do not keep them overnight. They are thrown or given to pigs, if the caregiver owns some. Participants who can afford meat products and fresh fishes will cook it just after buying it and will check if products are fresh by smelling it. Aliments, such as veggies and rice, are kept in cover containers and cooking utensils and cutleries are washed and store in specific places. Such behaviours are adequate but this observation should be taken with cautious since they are valid only for the four barangays surveyed. Moreover, respondents explained washing cooking utensils and cutleries after used but NCA findings' cannot assure that soap is always used.

#### Hypothesis L: Poor liquid/solid wastes management

Participants identify poor liquid/solid wastes management as a critical issue for their community. Poor solid wastes management was identified as one of the main cause contributing to create an unhealthy environment. Respondents explained their inadequate behaviour by a lack of safe wastes disposal and absence of garbage collection system. They also identified seashore as the most critical area since people usually throw their garbage there. Indeed, plastic and metal containers are sold but in most of the cases, wastes are burnt. Only few participants mentioned composting their leftovers or giving it to their pigs or dogs.

In Famosa, some participants leaving close to the seashore explained trying to maintain a healthy environment by building their own waste disposal system. To do so, they dug large holes that should be sustainable for a year and throwing their wastes at this place. Once holes are full, they would cover them and dig new ones. The same respondents explained that such system are not optimal since wastes are left uncover when holes are still in use and will remain there after use, with a risk of contamination of the soil. For this reason, holes were not built close to their home. Participants identify liquid wastes as less dangerous than solid wastes. Correlation between poor liquid wastes management and health hazards was found as not obvious for most of the participants. Although respondents try to throw their solid wastes far from their home, liquid

wastes are usually thrown around their premises. Such observation tends to show a lack of knowledge concerning risks of inadequate liquid management.

#### Hypothesis S: Inadequate management of animal waste

As human faeces, presence of animal excreta represents an important source of health risk and can contribute to disease transmission hazards. Indeed, the faecal oral route of disease transmission from infected humans or domestic animals operates through poor sanitation and hygiene practices and when animal excreta is present near the home, caregivers and children face greater risk of being affected by diseases, including water borne diseases and parasitic worms. Recent studies also suggests that a key cause of child undernutrition is related to a subclinical disorder of the small intestine known as environment enteropathy, also known as tropical enteropathy, caused by faecal bacteria ingested in large quantities due to the exposure to poor environmental sanitation<sup>35</sup>. Such condition is mainly characterised by villous atrophy causing nutrients malabsorption<sup>36</sup>.

Participants to the FGD explained that livestock are not usually kept close to their premises. Qualitative findings and global observation showed that contrary to large animals (such as carabao or pigs), free-range poultries are common. Only few participants reported separating poultry from their home, usually in case of numerous animals owning. Mostly, respondents explained that chickens are staying close to their premises and able to come inside their home, whether they belong to them or not. Participants reported that such situation is problematic since chickens bring dust with them and that they have to clean chicken's defecation. Respondents mentioned that children might be affected by worm infections since they are playing outside or in the floor and may put their hands at their mouths. Meanwhile, most of them will just sweep or clean the floor with water only. NCA findings' showed that participants identified clearly the faecal route "hand-mouth" but do not notified that they can also contaminate the rest of their environment by hands contact. Also, presence of free-range chicken is rarely associated with diarrheal diseases. Although participants understand the relation with unhealthy environment measures to avoid such situation are not taken. Indeed, water sources are not fenced, poultry are not separated from houses and in some case, especially in case of coq fighters, and animals are tied nearby the house. Such conclusion tends to prove that inadequate management of animal waste, specifically chicken should be taken as an alarming and serious causes of unhealthy environment and therefore to children undernutrition.

#### **4.2.8 Description of Food Security and Livelihoods Situation**

Participants to the survey can be classified under two main livelihoods: farmers and fishermen. UNICEF survey identified two main groups: farmers/forestry workers/fishermen (Aroroy 12%, Milagros 16.3%, Monreal 18.2%, Cawayan 19.3%) and labourers/unskilled workers (Aroroy 12.6%, Milagros 10.7%, Monreal 8.7%, Cawayan 9.3%). Qualitative findings demonstrated that causal hypotheses related to Food Security and Livelihoods (FSL) are major or important contributors to undernutrition and are interrelated.

#### Hypothesis O: Low personal agricultural production and fishing

NCA findings show that fishermen and farmers are facing same issues but with different pathways to hypotheses O, since their livelihood differs.

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<sup>35</sup> Humphrey, J. 2009. *Child undernutrition, tropical enteropathy, toilets, and Handwashing*. Lancet, vol 374, no9694

<sup>36</sup> Cook, GC. 2003. *Malabsorption in the tropics*. Manson's tropical diseases, 20<sup>th</sup> edition. Saunders, London.

Illegal fishing was mentioned as a main cause of low personal fishing.

Participants mentioned three kinds of illegal fishing: usage of nets with small holes catching juvenile fishes, preventing restocking; cyanate and dynamite fishing, poisoning the environment and/or indiscriminately killing large number of marine organisms; overfishing mainly due to a lack of livelihood diversity, causing massive reduction of fish stocks that can result in resource depletion. Decreasing fish stock is directly impacting the quality of life of fishermen since it is reflecting on family financial resource. Depending on the area, two cases were reported. In the first configuration, as in Cawayan Poblacion, due to a lack of livelihood diversity, fish selling price is low due to the competitiveness and quantity of fishes caught is low due to insufficient fish stocks. In the second configuration, quantity of fishes caught is low due to insufficient fish stocks and price is high. In both cases, a large proportion of fishermen do not fish enough to be able to keep a part of their catch for personal consumption and are not able to afford fresh fishes. Most of the fishermen reported eating rarely fresh fishes but eating dry fishes such as anchovies, more affordable.

Low agricultural production is related to four main causes: land ownership, irrigation, family resources management and natural hazards.

Most of the participants interviewed were landless and used to work in haciendas where they harvest staple foods such as maize and rice. Farmers and tenant defined a sharing system what is, for most of the case, 2/3 for the farmer and 1/3 for the tenant. For most of the farmers, harvests are their only source of income. The quantity harvested is budget with a part kept for personal consumption and a part sold. Cash cropping is mainly prioritized and quantities harvested are often not enough for personal consumption. Therefore, a large proportion of farmers is still facing shortage of staple foods and need to buy rice or/and maize.

In Famosa, Monreal, some farmers benefit from SAMFAI program allowing them to cultivate a land independently and thus, to keep all their harvest. Only few haciendas own the majority of the land available. Harvest is usually shared as 40% for the owner and 60% for the farmer.

Participants explained that pipeline supplied systems were non-existent in their area. Lack of modern agriculture system is having an impact especially, during the dry season, since lands are not irrigated. Therefore, farmers cannot cultivate at this time. Lack of irrigation is also related to a major problem due to climate change. Indeed, since season tends not to be fixed anymore, farmers are not able to know when the rainy season will begin from a year to another. Recurrently, rains are coming late and in absence of irrigating system, farmers have to wait to crop and often face a shortage of food. If rains come late, cultivation in needs of water will also suffer.

Natural hazards are one of the main causes identified as contributing to low agricultural production. Recursion of disaster such as typhoon is causing loss of crops with short time for recovery. Traditionally, when a typhoon is causing major loss of crops or harvests, farmers used to adopt recovering coping mechanisms. Mainly, farmers combined budgeting their food and available financial resources to another income generating activity (IGA). This combination allowed households to recover enough to be able to buy new seeds and crop again. Today, frequency of typhoons increased in a way that farmers do not have enough time to recover. Moreover, coping mechanisms begin to be not adapted anymore to the situation. Indeed, recurrent loss of crops impact one of the main source of income of the household, driving it into a situation of family resources depletion. With a limited purchase power, household are unable to buy new seeds (or not enough). In consequence, personal agricultural production and income would be lower with direct consequences on food diversity and access to food.

### Hypothesis N: Low income due to instability of income sources and/or lack of income generating activities

Fishing activities are strongly related to weather: in case of bad meteorological conditions, boats cannot go out, impacting the stability of income sources and subject to a seasonal variation. Farming activities are related to climate and often badly impacted by natural hazards such drought or typhoon. *Kvarisma* period can be particularly difficult since the qualitative findings showed a total absence of irrigation system, that can be explained by the insufficient number of water sources but also by a lack of global modernisation of agricultural methods. Livestock, poultry and piggery can be an important complementary source of income for fishermen and farmers. Access to veterinary service is really variable according to the location. According to the respondents, veterinarians are visiting each barangay at least once in a year. The rest of the year, they will have to go to Poblacion or Masbate city if they want to consult one. Most of them will ask advices from the animal food supplier since they are believed to have some knowledge. In exchange of advices, farmers have to buy a certain amount of food from the shop. If they cannot afford the food, then they will have to rely on their own knowledge. Some of them will try human medicine if the symptoms are similar, or try veterinary medicine if they are able to identify the symptoms. This situation seems to be common in Masbate since it was reported by three of the four surveyed barangay. Only in Mariposa, Aroroy, participants mentioned that if needed, and if the weather conditions are fine, the veterinary would travel to their barangay. Even if the access to veterinary services seems to be better in Mariposa, communities and veterinarians are not able to travel all the time and in case of emergency, participants reported that they may lost their animals. This happen mostly if the barangay is isolated for several days due to a typhoon or a storm. Most of the participants will choose to eat their livestock in case of sickness. The same observation can be applied when carabao and horse are injured by accident, bitten by a snake and most of the time if they die from diseases. This last point should be stressed since such behaviour can be a considerable risk for health. Participants explained asking the help of an *albularyo*, in case of snack bites. They mentioned doing so in case if it is working and because antidotes are not available in their areas. A large part of the participants reported loosing animals every year, mainly chicken, and having difficulties to replace their loss.

### Hypothesis T: Inadequate family resource management

A resource management wheel was used during the FSL focus group discussion. The wheel was divided in the ten following section: water, food, health, transport, electricity, clothes, gambling, alcohol, savings and others. Participants were asked to represent their weekly expenses by putting an amount of stones in each section. This exercise placed food as the most important pool of expenses for all the participants. Most of the participants also spend a lot for their health, and a lot of them are not enrolled to Philhealth. Other expenses varied by barangay. For example, water was an important pool of expenses in Poblacion Cawayan, where people drink bottled water, but the last pool of expenses in Matagbac, Milagros, where bottled water is not available and water free. Transportation expenses varied according to the location of the barangay, it was more important in remote areas. Participants were asked after the exercise to explain what they represented in the section “others”. Farmers mainly mentioned seeds and fertilizers, most of the participants mentioned “school fees” and few participants “debts”. Debts are contracted in case of emergency, specifically to cover health fees. Most of the participants explained preferring contracting debt in kind, as food, from a shop and financial debt from their relatives as they would not have to pay interests.

Only few participants are able to save. Caregivers explained trying to save for the future of their children or for health emergencies, but most of them are not able to have long-term savings.

Moreover, in case of disasters and loss of crops, farmers are not able to buy new inputs and in general to extend or modernized their farming process since they do not have the financial resource for it. Thus a large proportion of the community are not able to increase their agricultural production.

Another important output of this exercise was to demonstrate that gambling and alcohol consumption are often an important part of the expenses, with only few participants allocating a specific budget for that. As saw in the section 4.2.5 “Description of psychosocial situation and care for women”<sup>37</sup>, main subjects of fight for couples are related to gambling and alcohol. Communities reported that both women and men are usually gambling but alcoholism mainly concerns men. In term of family resource management this could be transcript by an overspending of the predefined budget. Participants mentioned that in some cases, people might also stop working. Overspending family resources will result on a lack of financial resources and therefore on a limited purchase power and a limited access to food (hypothesis P: Limited access to food).

#### Hypothesis P: Limited access to food

A rift occurs between rural and semi-urban area in term of markets accessibility. Indeed, market are daily available in each Poblacion while they take place weekly in rural areas.

In Cawayan Poblacion, there is one barter market every Sunday and a daily market, which is more expensive. Main issues mentioned by the respondents were related to lack of income and distance. Indeed, due to low income, most of them are not able to buy food for all the week and have to buy daily. In this configuration, household is not able to save in order to buy staple food once a week and enter in a kind of survival system where they buy food when they can, even if it is at a higher price. A part of the respondents, leaving too far from the daily market, prefers buying to the Sunday market and then budget the food all over the week since it will be less costly than travelling daily to the market location.

In the three other surveyed barangays, there are no markets whether weekly or daily. Food can be bought from roaming sellers and *sari sari*. In both case, prices are higher than in a public market and availability of products is lesser. Participants from Famosa (Monreal), Mariposa (Aroroy) and Matagbac (Milagros) reported cost of transportation as one of their main barriers to access public markets. Indeed, most of the participants prefer buying food from public markets since prices are lower than in *sari sari* or from roaming sellers. Meanwhile, transportation cost is often too high to be used and market location is sometimes too far to be reached by private transportation only.

NCA qualitative survey also showed that, due to limited purchase power, a large proportion of the participants were not able to afford the kind of food they want and are seasonally facing shortage of staple food. Indeed, before harvesting time and/or in case of natural hazards such as typhoon or drought, participants face a shortage of staple food. Moreover, for the farmers, availability of staple food is connected to household financial resources. In case of shortage, households might have difficulty to buy certain food and would have to ration available remaining food.

#### Hypothesis Q: Poor diet diversity

Most of the participants reported having small plot of garden where they mainly cultivate green leaves like *alughati* (basella alba) or roots like *gabi* (taro). Few participants are also able to cultivate vegetables such as squash, okra, eggplants, *ampalaya* (bitter gourd), onions and some fruits. Most

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<sup>37</sup> Cf. pp 38-39

of them cannot harvest enough for family consumption due to the limited size of their garden. Availability of wild products varies from one barangay to another. Wild products available are mainly roots like *ube* (purple yam), *kamote* (sweet potatoe), *cassava* (manioc) and fruits such as bananas or coconut.

An exercise using pictures of common food (oil, sea products, meat products, eggs, vegetables, fruits, noodles, rice, flour, snacks, sugary drinks, coffee) was realised during the FSL group discussion. Participants had to put stones of different colours according to what they would like to buy if they can afford anything and what they will actually buy. Rare participants would like to buy snacks, noodles or sugary drinks while a large proportion would choose fruits, vegetables, meat, fish, eggs, fruits, vegetable, coffee and milk, but cannot afford these due to limited purchase power. In general, participants would be able to afford rice, vegetables, fishes and coffee.

Common meal is constituted with rice, vegetables and dry fishes. Fresh fish is less often consumed and meat, fruits and dairy are rarely consumed due to limited purchase power. Eggs are not usually consumed since raising poultry for selling is perceived as more profitable. Source of proteins are not well known by the communities since meat is considered as a better source than eggs and fishes. Some participants mentioned preferring raising poultry to buy meat rather than eating the eggs, not notifying that they will spend more by engaging such circle of production. In general, participants who own livestock, poultry, and piggery are using them as a secondary source of income. In such case, consumption is really rare and occurs mainly when participants are facing a shortage of food and financial resources. Carabaos and horses are mainly used for farming. Consumption of carabao and horsemeat occurred if the animal is sick or injured and cannot be healed. In Matagbac, Milagros, participants reported also consuming such meat if the animal is found dead or for specific occasion as wedding. Hunting of wild animals such as bats, birds, frogs, monkeys, reptiles (*baymak*/monitor lizards), turtles or wildcats, mostly happened in case of important shortage of food.

Participants rarely buy milk and seem not often milking cows. Few participants reported giving coffee instead of milk to their young children since it is more affordable and instant coffee mixed contains cream powder and sugar, thinking it is equivalent to milk.

Qualitative findings demonstrated that poor diet diversity results from a low purchase power and a limited access to food. Also, participants showed a lack of knowledge on potential source of proteins and on cooking practices.

#### **4.2.9 Seasonality of risk factors**

Seasonal and historical calendars were developed together with focus group participants of each barangay to demonstrate the seasonality of some risk factors over the season and the years. The following section summarizes findings on the seasonality<sup>38</sup> and historical trends<sup>39</sup> of risk factors identified across the four barangays.

##### Availability of food

Availability of food at household level is highly related to financial resources. All the barangay identified July and August as the most difficult months. Access to food for participants of

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<sup>38</sup> Cf. Annexes 3 à 6: Seasonal calendars, pp.73-76

<sup>39</sup> Cf. Annexes 7 à 10: Historical trends, pp.77-80

Matagbac, Milagros and Poblacion, Cawayan was reported as difficult through all the year, with communities facing low income due to inadequate income generating activities.

Availability of local fruits, vegetables and wild products is highly related to the location. For example, such items are available almost all the year in Mariposa, Aroroy with a large range of wild aliments that can pick up from the forest. In another hand, participants from Poblacion, Cawayan reported low availability of local fruits and vegetables and low purchase power in regard of high market prices, since non-local fruits and vegetables are more expensive. Also, since Poblacion, Cawayan is a semi-urban area; community cannot rely on wild products.

In coastal area, sea products are available all the year with lower availability depending on the weather. For example, participants from Poblacion, Cawayan reported having more difficulties to fish in November/December due to sea state.

Communities reported that they used to have two cropping in a year but due to climate change, harvesting and seeding season are not fixed anymore. Season calendars show the period when farming activities can occur depending on the rainy and kwarisma season. Climate change can explained huge differences from one calendar to another. For example, harvesting can occur in February or March and in October or November for Mariposa, Aroroy, while it could occur between January to April and August and October for Famosa, Monreal.

#### Livestock, poultry, piggery

There is no specific season for trading except for Matagbac, Milagros. Indeed, July and August is the most difficult months of the year since participants are facing a shortage of food to exchange against money, communities are selling most of their animals at this period.

Participants explained that their livestock, poultry and piggery could be sick at any time of the year, but prevalence of diseases increase according to the season, specifically if there is a shortage of water or during cold season.

#### Market price

Market prices are reported as expensive through all the year. June to august seems more problematic due to a shortage of staple foods before harvesting season. This observation is not applicable to Famosa where farmers have a better access to land and identified specific period of staple food trading (February to March and October to November) allowing them to have some saving. Most of the participants reported that the main difficulties regarding access to food is not linked to increasing of market price but to fluctuation of family resources over the year.

#### Specific expenses

Communities reporting facing more important financial issues in some specific months: December (Christmas), March (school graduation), June (school entrance fees) and at the time of Barangay's fiesta. In most of the instances, families are spending their available savings for this kind of events.

#### Diseases

Diarrhea and ARI are mainly related to climate. Seasonal calendars, designed together with the participants, showed that children are more prone to diarrheal diseases in the rainy season and ARI during the cold season. Participants explained than diarrhea is highly related to the quality of the water.

## Seasons and natural hazards

Due to climate change, participants had difficulties to identify specific season. Rainy season is identified between May to June, with some heavy rainfalls that can occurred till October and light rainfalls till February. Cold season is related to personal perception: most of the participants identified November and December as the cold season, while some others are considering that cold season can continue till February. Kwarisma (dry season) begin in February/March and can length till April/May. Participants explained that depending on El Nino, some years the Kwarisma season length for several more months, with episode of drought. Participants reported low availability of water during kwarisma, except for Famosa that have access to a large open spring all the year. All the participants reported difficult access to safe water during rainy season. Flood and typhoon are reported as rare but more recurrent over the past years. Coastal areas identified longer typhoon season than mountainous areas. This might be explained by the fact that mountain barangays are less prone to typhoon. Waterlogging also depend on the localisation of the barangay and its natural environment. Mariposa, Aroroy reported that waterlogging occurred at any time of the year in case of heavy rain and Matagbac, Milagros identified the rainy season, from June to August, are more prone to waterlogging. Other surveyed barangays reported that waterlogging rarely happen.

Season and natural hazards have an important impact on travel issues, with more difficulties during rainy and typhoon season. Indeed, roads might be flooded and sea travel might be impossible due to sea state. It is important to note that remote barangays might face travel issues all the year due to their localisation, as it is the case for Mariposa, Aroroy and Matagbac, Milagros.

## Historical trends

One of the objectives of the NCA was to identify historical trends. Qualitative findings showed an improvement on implementation of several infrastructures from mid-2000 (latrines, health centres, construction of roads).

Historical trends showed that stock of fishes were decreasing in coastal areas since late nineties, with an improvement in Monreal. This can be explained by measures taken by the municipality against illegal fishing.

One of the most important findings from the comparison between historical trends was the increasing of disasters frequency since mid-2000. Historical calendars demonstrated clearly the disasters impact on farming, shortage of crops and market prices. For example, in 2014, typhoons Glenda/Rammas and Ruby/Hagupit were related to destruction of local food cropping, shortage of food and market price increase. Historical trends also show an increasing of drought impact in Matagbac, Milagros.

### **4.2.10 Positive Deviant Behaviours**

In addition to looking at causes of under-nutrition, an objective of the qualitative inquiry was to highlight potential 'positive deviant' behaviours within the community. Common positive deviance's definition is based on that *"in every community or organization, there are a few individuals who have found uncommon practices and behaviours that enable them to achieve better solutions to problems than their neighbours who face the same challenges and barriers"*<sup>40</sup>.

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<sup>40</sup> ACF, 2014. NCA Guidelines

In order to identify positive deviant behaviours, in-depth interviews were conducted with mothers of well-nourished children<sup>41</sup>, who face the similar constraints than mothers of malnourished children.

The following case studies highlight some of these potential positive deviant behaviours<sup>42</sup>.

### Case Study 1

The mother is 18 and 7 months, her son is 8 months. She delivered at 17. She graduated high school but had to stop due to the baby. She is planning to go to college once he will be a bit older.

She did not plan to become pregnant. Even if she was feeling happy, she was worry at the beginning because of the opinion of her parents but also because she thought she was too young to be pregnant.

She saw two times a doctor for antenatal care and once a *partira* when she was 4 months pregnant. She saw the *partira* for a massage that at aim at identifying the position of the baby, and if the baby is not upside down, to help the baby to take the adequate position.

During her pregnancy she took *ferrous* (i.e. “ferrous tablets”, which is an iron supplement) and vitamins, but she did not take any deworming.

She got advices during her pregnancy from the doctor and from her parents. They instruct her not to go to the seashore during her pregnancy as it may cause difficult labour. She followed the instruction of her parents but think it is just a superstition.

She changed her food diet: she decided to eat more fruits and vegetables and stop to eat hotdogs, eggs and fried foods because she was not feeling eating this kind of food anymore. She also continues to eat *kinilaw*.

She got a financial support from her parents and an emotional support from her husband. So everything went well during her pregnancy but she was worry about her delivery. That is also why she went first to the hospital when the labour began. She was thinking that the hospital staffs were more trained than the one from the barangay health centre. Since they were no beds available, she finally delivered at the barangay health centre. Her son saw a doctor the first day.

She is staying the all day with her baby and sometimes she helped her siblings and mother for the housework. Sometimes she is tired but she is able to lie down.

Her son was not immediately breastfeed. Indeed, she slept for approximately 12 hours after delivering. During this time, her grandmother feed her son with sugary water. Then she breastfeed her son once she wake up. She gave him baby oral vitamins after 2 days. She begins to give him *cerealac* when he was four months. She is still breastfeeding him and when he was six months she introduce *lugaw*. She is also making him also test some other food: rice, vegetables, fruits, meat (cow and pork). She is cooking for him the *lugaw* and small amount of what she will prepare for her. If he doesn't want to eat, she is trying to give him something else. Regarding the food to give to her baby, she asked the advices of her parents but she is also following the health posters found at the barangay health centre. This poster shows what to eat, at what age and the amount of food to give.

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<sup>41</sup> All names had been removed as well as location of the interview to maintain the anonymity of the participants

<sup>42</sup> This section presents 6 of the 8 in-depth interviews conducted. Indeed, due to lack of time available in one of the surveyed barangay, interviews had been shorten and information collected were not sufficient to be used in the analysis. In another hand, quality and quantity of the information gathered through FGD were enough to allowed the global analyze

Once her baby got diarrhea during 3 days but she did not do anything. The health centre is close to her home it is easy to reach. To maintain her baby healthy she give her a lot of vitamins coming from fruits and vegetables.

She does not know for the moment she wants another baby, maybe later when she will be 26 years old. For the moment her husband is working in Manila and will come back in April. She does not use any contraceptive, but once he will be back she will ask for an injection (parents' advice). She did not use any contraceptive before being pregnant because she was afraid about some possible emotional side effect. She had a two hours lesson on contraception during her MAPEH<sup>43</sup> class (music, art, physical education and health). They discussed about the different kind of contraceptive that exist and about their emotional side effects. She learnt that depending on the person and on the way they are using it, they may become "sexual maniac". She was afraid about that. Today, she think that she did not have enough information from her school and how what to use the different kind of contraceptive. If she needs information she will ask to her doctor.

Later when she will be 26 she would have another baby, but not sure yet, will depend.

### Case Study 2

She is 45 years old and her husband is 52 years old. Her husband is renting a tricycle, sometimes he is also farming or fishing. They lived close to the seashore and close to an open sewer.

Her baby is 9 months old. She is her 14th baby. She had her first baby when she was 19 and her husband was 26. Both were happy about this pregnancy since it was planned, but her delivery was complicated and the doctor advised her to stop having children.

She wants to a health worker three times for antenatal care: for general visits and for tetanus and polio vaccination. She also saw the *hilot* two times, at five and at nine month to check the position of the baby. She also took iron and vitamins, but she did not take any deworming. Sometimes she felt nauseous but in general it was fine. She did not change her diet and continue to eat *kinilaw*.

She delivered at the hospital following the advices of the midwife, since it was her 14th child delivery might have been difficult. Her daughter saw a doctor during her first day of life.

Following the advice of the midwife, she decided together with her husband, to take contraceptive pills. It is the first time of her life that she is using a contraceptive mean.

When her daughter is sick she is giving her vitamins and paracetamol, as advised by the doctor.

She is bringing her children to the *albularyo* only in case of muscular pain, as he will cure the pain by a massage.

One of her children was diagnosed in underweight by the health centre. She was one year old. It happened after a period where she suffered from many episode of fever and she became weak. With her husband, they gave her a lot of milk and vitamin. Since she did not exclusively breastfeed her when she was an infant, she figured out that it was one of the reason of the nutritional status of her daughter. Indeed, she was giving her water meanwhile she was breastfeeding her. Today, her daughter is three years old and she is fine. After that, the mother decided only to provide exclusively breastfeed till the age of six months.

On the same time, she began to give *cerealac* to her last child at the age of four months. At six months, she totally stops breastfeeding to give *lugaw* and baby formula instead. Recently she adds the sauce from the cooked fish and cooked bananas. She will introduce new food at 1 year. She

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<sup>43</sup> Music, Art, Physical Education and Health

is thinking that giving meat before 1 year old can cause diarrhea since it is hard to digest. In her opinion, a child can eat a normal meal including vegetables and eggs after 2 years, if the food is sliced in small pieces.

She is helping the youngest of her children to eat, while the others are able to eat alone. If her last child doesn't want to eat, she will carry her and try to find tricks to make her eat. She has a lot of housework to do, since there are just her husband and her to manage the entire family. She is getting some help from her eldest children who already are teenagers.

Today, she does not ask for too much new advices, but she used to get a lot of advices on how to take care of her children from her grandmother. She is thinking that to maintain a child healthy, he/she should eat natural vitamins from vegetables and fruits. Since they don't have money to buy meat, they give to their children vegetables, fruits and rice mixed with small amount of fish. Finally, to maintain a child healthy, he/she should be dewormed.

### Case Study 3

As most of the mothers of the barangay, the interviewee is a housewife. She is 36 years old, and the mother of seven children (one of them died).

She had her first child when she was 17 years old, and her last daughter is 4 years and 8 months. She was not planned, and during her pregnancy the mother was worry a bit on how she will manage to send all her children to school. As she was already pregnant, she cannot do anything more, and even if she was worry, she was happy.

For antenatal care she saw four times the midwife of the health centre. She was fully immunized and took iron, as she was anaemic. She wasn't dewormed and didn't take any vitamins. Monthly, she saw a partira. She checked the position of the baby and provided massage.

She did not change her diet during her pregnancy.

For all her children she delivery at home with the help of the komadrona, who also is the barangay health worker. She doesn't want to delivery at the hospital because of the lack of privacy. She is having varicose veins and is feeling shy to show her legs.

The first health check-up of her baby was when she was 2 months and half.

She breastfeed her till 5 months then she gave *cerealac*. She began to give water to her daughter when she was 1 month. At 6 months, she introduced *lugaw* and when she was 7 months she began to give smashed vegetables mixed with fish and *lugaw*. She doesn't remember exactly when she began to give a full meal, but she remembered stopping breastfeeding when her child was 1 year and 8 months.

If her daughter do not gain weight properly, has fever or is shaking it can be because she is sick. In this case, she will put warm water on her body and ask to a doctor to do a health check-up. She will always go first to the doctor except for sprain.

Her daughter got a severe episode of diarrhea when she was 3 years old and had been hospitalized for three days. She first brought her to the Rural Health Unit where the midwife provided some medicine. After three days, as her daughter was still sick, she went back to the RHU where the health workers advised her to go to the hospital. Her daughter was suffering from dehydration according to the RHU workers, and therefore need to be admitted to the

hospital. The hospital is in another municipality and is very far, she needs to go by motorcycle. It cost her 500php per night, but she felt more confident, as there were doctor in the hospital<sup>44</sup>.

She had a lot of work at home and sometimes she is feeling irritated by her children, then she is remembering that they are coming from her body and she is feeling more calm. When she is not at home, her children older than ten years help her to take care of the youngest.

She doesn't want more children. She thinks her family is big enough. She went to the family planning for advices and they are using condoms with her husband. She cannot take contraceptive pills due to her blood circulation condition. At the beginning, they were using the calendar method but it was not working, as she felt pregnant again. They decided to use this method as they heard about it and did not have any other information.

When she asked to the midwife, she advised her to use condom. It is affordable for them (3pcs for 35php).

To maintain her daughter healthy, the mother explained "I give nutritious and delicious food: eggs, hotdogs, chicken, fruits and rice, sometimes also vegetables but she does not like it".

#### Case Study 4

The mother is 18 years old and her husband 22. They married under civil wedding in 2013 when she was 16. Their son is 4 months old. She delivered when she was 17. She is a housewife and her husband is unemployed, he is looking for a job.

She is from a seven members family and completed grade 8. She had to stop school due to financial issue what conducted her to move to Manila for work. Her husband completed a vocational degree in security service in 2013.

Today, they are leaving with her family in law, constituted by six members: her parents in law and their two last children (aged of 14 and 5 years old), them and their son. She is from another municipality. Her father in law is a habal habal driver and is supporting the entire family. Sometimes they do not have enough income so they are getting help from another family member.

At 14 years old she went to Manila for working in a Chinese restaurant with her 22 years old cousin and her mother. She came back to Masbate when she was 16. Her mother and siblings came back first and she refused to come back as she was willing to stay in the capital to financially support her family. She finally came back as her mother was insisting and wanted her to go back to school.

She met her husband and dated for approximately 5 months before she became pregnant. It was unplanned but she was happy. He was really willing to have a child while for her both situations was looking fine. She was surprised, as she did not have any idea of what was contraception about and how a woman can become pregnant. At this time she was living in another municipality with her mother and siblings. There, she saw twice a doctor for antenatal care at the Poblacion hospital (at one and two months). Then, she consulted a midwife every month. She explained doing all this check-up following the information of her husband. He informed her that antenatal care was better for the baby health. She also saw a partira three times to check the position of the baby. During her pregnancy she took vitamins and was fully immunized. She did not take any deworming and was not able to take iron since she was vomiting the pills. At five months of pregnancy she changes her diet as her taste for some food changed and she increased her food intake between 6 to 9 months as she felt hungrier. She moved to her husband

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<sup>44</sup> The mother had to go to another municipality since doctors are not always present in the municipality where she is living

municipality when she was pregnant of 8 months and delivery at nearby municipality private hospital. They both decided to go there as doctors are present all the time in this hospital. In the hospital of their municipality, doctors are not always present.

When her son was two months, he got a severe cough. She decided to go to the hospital where he had an injection. A month later he was still lightly coughing, so she went to the *parahilot* who give him some herbal medicine. Today, he is totally cured.

When she cannot take care of her son, her parents in law are supporting her.

She is exclusively breastfeeding her son. She is eating more than usual to have more breast milk. As advised by the *partira*, she is never giving him something else than breast milk, even water. The *partira* advised her to exclusively breastfeed till 6 months to avoid becoming again pregnant. She does not know what kind of food she is supposed to give him after 6 months but plan to seek advice to the midwife. She is also planning to take contraceptive pills if her menstruation came back. Before being pregnant she had no idea about contraception. Today, she has more knowledge are her mother and aunt are providing her regular advices on this topic.

They are planning to have another child but only if he gets a job. The main issue for them about raising a child will be the availability of income. In this sense she joked that she can even have a baby per year till they both have work and income to raise their family.

As requested by the participant, her husband took part in the end of the interview.

He: "Of course I have knowledge, I got a two hours class on contraception at school... But, I don't remember well. It was not enough"

She: "We are just starting asking for information. Young are not enough informed".

### Case Study 5

The mother is 22 years old and her husband is 27. They have two children aged of 20 and 28 months.

Her first pregnancy was when she was 19 years old. It was a "surprise baby" and she was happy. She did not see any health worker during her pregnancies but consult a *parahilot* twice to verify the position of the baby. She did not take any medicine and did not change her diet.

She delivered at home with the help of a *partira*.

She never consulted a doctor for her children. When they look tired, exhausted or having fever she is using only herbal medicine such as herbal leaves. Her father, who is an *albularyo*, is giving her advises. She is not going to any health facilities since she is busy at home and do not have enough time. She mentioned that health facilities are far and she is also too tired to go there. Also she does not know if she can benefit of a free consultation and free medicines and think it is costly.

She does not know what exactly is diarrhea; her children are often passing "watering stools" but according to her, as every child does. When it is happening she puts some herbal leaves on their belly.

She is still breastfeeding her second child and began to give complementary food to them when they had their first tooth. Both children are eating rice, noodles, sweet potatoes, biscuits, sometimes fishes and very rarely meat. They also daily eat eggs as she is considering eggs are very healthy for them.

She does not want more children as she is already tired by raising her two sons. To avoid being pregnant again, the *parahilot* did some "ovaries massage"<sup>45</sup>, since then she did not had her period.

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<sup>45</sup> "Ovaries massage" is a massage of the lower part of the belly and is believed to move the ovaries in a certain position that help avoiding pregnancy

She is considering her family as a poor family: they do not have a lot of money, their house is not finished and do not have livestock. They are lacking money to raise their children, but cannot work, as she has to take care of their young children. To maintain her children healthy she tried to vary the food as much as she is able too.

### Case Study 6

The mother is a 20 years old housewife. Her husband is a farmer. They have three children: one 4 years old daughter and two sons aged of 3 years and 11 months. Former fishermen, they decided to move in this barangay with the hope to have more income and became farmers.

For her last pregnancy she consulted twice a partira. The pregnancy was planned, but due to lack of money she was not able to consult a health worker. Even if a midwife is coming once a month for free consultation, it was too costly for her to reach the proper barangay. Indeed, as they are leaving in a far sitio they can reach the barangay health centre only by carabao riding, that take approximately one hour. The other way to travel to proper barangay is by habal habal but the family cannot afford the 25 pesos course.

The partira verified the position of the baby and did some massages to insure his head was down. She delivered at home, helped by her mother in law. At this time, she was living in another barangay and it was too costly and too expensive to reach the health centre. As she does not want more children, she is under contraceptive pills.

She immediately breastfed her children and gave them water. After 4 months, she began to introduce lugaw. She is still breastfeeding her last child. He is also eating lugaw and the same meal as his parents but sliced in small piece. If he does not want to eat, she never forced him.

The mother does not know what is diarrhea but mentioned that her children never passing wet stools. Sometime they get sick and are suffering from fever, cough and running nose. In such case, she consults the *manghilot*, as she believed she has enough knowledge to do a check-up. For several cases, she will consult a doctor: if the *manghilot* cannot do anything, if her child is not cure after a week or in case of high fever. The mother mentioned that in such case she has no choice and she has to consult a doctor. All her children are dewormed except the last one who will be deworm after one week.

Her main issue to maintain her children healthy is a lack of income to afford correct food for children. She does not do anything special to maintain them healthy but feed them with sweet potatoes, dry fish, rice and breast milk for the last one.

### Summary

Positive deviant approach typically involves in-depth observation and interviews of potential positive deviant mothers, in order to identify positive deviant behaviours, which was not included within the scope of this NCA.

However, from the interviews with these mothers, it was found that many of the same constraints were shared; inappropriate IYCF practices (inadequate exclusive breastfeeding and complementary feeding practices), limited access to food and poor diet diversity due to difficulty to access to market and limited purchase power, lack of access to medical service (distance and cost). PD mothers explained diversifying their children's meal to maintain them healthy, that does not mean that quantities to meet children's need are reached. Moreover, young mothers explained facing a lack of information regarding reproduction health before their first pregnancies.

The potential positive deviant behaviours identified through the individual interviews could be:

- ANC consultation
- Iron supplementation during pregnancy

- Diet diversity after 6 months
- Breastfeeding initiation within the first hours of life (colostrum intake for the baby)
- Child deworming
- Financial support from the rest of the family for the teenage mothers

In addition, case studies potentially highlight the importance of use of contraceptive method, being directly linked with short birth spacing and early short pregnancy.

#### **4.2.11 Risk Factor Rating Exercise**

In order to understand how the community prioritizes the risk factors, a final rating exercise was conducted with the participants of the FGD.

The following table shows the results of this exercise, and the perceived top biggest risk factors for each village. The table shows the result of risk factors' rating exercise of women and men. All groups perceived hypothesis N, "low income due to instability of income sources and/or lack of income generating activities", as major contributor to undernutrition. Hypotheses O "low personal agricultural production and fishing" and J "Open defecation" were classified as major or important with respectively 6 and 5 groups classifying them as "major contributors". These three hypotheses constitute the three top contributors to undernutrition according to the communities interviewed.

Table 9 – Community risk factor rating exercise

	Cawayan		Famosa		Mariposa		Matagbac	
	W	M	W	M	W	M	W	M
A – Inappropriate breastfeeding practices								
B - Inappropriate complementary feeding practices								
C - Poor psychosocial care								
D - Early Pregnancies								
E - Short birth spacing								
F – PLW “vitamins” deficiencies								
G - LBW and IUGR								
H - Inadequate healthcare behaviour								
R – PLW acute malnutrition								
I - Inadequate hygiene practices								
J - Open defecation								
K - Poor or inadequate sanitation								
L - Poor liquid/solid wastes management								
M - Inadequate/poor access to safe water								
S - Inadequate management of animal waste								
N - Low income due to instability of income sources and/or lack of income generating activities								
O - Low personal agricultural production and fishing								
P - Limited access to food								
Q - Poor diet diversity								
T - Inadequate family resource management								

-  Major: average score from 7 to 10
-  Important: average score from 4 to 7
-  Minor: average score below 4
-  Hypotheses considered related to undernutrition by at least one group
-  Hypotheses considered as not related to undernutrition

### 4.3 Local causal model

A major output of the NCA survey is the design of a local causal model explaining the causality of the main factors and pathways to undernutrition in the target area.

A key component of the qualitative inquiry was the exploration of community perceptions and causal pathways to undernutrition. By triangulating the results from the preliminary literature and data reviews with the findings of the qualitative survey, a local causal model was designed. Lately, inputs from the technical workshop were added.

It shows how risk factors are seen and understood by the communities and how they are interrelated.

In the following diagram (Figure 2 – Local causal model to undernutrition), causes are squared and main pathways are circled. Most of the underlying causes are interrelated, and may constitute pathways for other causes.

This causal model is only valid for Masbate, Province V. It should be interpreted with attention since causes and pathways may change over years. Moreover, it constitute a global picture drawn based according to the information gathered for Aroroy, Cawayan, Milagros and Monreal only. Therefore, it is not valid for the entire province of Masbate and may not reflect some very specific pathways/causes to each province.



## 5. Rating causal factors

Based on the NCA findings, causal factors were rated by the NCA analyst as major, important, minor or untested<sup>46</sup>.

From the initial ranking exercise, 8 factors were rated as major causal pathways to undernutrition in the study area (red), 8 factors as important (orange); 3 factors as minor (green) and 1 was considered as untested due to lack of evidences (blue).

At the final technical experts workshop, results of the preliminary rating exercise were presented to technical experts<sup>47,48</sup>. Following the presentation, participants were split into five multi-sectorial working groups and each group was given information regarding all causal hypothesis including NCA results and rating. Each group was asked to review the evidence and for each result, to provide a confidence note (low=1, medium=2, high=3).

NCA expert rating with technical expert average confidence notes are presented in the following table:

*Table 10 – NCA expert rating and expert confidence note*

Causal Factors	NCA Analyst rating	Average group confidence note
A – Inappropriate breastfeeding practices	Important	3,00
B - Inappropriate complementary feeding practices	Important	3,00
C - Poor psychosocial care	Minor	2,00
D - Early Pregnancies	Important	2,40
E - Short birth spacing	Important	2,60
F – PLW “vitamins” deficiencies	Minor	2,40
G - LBW and IUGR	Minor	2,40
H - Inadequate healthcare behaviour	Important	2,80
R – PLW acute malnutrition	Untested	2,60
I - Inadequate hygiene practices	Important	3,00
J - Open defecation	Major	3,00
K - Poor or inadequate sanitation	Major	3,00
L - Poor liquid/solid wastes management	Major	2,80
M - Inadequate/poor access to safe water	Major	3,00
S - Inadequate management of animal waste	Important	2,80
N - Low income due to instability of income sources and/or lack of income generating activities	Major	2,80
O - Low personal agricultural production and fishing	Major	3,00
P - Limited access to food	Major	3,00
Q - Poor diet diversity	Major	3,00
T - Inadequate family resource management	Important	2,40
<b>Average group note</b>		<b>2,75</b>

<sup>46</sup> For detailed results, cf. Annex 12: “Criteria of NCA rating exercise”, p.82

<sup>47</sup> Cf. Annex 11 : “List of participants to the final technical workshop”, p.81

<sup>48</sup> For detailed results, cf. Annex 13: “Preliminary rating by the NCA Expert”, p.83

Technical experts were also asked to suggest a rating (rejected, minor, important, major) and to share any specific comment they have on the results.

The results of this exercise were then presented back to the group and any suggested modifications were debated. At the end of the first day workshop an individual confidence note was given to new rates agreed by the all group.

Rating from technical experts, individual confidence notes and main comments from working groups are presented in the following:

*Table 11 – Technical experts rating and discussions*

Causal factors	Final rating	Average individual confidence notes	Comments
A	Major	2,84	/
B	Major	2,89	
C	Important	2,53	Time and knowledge are important. It affect the appetite of the child, nutrition is a holistic approach.
D	Important	2,68	Early childbearing lead to LBW what can directly conduct to undernutrition.
E	Important	2,53	Can lead to large family then to child rivalry regarding food what will result on improper child food intake. Could also increase risk during pregnancy and even result to maternal/infant mortality
F	Important	2,63	A special focus should be done on the first 1,000 days. Could lead to infant micronutrient deficiencies
G	Important	2,42	With proper care LBW can recover
H	Important	2,53	/
R	Untested (expected important)	2,11	Consensus on the fact that if data were collected it may be an important reason.
I	Major	2,89	/
J	Major	2,95	Can be due to lack of understanding to associated risk
K	Major	2,89	/
L	Major	2,95	
M	Major	3,00	
S	Important	2,58	
N	Major	2,84	
O	Major	2,84	Need to determine the impact of landowner – tenant relationship to tenant income and agricultural yield for personal sustenance.
P	Major	2,89	/
Q	Major	2,84	Pathway should be lack of knowledge on proper nutrition instead of cooking knowledge
T	Important	2,53	/

<b>Average individual confident note</b>	<b>2,72</b>
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## 6. Conclusions and Recommendations

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The results of the NCA show that causes of undernutrition (in terms of stunting and wasting) in Aroroy, Cawayan, Milagros and Monreal, are multi-sectorial and highly interrelated. Therefore, addressing each of these factors is vital to ensure healthy outcomes for the communities, specifically for mothers and children.

Given the fact that ACF has been responding to WASH in the area since 2014, there is a clear need to strengthen preventative efforts; the NCA provides more contextualized data on major causal pathways to child undernutrition. Each of these causal risk factors and pathways should be addressed in order to prevent seasonal nutrition status aggravation, and general alarming situation throughout the year.

As explained previously, the purpose of the NCA is not to design programs, though the results can be used to inform programs' design and adjustments. Moreover, the results and recommendations can constitute a basis for advocacy. Indeed, a number of recommendations require specific effort from the government and local actors present in the same area.

As a part of the final technical workshop, the NCA analyst presented a list of draft recommendations (FSL, WASH, Nutrition, Health, MHCP/PCP). A working session allowed the experts to give their opinion on these recommendations and to validate them. Final recommendations had been defined and validated together with the experts.

Therefore and based on the results of the NCA, the following recommendations should be taken into account to tackle the major causes of undernutrition.

Recommendations are arranged by sector and classified according to the “weight” of the associated causal fact but must interact for a better improvement of the situation in the four municipalities.

### **Recommendations associated to risk factors classified as “major”**

#### **Food, security and livelihood**

- Improvement of access to irrigation system
- Better access to veterinary services (treatments, drugs)
- Improvement on post disaster cropping provision
- Capacity building on provision of IGA, among vulnerable households
- Improvement on awareness about illegal fishing impact as a part of total costal resource management program (CRM)
- Capacitate community to access external market
- Increase access resources to strengthen existing coping mechanism<sup>49</sup>
- Promotion of disaster resilient cultural practices
- Encourage locally produced food consumption

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<sup>49</sup> Did not reach a consensus on the level of implementation: NCA analyst proposition was to increase the resilience of the community by targeting the household level, while some of the technical experts proposed to target municipal and barangay level to strengthen existing program

### **Nutrition and care practices**

- Implementation of PD strategies to better support PLW on adequate child and maternal care practices
- Reinforcement of awareness program on IYCF
- In addition to the last recommendation, capacity building toward community health workers on behavioural change and adequate promotion of IYCF
- Promote alternative breastfeeding method when absence of mother as primary caregiver

### **WASH**

- Implementation of dry latrines in public places and households
- Improvement of knowledge toward construction of latrines with indigenous materials
- Promote awareness on hand washing, specifically before breastfeeding and strengthen hand washing behaviour
- Promote household water treatment (through chlorination, boiling, SODIS) and proper water storage
- Promote importance of improved water sources
- Provision of emergency water supplies during occurrence of hazards and increase access to safe water supplies during Kwarisma and rainy seasons
- Improve garbage collection system and implementation of liquid and solid waste safe disposal
- Promote awareness on risk related to improper liquid waste disposal

### **Recommendations associated to risk factors classified as “important”**

#### **Food, security and livelihood**

- Awareness rising on saving habits and household budgeting

#### **Health**

- Promote adequate reproductive health practices toward family approach. Awareness on danger and disadvantage related to early child bearing and short birth spacing
- Strengthen access to ANC in order to improve health condition and nutritional status of the mothers and the foetus
- Strengthen health system:
  - a. improve access to health structure
  - b. improve availability of care workers (doctors, midwives, nurses) in RHUs
  - c. advocate for assignment of a permanent health provider in remote area
  - d. advocate for an increase of budget allocation
  - e. Promote appropriate usage and handling of herbal medicine in partnership with traditional practitioners<sup>50</sup>

#### **Nutrition and care practices**

- Awareness through FGD and campaign on appropriate maternal nutrition to reduce low-birth weight
- Promote dietary diversification and improve nutrition knowledge and behavioural change at community level with a specific target on pregnant mother, children under 5 and their caregivers
- Improve micronutrient supplementation of women in age of reproductive health by increasing supplies and compliance
- Capacity building of health workers toward importance of deworming of PLW and increase awareness of the community on importance of deworming

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<sup>50</sup> No consensus reached on if it should concern only DoH approved herbal medicine or if the problem should be addressed more globally

- Strengthen deworming program to insure proper follow-up and monitoring on worm infections
- Improve the relationship TBA/traditional practitioners with registered midwives to improve referral system and ANC.
- Integrate TBA and traditional health worker in health system to improve ANC by making them barangay health workers

### **WASH**

- Promote awareness on risk related to free range chickens<sup>51</sup> and support on implementation of safe animal waste disposal

### **Other recommendations from ACF**

- Improve diet diversity
- Implement a comparative NCA of the causality of undernutrition in barangay islands in order to design evidenced based programs in WASH and nutrition
- Additional research and understanding on maternal wellbeing. Qualitative findings do not reflect an alarming situation what can be due to resigned or coping behaviour. Living conditions may have a strong impact on maternal wellbeing what can impact care practices.
- Advocate with LGUs to establish proper solid water management' systems and practices in the areas
- Advocate toward lands' owners on the need of implementation of latrines at household level

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<sup>51</sup> Some of the technical experts instead on the risk related to free range dogs and cats regarding the possible impact on health and therefore on undernutrition, as for now no strong scientific proofs are assessing such a link

## Annex 1: List of participants to the initial technical workshop

Organisation	Participant name	Position
ACF International	Dr Oscar V. Fudalan Jr.	Referent Nutrition and Health
	Martha Maria Falk	PCP Coordinator
	Demosthenes D. Militante	Referent FSL
	Regie Paypa	Referent WASH
	Shaun Omar K. Usman	WASH Head of Program
Cawayan - Municipal Health Office	Leizel J. Cortes	Admin Aid-IV/ Sanitary Inspector
Milagros - LGU	Dr. Irene Grace Calucin	Municipal Health Officer
	Maximiano Rosallosa Jr.	Sanitation Inspector
Monreal - LGU	Lerio C. Arizal Jr.	Municipal DRR management officer
Monreal - Rural Health Unit	Jegs G. Almoguerra RN	Nutrition Action Officer
National Nutrition Council (NCC)	Hygeia Ceres Catalina Gawe	Chief, Nutrition Surveillance Division
UNICEF	Dr Michael Gnilo	WASH Technical Coordinator
University of the Philippines - Manila	Vicente Belizario Jr.	Professor and Project Leader
	Mr. John Paul Caesar R. delos Trinos	Research Assistant
	Tammy Maurice Liwag	Research Associate
Philippine Red Cross	Mark Alvin Abrigo	National Field Representative - Health services
Plan International	Dr. Edwin Reuel Ylagan	Country Program Advisor on Health
Provincial Health Office	Lani B. Cahilig	Provincial Nutritionist and Dietician
Provincial Agriculture Office	Cecilia F. Burgos	Officer-in-Charged Provincial Agriculture Officer
WFP Consultant	Corazon VC Barba	Nutrition Consultant

## Annex 2: Hypothesis validated by the technical experts

### Mental Health and Care Practices (MHCP)

#### Children Care

##### **Hypothesis A: Inappropriate breastfeeding practices**

Breastfeeding is rarely exclusive up to 6 months and rarely continued up to 24 months, i.e. the age of weaning is not appropriate.

##### **Hypothesis B: Inappropriate complementary feeding practices**

Meal frequency and dietary diversity are not appropriate to the age of the child. Minimum diet diversity is not reach for the majority of the children. Age of introduction of complementary food is not appropriate.

*Hypothesized pathway: intra-household food sharing, traditional practices, and misconception on adequate complementary feeding.*

##### **Hypothesis C: Poor psychosocial care**

Lack of stimulation during feeding time may affect the child response and put him/her at risk.

Lack of attention to child needs may lead to poor nutritional status. Lack of attention to child health status may contribute to an important prevalence of diseases.

*Hypothesized pathway: Lack of knowledge regarding importance of childcare.*

#### Care for women

##### **Hypothesis D: Early Pregnancies**

Due to low usage of contraception, rate of early pregnancy can be high. Early pregnancies may lead to LBW. Early pregnancies can also be related to poor children psychosocial care.

##### **Hypothesis E: Short birth spacing**

Due to low usage of contraception, rate of short birth spacing (bellow 2 years) can be high.

##### **Hypothesis F: Lactating and pregnant mother micronutrient deficiencies**

Due to household food insecurity and lack of supplementation, mothers can face Vitamin A, Vitamin C deficiencies, as well as Iron-Deficiency Anaemia (IDA).

*Hypothesized pathway: intra-household food sharing,*

### Health

##### **Hypothesis G: LBW and IUGR**

LBW is highly related to stunting. LBW and IUGR in absence of specific cares can contribute to poor child health status. A high level of LBW may explain the high prevalence of some diseases.

##### **Hypothesis H: Inadequate healthcare behaviour**

Low iron supplementation and irregular deworming among children and PLW (Pregnant/Lactating Women) can be considered as inadequate healthcare behaviour. General health seeking behaviour may be inappropriate with low consultation of health professional and consultation of traditional practitioners such as doctor kwak-kwak/albularyo. Such behaviour may contribute to a high prevalence of certain diseases.

Low utilization of ANC service may also contribute to a poor infant health.

*Hypothesized pathway (UP parasitology group): lack of capacity and understanding of health workers to implement deworming drugs administration – will be tested during the qualitative survey.*

### **Hypothesis R: LPW acute malnutrition**

Maternal nutrition status during pregnancy has a significant impact on foetal growth and birth weight.

Malnourished lactating mother may be weak and unable to provide optimal care to their infant and other children.

## **Unhealthy environment/WASH**

Unhealthy environment contribute to a high prevalence of diseases. Based on a secondary data, grey literature, the main diseases/infections should be: ARI, waterborne diseases (diarrheal, cholera), mosquitoes borne disease (chikungunya, dengue), faecal borne diseases (environmental enteropathy), and intestinal parasites.

### **Hypothesis I: Inadequate hygiene practices**

Lack of soap and inappropriate hand washing practices contribute to ingestion of faecal material and may increase spreading of infections/diseases.

### **Hypothesis J: Open defecation**

Lack of knowledge regarding the risk associated to open defecation and regarding construction cost of latrines and usage of indigenous material, may cause open defecation, what contribute to poor/inadequate sanitation.

### **Hypothesis K: Poor or inadequate sanitation**

*Directly contributing to the development of an unhealthy environment.* Poor and inadequate sanitation can be caused by open defecation and poor management of faecal wastes.

### **Hypothesis L: Poor liquid/solid wastes management**

Poor liquid and solid wastes management contribute to poor sanitation. The pollution caused by a bad wastes management may have strong environmental issues. Indeed, it can increase the risk of contamination of water source, and can also contribute to seawater pollution what can impact fish stock availability.

It can be caused by an inadequate behaviour and/or the absence of liquid/solid treatment plants.

### **Hypothesis M: Inadequate/poor access to safe water**

*Inadequate and/or poor access to safe water is directly related to high prevalence of diseases.* It can be caused by usage of polluted water, especially while using unimproved water sources. Floods can also contribute to water contamination and make sources not accessible. For the barangays that do not have access to safe water, weather hazards like drought or El Niño can contribute to lack of access to water sources (especially for island barangays). Finally, inadequate water handling (treatment of the water at home) will contribute to usage of unsafe water.

### **Hypothesis S: Inadequate management of animal wastes**

Inadequate management of animal wastes contribute directly to unhealthy environment (example: contamination of water sources).

## Food Security and livelihood (FSL)

### **Hypothesis N: Low income due to instability of income sources and/or lack of income generating activities.**

Daily management of small family incomes could lead to a kind of “survivalist” way of managing funds instead of engaging in micro-savings or other sorts of productive endeavour.

Lack of income generating activities for both men and women will contribute to low financial resources.

### **Hypothesis O: Low personal agricultural production and fishing**

Low agricultural production may contribute to low financial resources, limited access to food and poor diet diversity. It can be caused by a limited availability of land for main crops and absence of vegetable gardens. Waterlogging, and natural disaster as floods, typhoons and drought may also contribute to a low agricultural production.

Decreasing fish stocks will have several important impacts: it will decrease the income of fishermen, may contribute to poor diet diversity and to limited access to food. It can be caused by seawater pollution mainly due to impact of illegal fishing and poor wastes management.

*Global warming may also be a pathway to this situation but will not be proved within the NCA framework.*

### **Hypothesis P: Limited access to food**

Poor infrastructure, such as poor roads, may limit access to farm and markets. Markets can also be difficult to access, whether roads are good or not, due to weather conditions (i.e. heavy rainfalls during the monsoon, typhoons, heavy wind/currents for the villagers who need to go to the main island). Moreover, with limited financial resources, family may not be able to adopt coping mechanism such as hoarding food at home.

*Hypothesized pathways to P: O could be a pathway to limited access to food for the ones who relies on personal agricultural production and fishing.*

### **Hypothesis Q: Poor diet diversity**

Hypothesis O can also have an impact for the ones who rely on personal agricultural production and fishing. Indeed, it can impact their usual food basket and if it is not counterbalanced then impact diet diversity.

Low financial resources may increase the difficulty to buy diversified food.

*Hypothesis P can be a pathway to poor diet diversity with difficulties to include necessary food items to the food basket. Lack of knowledge on proper nutrition can also lead to poor diet diversity.*

### **Hypothesis T: Inadequate family resource management**

Inadequate budgeting, gambling or important consumption of alcohol can directly impact the financial resources available for other expenditures such as food.

*Pathways: Inadequate family management, absence of livestock*

### Annex 3: Seasonality, Cawayan Poblacion, Cawayan

Seasonal variations	J	F	M	A	M	J	J	A	S	O	N	D		
<b>Seasonal variations of hunger</b>														
Low availability of food	A					Habagat						A		
<b>Characteristics of each season</b>														
Rainy season						← Climate change								
Cold season	→													
Summer														
Water availability			Low availability Kwarisma											
Road states/travel issues	Amihan												Amihan	
Harvest of staple food						Maize							Rice	
Harvest of fruits/vegetable			Mango											
Fish availability			+++								+++			
High market price	+	Fruits					+				+ Except rice			
<b>Seasonal occurrence of climate-related hazards</b>														
Droughts			(El Niño – 2011)											
Floods														
Typhoons														
Waterlogging														
<b>Seasonal occurrence of other hazards</b>														
Diarrhea						+++								
Fever/Dengue/Chikungunya														
ARI														
Animal diseases						Fever (climate)								
<b>Seasonal activities for the main livelihood strategies in the community</b>														
Agriculture						S						Seeding		
Fishing											Cold ---			
<b>Miscellaneous</b>														
Holiday/festivals			F											B C
School fees			G				E						C ++	

A: Amihan

E: School entrance fees

S: Seeding

B: Barangay fiesta

F: Municipal fiesta

C: Christmas season/Christmas parties

G: Graduation period

## Annex 4: Seasonality, Famosa, Monreal

Seasonal variations	J	F	M	A	M	J	J	A	S	O	N	D
<b>Seasonal variations of hunger</b>												
Low availability of food							---					
<b>Characteristics of each season</b>												
Rainy season						Habagat				Climate change		
Cold season	A	A	A	A	A					A	A	A
Summer		Kwarisma										
Safe water availability							-					-
Travel issues						Rain +++					Rain +	
Harvest of staple food	Maize *		Rice					Maize *		Rice		
Harvest of fruits/vegetable					M	Vegetables						
Fish availability			---								+++	
High market price	+ S										+ R	
Livestock trade	ALL THE YEAR											
Rice/Maize trade												
Seeding season	SR				SM	SR		SM				SR
<b>Seasonal occurrence of climate-related hazards</b>												
El Niño		---										
La Niña/Flood	Depend on typhoon and sea tie											+
Typhoons									Not often			
<b>Seasonal occurrence of other hazards</b>												
Diarrhea					Fruits				Water			
Typhoid												
ARI												
Animal diseases (mainly pigs)									Rain			
<b>Seasonal activities for the main livelihood strategies in the community</b>												
Agriculture, Fishing	All the year (except if heavy rain/typhoon)											
Collection of coconuts	-		+			++		+				-
Collection of wild products						Vegetables						
								Bananas				
								Roots				
<b>Miscellaneous</b>												
Holiday/festivals	NY				B						D	C
School fees			G			E						

A: Amihan                      B: Barangay fiesta (13th-14th May)      C: Christmas                      D: All Saint Day  
 E: School entrance fees      G: Graduation                      M: Mango                      NY: New Year  
 R: Rice                          S: Sugar      SM: Seeding Maize                      SR: Seeding rice

## Annex 5: Seasonality, Mariposa, Aroroy

Seasonal variations	J	F	M	A	M	J	J	A	S	O	N	D	
<b>Seasonal variations of hunger</b>													
Low availability of food						---							
<b>Characteristics of each season</b>													
Rainy season					Habagat						Climate change +		
Cold season													
Summer		Kwarisma											
Water availability		Low availability									Not clear		
Road states/travel issues	←										+++		
Harvest of staple food		← R Ma									← R Ma		
Harvest of fruits/vegetable	←			Mangoes				A P		Am		→	
High food/market price						+++ No harvest + waves						If rain	
Livestock trade													
Seeding season						← C1					← C2		
<b>Seasonal occurrence of climate-related hazards</b>													
Droughts		El Niño											
Floods											Rare		
Typhoons											Rarely impacted		
Waterlogging	Anytime if it is raining												
<b>Seasonal occurrence of other hazards</b>													
Diarrhea	No season, depend on the water												
ARI													
Animal diseases													
<b>Seasonal activities for the main livelihood strategies in the community</b>													
Agriculture													
Collection of wild products				Pa G	L Y		S		Guava			Ube	
<b>Miscellaneous</b>													
Holiday/festivals	NY			BF								C	
School fees			Gr			E							

A: Avocado      Am: Ampalaya      G: Guyabano (soursop)      L: Lumboy (duhat, black plum)  
 Ma: Maize      P: Pineapple      Pa: Patani (lima beans)      R: Rice  
 S: Santol      Y: Yam      C1: First cropping (maize/rice)      C2: First cropping (maize/rice)

BF: Barangay fiesta      C: Christmas      Gr: Graduation + school clothes fees      NY: New Year

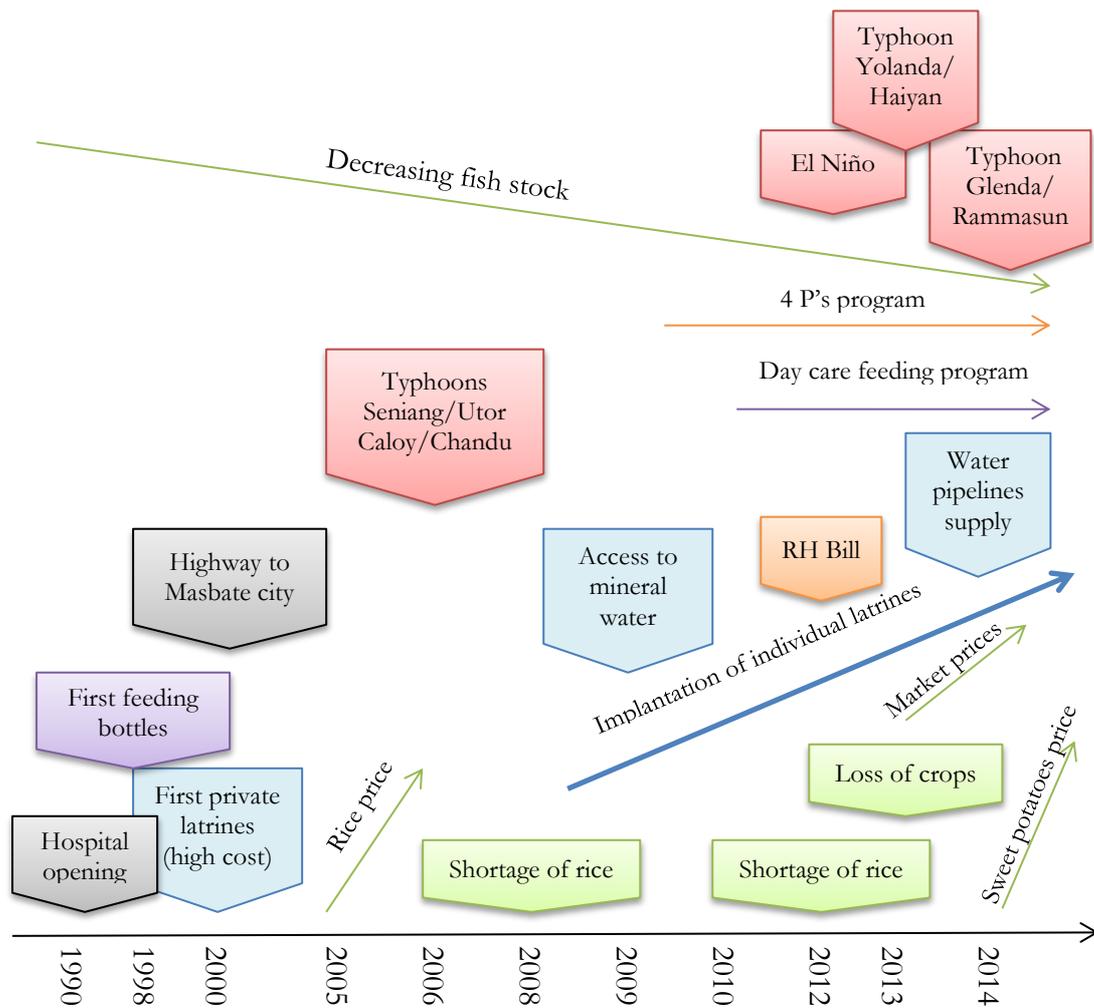
Eggplants, okra, pechay (chinese cabbage/pak choi), spinach, sitaw (string beans), squash  
 Bananas, coconut, grapes  
 Bago (gnetum gnemon)

## Annex 6: Seasonality, Matagabac, Milagros

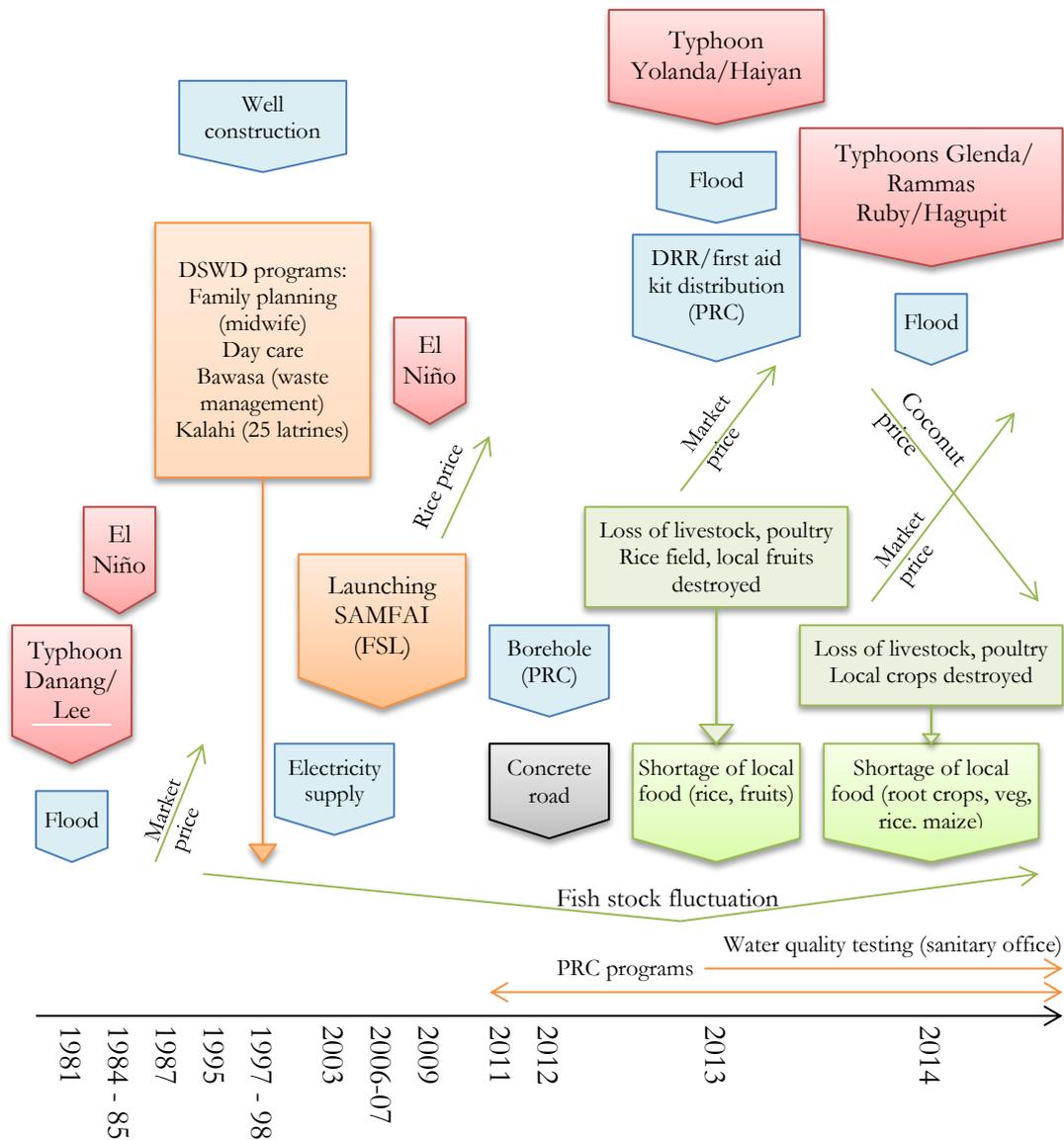
Seasonal variations	J	F	M	A	M	J	J	A	S	O	N	D
<b>Seasonal variations of hunger</b>												
Low availability of food					---							
<b>Characteristics of each season</b>												
Rainy season					Habagat						Climate change	
Cold season												
Summer			Kwarisma									
Water availability			Low availability									
Road states/travel issues						Rain +++						
Harvest of staple food	Rice							Rice				Rice
Harvest of fruits/vegetable					M					G		
High market price						+++ No harvest						
Livestock trade						+++						
Rice trade												
Seeding season					Rice					Rice		
<b>Seasonal occurrence of climate-related hazards</b>												
Droughts		El Niño										
Floods								Rare				
Typhoons							Rarely impacted					
<b>Seasonal occurrence of other hazards</b>												
Diarrhea					+++							
ARI												
Animal diseases				+++								
<b>Seasonal activities for the main livelihood strategies in the community</b>												
Agriculture (rice)	H				S			H		S		H/S
Collection of wild products	Roots + Fruits					Fruits						
Fabrication of charcoal		Rare										
<b>Miscellaneous</b>												
Holiday/festivals				W	I							C
School fees						E						

C: Christmas                      E: School entrance fees                      G: Guava                      H: Harvesting  
 I: Saint Isidor Labrador                      M: Mango                      S: Seeding                      W: Holy week (coq fights)

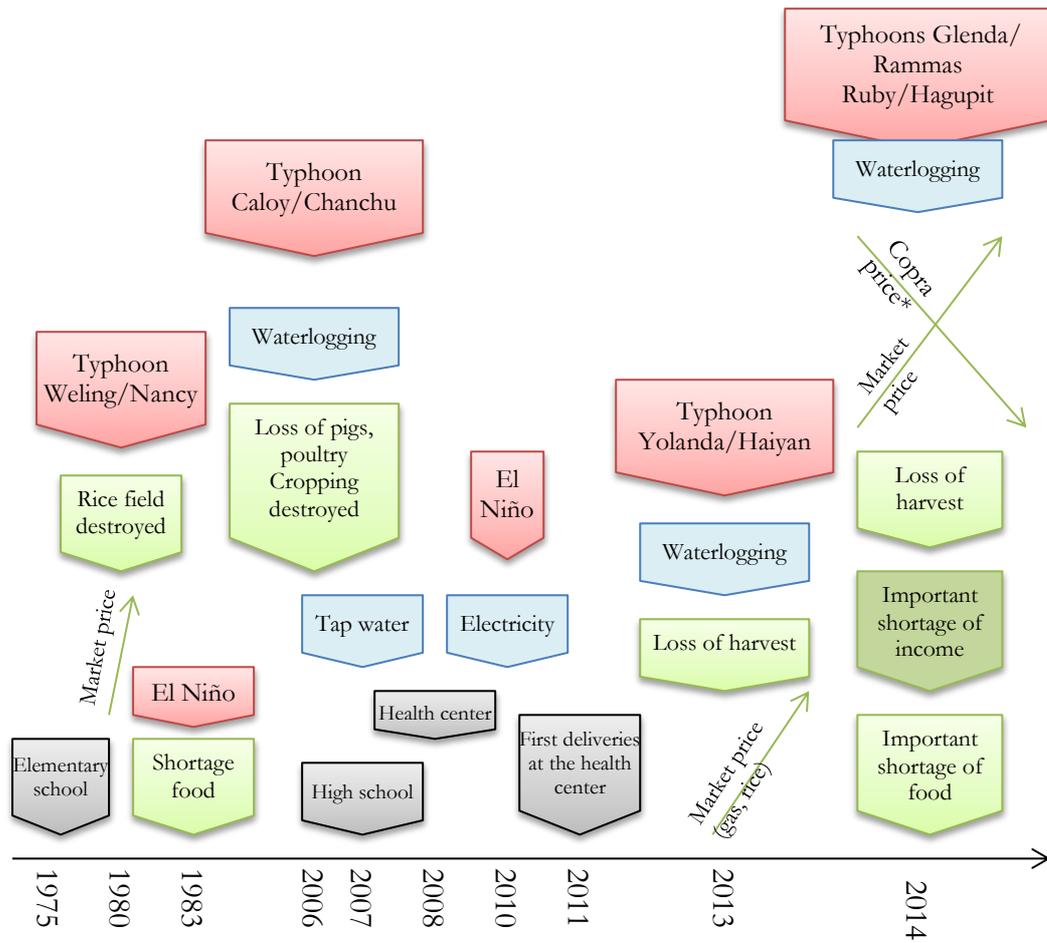
## Annex 7: Historical trends, Cawayan Poblacion, Poblacion



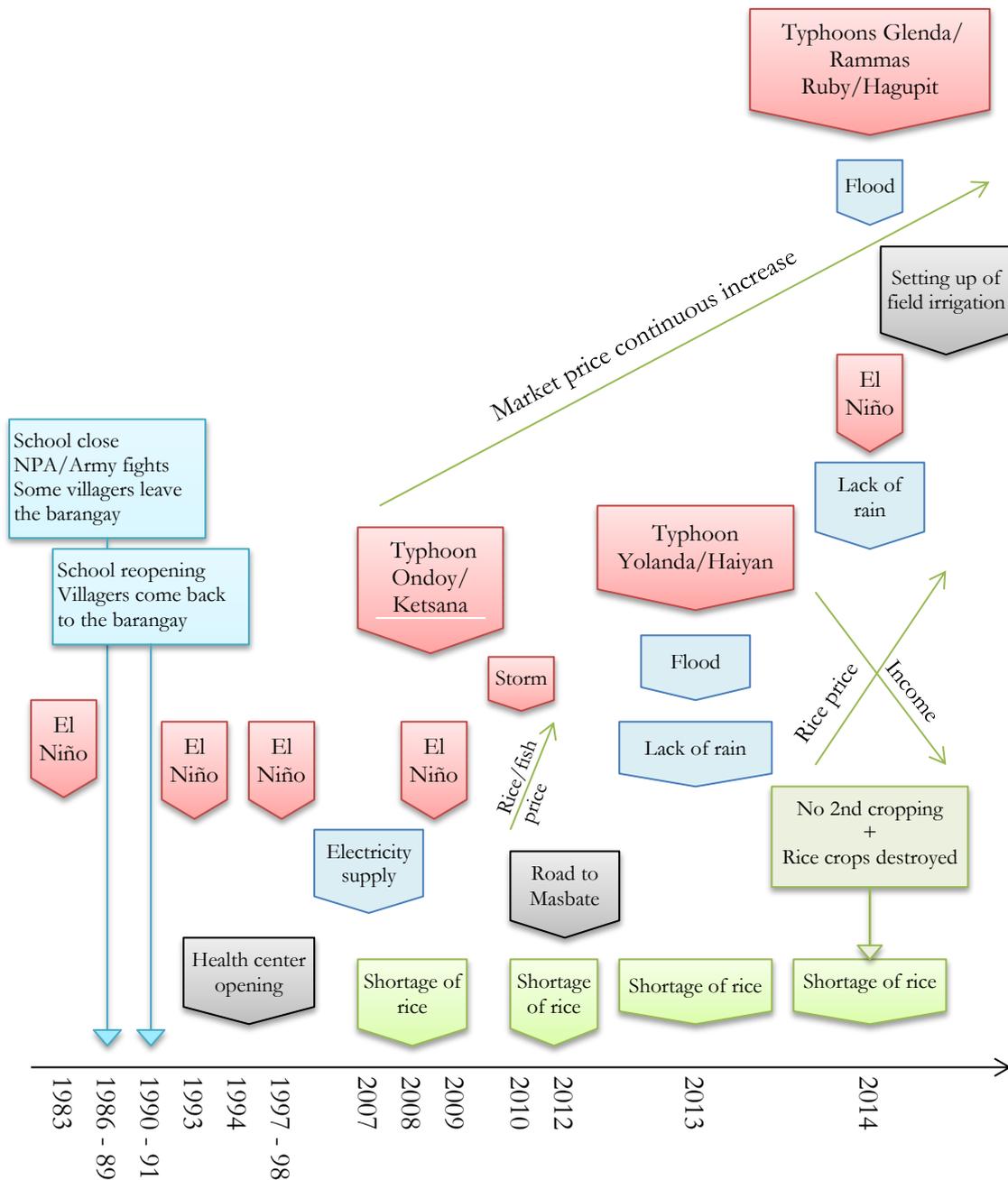
## Annex 8: Historical trends, Famosa, Monreal



## Annex 9: Historical trends, Mariposa, Aroroy



## Annex 10: Historical trends, Matagbac, Milagros



## Annex 11: List of participants to the final technical workshop

Organisation	Participant name	Position
Aroroy - Rural Health Centre	Ma. Teresa M. Arollodo	Rural Health Physician
	Sherman Martinez Valera	Sanitation Inspector
ACF International	Bai Salma W. Abo	NCA-HOP
	Mark A. Cervantes	DRR Referent
	Dr Oscar V. Fudalan Jr.	Referent Nutrition and Health
	Dr Jocelyn A. Juguan	SMART Survey National Coordinator
	Demosthenes D. Militante	Referent FSL
	Suresh Muregusu	Technical Coordinator
	Regie Paypa	Technical ref WASH
	Eleanor S. Pena	Head of base
	Shaun Omar K. Usman	WASH Head of Program
DEBESMSCAT	Dr. S. Morena Castillo Buayan	Acting researcher director, statistician
Milagros - LGU	Dr. Irene Grace Calucin	Municipal Health Officer
	Maximiano Rosallosa Jr.	Sanitation Inspector
Monreal - LGU	Lerio C. Arizal Jr.	Municipal DRR management officer
Monreal - Rural Health Unit	Jegs G. Almoguerra RN	Nutrition Action Officer
UNICEF	Katrina Arianne Eborá	Communication for Development Officer
	Geo Lapina	WASH Officer
University of the Philippines - Manila	Dr Gabunada	Research Assistant
	Mr. John Paul Caesar R. delos Trinos	Research Assistant
Philippine Red Cross	Ellen Grace G. Ledesma	National Project Coordinator

## Annex 12: Criteria of NCA rating exercise

Source of information	Notes
Strength and consistency across contexts of association between the risk factor and under-nutrition (from the Pathways to Under-nutrition Module)	[-] NA: only risk factors having a demonstrated association with undernutrition are considered in the Pathways to Undernutrition Module [-] Weak association has been demonstrated in many or few contexts [+] Medium strength association has been demonstrated in few contexts [++] Medium strength association demonstrated in many contexts OR strong association demonstrated in few contexts [+++] Strong associations demonstrated in most contexts or an association demonstrated in the particular context of the NCA
Seasonality and medium-term trends of risk factor related to seasonality and medium-term trends of under-nutrition (applies mainly for wasting)	[-] The seasonal variation and medium-term trends of the prevalence of the risk factor does not correspond to the seasonal variation and medium-term trends of the under-nutrition outcome considered. [+] No seasonal variation of the risk factor OR No contradiction observed. [++] The seasonal variations of risk factor and under-nutrition are as expected. [+++] The seasonal peak(s) of prevalence of the risk factor matches with the seasonal peak(s) of the under-nutrition outcome considered.
Participatory rating exercise with community	[-] The risk factor is rarely or never mentioned in the rating exercise [+] The risk factor is irregularly mentioned as one of the top 5 risk factors [++] The risk factor is regularly mentioned as one of the top 5 risk factors [+++] The risk factor is consistently mentioned as one of the top 3 risk factors

Category	Criteria
Major risk factor	No contradictory information AND Strength of association from literature review is classified as [++] or [+++] AND Majority of [++] or [+++] for all other sources of information
Important risk factor	A minor amount of contradictory information exists AND Strength of association from literature review is classified as [++] or [+++] AND Majority of [++] or [+++] for all other sources of information
Minor risk factor	A moderate level of contradictory information is permitted AND Strength of association from literature review is classified as [+] or [++] AND Majority of [+] for all other sources of information
Rejected risk factor	No contradictory information AND Majority of [-] or [+] for all sources of information
Untested risk factor	Contradictory information AND / OR Information gathered not complete or not available

### Annex 13: Preliminary Rating by the NCA Expert

Risk factors	Prevalence from secondary data	Strength of association with under-nutrition from literature review	Seasonality of risk factor	Findings from the qualitative survey	Community rating exercise	Interpretation
Hypothesis A	+++	+++	+	+++	+	Important
Hypothesis B	+++	+++	++	+++	+	Important
Hypothesis C	+	+++	+	+	+	Minor
Hypothesis D	++	+++	+	++	++	Important
Hypothesis E	++	+++	+	+++	+	Important
Hypothesis F	+++	+++	++	+	+	Minor
Hypothesis G	++	+++	+	+	+	Minor
Hypothesis H	++	+++	++	++	+	Important
Hypothesis R	+	+++	++	NA	+	Untested
Hypothesis I	+++	+++	+	++	+	Important
Hypothesis J	+++	+++	+	+++	++	Major
Hypothesis K	++	+++	++	+++	+	Major
Hypothesis L	++	+++ (context specific)	++	+++	++	Major
Hypothesis M	++	+++	+++	++	+++	Major
Hypothesis S	+++	+++ (context specific)	+	+++	++	Important
Hypothesis N	+	+++	+++	+++	+++	Major
Hypothesis O	+	+++	+++	+++	+++	Major
Hypothesis P	++	+++	+++	++	+++	Major
Hypothesis Q	++	+++	+++	++	++	Major
Hypothesis T	NA	++	++	++	+++	Important

## Annex 14: Risk factors survey and SMART questionnaire

### I. Identification

**To be filled before the interview, before entering in the household**

**ID.10** - Date of the survey (day/month/year) \_\_\_/\_\_\_/\_\_\_\_\_

**ID.20** - Number of the municipality (1 to 4):

**ID.21** - Number of the cluster (1 to 36):

**ID.30** - Team ID number (N° 1 to 8):

**ID.40** - Household number:

**ID.50** - Starting time of the interview:

**ID.70** – Comments

#### Read the consent form

**ID.80** -Does the household accept the interview?

1=Yes

0=No

**ID.90** – If no, what is the reason?

### II. Introduction

Code	Question	Answer
<b>IN.10</b>	Size of the Household	_ _ _
<b>IN.20</b>	Does a child from 0 to 59 months is present in the household? <b>If no, go to the next household</b>	1=Yes 0=No
<b>IN.30</b>	Is the head of household present?	1=Yes 0=No
<b>IN.40</b>	Does the mother or the caregiver of the 0-59months child is present?	1=Yes 0=No
<b>IN.50</b>	<b>If no to IN.40</b> I would like to ask few questions to the caregiver of the child, at what time could we come back?	-- : -- AM/PM

### III. Food Security and Livelihood (FSL)

- Household Dietary Diversity Score (HDDS)

Now I would like to ask you about the types of foods that you or anyone else in your household ate yesterday during the day and at night. Since yesterday morning till this morning what are the food eaten in your household?		Yes	No
<b>HDDS.10</b>	Any bread, noodles, biscuits, rice or any other foods made from millet, sorghum, corn, rice, wheat, oats, barley?	1	0
<b>HDDS.20</b>	Any potatoes, cassava, plantains, sweet potatoes, lotus roots or any other foods made from roots or tubers?	1	0
<b>HDDS.30</b>	Any vegetables?	1	0
<b>HDDS.40</b>	Any fruits?	1	0
<b>HDDS.50</b>	Any beef, pork, lamb, horse, rabbit, chicken, duck, or other birds, liver, kidney, heart, or other organ meats?	1	0
<b>HDDS.60</b>	Any eggs?	1	0
<b>HDDS.70</b>	Any fresh or dried fish, prawns, sea snakes or shellfish?	1	0
<b>HDDS.80</b>	Any foods made from beans, jack beans, soy beans, lentils or nuts?	1	0
<b>HDDS.90</b>	Any cheese, yogurt, milk or other milk products?	1	0
<b>HDDS.100</b>	Any foods made with oil, fat or butter?	1	0
<b>HDDS.110</b>	Any sugar or honey?	1	0
<b>HDDS.120</b>	Any other foods, such as condiments, coffee, tea?	1	0

- Food Consumption Score (FCS)

Now I would like to ask you about how many time that you or anyone else in your household ate during the last 7 days: <u>Code the consumption from 0 to 7 according to the answer. Any consumption frequency greater than 7 should be coded as 7. Example: "Fruits was eaten 3 times in the last 7 days", code 3.</u> <u>"Milk was drunk 12 times in the last 7 days", code 7.</u>		0-7	>7
<b>FCS.10</b>	Maize, rice, millet, wheat, sago, bread, other cereals, potatoes, sweet potatoes, cassava, other tubers, plantains		
<b>FCS.20</b>	Beans, jack beans, lentils, groundnuts, cashew nuts, any nuts		
<b>FCS.30</b>	Vegetables, leaves		
<b>FCS.40</b>	Fruits		
<b>FCS.50</b>	Beef, goat, poultry, pork, horse, snake, egg, fish, prawn, seashell and other meat/fish		
<b>FCS.60</b>	Milk, yogurt and other dairy		
<b>FCS.70</b>	Sugar and sugar products, honey		
<b>FCS.80</b>	Oil, fat or butter		
<b>FCS.90</b>	Spices, tea, coffee, salt, fish powder, fish/prawn paste, small amounts of milk for coffee		

- **Household Food Insecurity Access Scale (HFIAS)**

- 1 = Rarely (once or twice in the past 4 weeks)
- 2 = Sometimes (3 to 10 in the past 4 weeks)
- 3 = Often (more than 10 times in the past 4 weeks)

**I would like to ask you what was the food available to your household for the past four weeks. To answer this question, please think about the last four weeks.**  
If the answer is no pass to the next question (ex. HFIAS.10 no, pass to HFIAS.20)

<b>HFIAS.10</b>	1. Did you worry that your household would not have enough food?	Yes 1	No 0
<b>HFIAS.11</b>	How often did this happen in the past four weeks?	1	2 3
<b>HFIAS.20</b>	2. Were you or any household member not able to eat the kinds of foods you preferred because of a lack of resources?	Yes 1	No 0
<b>HFIAS.21</b>	How often did this happen in the past four weeks?	1	2 3
<b>HFIAS.30</b>	3. Did you or any household member have to eat a limited variety of foods due to a lack of resources?	Yes 1	No 0
<b>HFIAS.31</b>	How often did this happen in the past four weeks?	1	2 3
<b>HFIAS.40</b>	4. Did you or any household member have to eat some foods that you really did not want to eat because of a lack of resources to obtain other types of food?	Yes 1	No 0
<b>HFIAS.41</b>	How often did this happen in the past four weeks?	1	2 3
<b>HFIAS.50</b>	5. Did you or any household member have to eat a smaller meal than you felt you needed because there was not enough food?	Yes 1	No 0
<b>HFIAS.51</b>	How often did this happen in the past four weeks?	1	2 3
<b>HFIAS.60</b>	6. Did you or any household member have to eat fewer meals in a day because there was not enough food?	Yes 1	No 0
<b>HFIAS.61</b>	How often did this happen in the past four weeks?	1	2 3
<b>HFIAS.70</b>	7. Was there ever no food to eat of any kind in your household because of lack of resources to get food?	Yes 1	No 0
<b>HFIAS.71</b>	How often did this happen in the past four weeks?	1	2 3
<b>HFIAS.80</b>	8. In the past four weeks, did you or any household member go to sleep at night hungry because there was not enough food?	Yes 1	No 0
<b>HFIAS.81</b>	How often did this happen in the past four weeks?	1	2 3
<b>HFIAS.90</b>	9. In the past four weeks, did you or any household member go a whole day and night without eating anything because there was not enough food?	Yes 1	No 0
<b>HFIAS.91</b>	How often did this happen in the past four weeks?	1	2 3

- **Months of Adequate Food Provisioning (MAHFP)**

**DO NOT READ THE LIST OF MONTHS ALOUD.**

Use a seasonal calendar if needed to help respondent remember the different months.

Probe to make sure the respondent has thought about the entire past 12 months.

If MAHFP.10 answer is No, then No to MAHFP.20 to MAHFP.130

<b>MAHFP.10</b>	<b>Now I would like to ask you about your household's food supply during different months of the year. When responding to these questions, please think back over the last 12 months, from now to the same time last year.</b> <b>Were there months, in the past 12 months, in which you did not have enough food to meet your family's needs?</b>	<b>Yes 1</b>	<b>No 0</b>
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If yes, which were the months in the past 12 months during which you did not have enough food to meet your family's needs?  
This includes any kind of food from any source, such as own production, purchase or exchange, food aid or borrowing.

MAHFP.20	October	1	0
MAHFP.30	September	1	0
MAHFP.40	August	1	0
MAHFP.50	July	1	0
MAHFP.60	June	1	0
MAHFP.70	May	1	0
MAHFP.80	April	1	0
MAHFP.90	March	1	0
MAHFP.100	February	1	0
MAHFP.110	January	1	0
MAHFP.120	December	1	0
MAHFP.130	November	1	0

- Assets, land and livestock

Now, I would like to ask you which livestock/land do you own and how many of each		Number
ALL.10	Work cows/ bulls/carabao	__
ALL.20	Milk cows/bulls/carabao for food consumption	__
ALL.30	Workhorses	__
ALL.40	Horses for food consumption	__
ALL.50	Poultry	__
ALL.60	Pigs	__
ALL.70	Goats	__
ALL.80	Small plot garden (acres)	__
ALL.90	Subsistence crops (acres)	__
ALL.100	Cash crops (acres)	__

Now, I would like to ask you if your household own a land. If yes, what is the total surface area of the land that you are farming/gardening for (*probe*)?

If one land is used for different farming, write the surface area accordingly to what is farmed. If no land, then 0

LAND.10	Surface area <b>MAIZE/CORN</b>	_____ (Square Meters)
LAND.11	Surface area <b>RICE</b>	_____ (Square Meters)
LAND.12	Surface area <b>FRUITS</b>	_____ (Square Meters)
LAND.13	Surface area <b>VEGETABLES</b>	_____ (Square Meters)

LAND.20	Among all this farming, does anyone use an irrigation system as drip irrigation?	Yes 1	No 0
LAND.21	If yes, what is the total surface area using this system?	_____ (Square Meters)	

Now, I would like to ask you some questions regarding the household head		
<b>HoH.10</b>	Who is the household head of your household?	Mother = 1 Father = 2 Grand-parent = 3 Other = 4
<b>HoH.20</b>	How old is he/she?	--
<b>HoH.30</b>	What is his/her occupation?	Farmer = 1 Fisherman = 2 Labourers/unskilled workers = 3 Unemployed = 4 Other = 5

<b>PHP.10</b>	How much did your household earn in the past 30 days?	_____ PHP
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#### IV. Unhealthy environment

**All these questions are for domestic use of water and do not include water for animals**

<b>UE.10</b>	What is the main source of drinking water for members of your household? <u>(Present a map with the different water points that have been assessed)</u> <u>Coding key: to be determined according to the setting and map.</u> <u>Circle 1 to 5 and write the letter code</u>	1 = Groundwater: open well, well/borehole with hand-pump, well/borehole with motorized pump system 2 = Protected spring 3 = Roof rainwater 4 = Water trucking 5 = Piped supply 6 = Sealed bottled water 7 = Surface water as river For answer 1 to 5, letter code of the source _
<b>UE.20</b>	What do you usually do to make the water safer to drink? <u>Probe: Anything else? (record all items mentioned)</u> <u>Code 9 if the caregiver is using sealed bottled water</u>	1 = Boil 2 = Add bleach/chlorine 3 = Strain it through a cloth 4 = Use water filter (ceramic, sand, composite etc.) 5 = Solar disinfection 6 = Let it stand and settle 7 = Other 8 = Nothing 9 = Drink sealed bottled water
<b>UE.30</b>	How many litre of water do you collect every day? <u>If not able to answer write 00 and ask UE.31, UE.32 and UE.33. Otherwise, go to UE.40</u>	Number of litre  _   _
<b>UE.31</b>	How many buckets like this do you collect every day?	Number of bucket  _   _
<b>UE.32</b>	Capacity of the bucket	__ Litres
<b>UE.33</b>	How many big pots like this do you collect every day?	Number of big pot  _   _
<b>UE.34</b>	Capacity of the big pot	__ Litres

UE.35	How many small pots like this do you collect every day?	Number of small pot   _     _
UE.36	Capacity of the small pot	_ _ Litres
UE.40	How many litres do you and other household members use for drinking?	_ _ Litres
UE.41	How many litres do you and other household members use for food preparation?	_ _ Litres
UE.42	How many litres do you and other household members use for bathing/showering?	_ _ Litres
UE.43	How many litres do you and other household members use for hygiene and sanitation?	_ _ Litres
UE.44	How many litres do you and other household members use for other purposes?	_ _ Litres

<b>Now I would like to ask some questions about sanitation.</b>				
UE.50	Is there a toilet or latrine in the household? <u>May I see it please? (refer to the observation part)</u>	Yes = 1	No = 0	
UE.60	Do you use the toilet/latrine?	Yes = 1	No = 0	Not applicable = X
UE.70	How many people, aged more than 12 months, of your HoH are using the toilet/latrine?	_ _	Not applicable = X	
UE.71	How many people are aged more than 12 months in your HoH?	_ _		

<b>Now I would like to know when and how you usually wash your hands. When do you wash your hands? (DO NOT PROBE)</b>		<b>Quoted</b>	<b>Not quoted</b>
UE.100	After defecation	1	0
UE.110	After cleaning babies' bottom	1	0
UE.120	Before food preparation	1	0
UE.130	Before eating	1	0
UE.140	Before feeding children (including breastfeeding)	1	0

<b>Would you explain and show me what you do when you wash your hands?</b> <b><u>Ask the participant to show how he/she wash his/her hands.</u></b>		<b>Do</b>	<b>Don't</b>
UE.200	Uses water	1	0
UE.210	Uses soap or ashes	1	0
UE.220	Washes both hands	1	0
UE.230	Rubs hands together at least three times	1	0
UE.240	Dries hands hygienically by air-drying or using a clean cloth	1	0

<b>UE.300</b>	Do you have any soap in your household for washing hands? <u>If yes, question UE.400</u> <u>If no, question UE.500</u>	Yes = 1	No = 0
<b>UE.400</b>	If yes: Can you please show it to me?	Not able to show = 1 Bar soap = 2 Detergent (powder/liquid/paste) = 3 Liquid soap = 4	

<b>UE.500</b>	How much time does it take on average to go to the drinking water source, get water, and come back? <u>If the participant gets water at home, then X</u>	30 minutes or less = 1 31 to 60 minutes = 2 61 to 180 minutes = 3 More than 3 hours = 4 Not applicable = X
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<b>Diarrhoea is defined as more than three loose or watery stools in a 24-hour period. What do you think are causes of diarrhoea? Please name as many as you can. (DO NOT PROBE)</b>		<b>Quoted</b>	<b>Not quoted</b>
<b>DIA.10</b>	Infection (viral, bacterial, parasitic)	1	0
<b>DIA.20</b>	Food poisoning	1	0
<b>DIA.30</b>	Drinking contaminated water	1	0
<b>DIA.40</b>	Unsafe hygienic behaviour (i.e. not washing hands)	1	0
<b>DIA.50</b>	Sudden change in diet	0	0
<b>DIA.60</b>	Starting a new medication/some medicines	0	0
<b>DIA.70</b>	Other answers not related to the faecal-oral route	0	0

## V. Child Questionnaire

Fill this part for each child under 59 months old in the HoH. To find the age, use the event calendar.

Fill part A and B for child 0-23 months.

Fill part B for child 0-59 months.

<b>Code</b>	<b>Questions</b>	<b>Answers</b>
<b>ID.100</b>	Name of selected child	
<b>ID.110</b>	Number of the municipality (1 to 4)	
<b>ID.120</b>	Number of the cluster (1 to 36)	
<b>ID.130</b>	Team ID number (N° 1 to 8)	
<b>ID.140</b>	Household number	
<b>ID.141</b>	Number of the children	
<b>ID.200</b>	Birth date <u>If the birth date is not known, ask question ID.210</u>	Birth date __/__/____ Don't know X

<b>ID.210</b>	<u>Calculate immediately in months, if the birth date is known</u> <u>Otherwise use the event calendar to define the age</u>	___ Months
<b>ID.220</b>	Source for obtaining age	Birth certificate = 1 Event Calendar = 2
<b>ID.230</b>	Sex of selected child	Male = 1 Female = 2

### A. Child 0-23 months

Now I would like to ask some question about your child.				
<b>CP.10</b>	Has <b>(name)</b> ever been breastfed? <u>If don't know, ask question CP.20</u>	Yes 1	No 0	Don't know X
<b>CP.11</b>	How long after birth did you first put <b>(name)</b> to the breast? <b>(Probe)</b> <u>If respondent reports she put the infant to the breast immediately after birth, circle '000' for 'immediately'.</u> <u>If less than one hour, circle '1' for hours and record '00' hours.</u> <u>If less than 24 hours, circle '1' and record number of completed hours, from 1 to 23.</u> <u>Otherwise, circle '2' and record number of completed days.</u>	Immediately.....000 Or: Hours:.....1  _ _  Or: Days.....2  _ _		
<b>CP.20</b>	Was <b>(name)</b> breastfed yesterday during the day or at night?	Yes 1	No 0	Don't know X
<b>CP.21</b>	Sometimes babies are fed breast milk in different ways, for example by spoon, cup or bottle. This can happen when the mother cannot always be with her baby. Sometimes babies are breastfed by another woman, or given breast milk from another woman by spoon, cup or bottle or some other way. This can happen if a mother cannot breastfeed her own baby. Did <b>(name)</b> consume breast milk in any of these ways yesterday during the day or at night?	Yes 1	No 0	Don't know X

Next, I would like to ask you about some liquids that <b>(name)</b> may have had yesterday during the day or at night. Did <b>(name)</b> have any:		Yes	No	Don't know
<b>CP.50</b>	Plain water?	1	0	X
<b>CP.51</b>	Infant formula such as simulac and promil?	1	0	X
<b>CP.52</b>	Milk such as tinned, powdered, or fresh animal milk?	1	0	X
<b>CP.53</b>	Juice or juice drinks?	1	0	X
<b>CP.54</b>	Clear broth?	1	0	X
<b>CP.55</b>	Yogurt/Curd?	1	0	X
<b>CP.56</b>	Thin porridge?	1	0	X
<b>CP.57</b>	Any other liquids such as water-syrup, C2?	1	0	X
<b>CP.58</b>	Any other liquids?	1	0	X

<b>How many times yesterday during the day or at night did (<i>name</i>) consume any (item from list)?</b>		
<b>CP.60</b>	Infant formula such as simulac and promil?	Times B:  _   _
<b>CP.61</b>	Milk such as tinned, powdered, or fresh animal milk?	Times C:  _   _
<b>CP.62</b>	Thin porridge?	Times F:  _   _

<b>CP.70</b>	Did ( <i>name</i> ) eat any solid, semi-solid, or soft foods yesterday during the day or at night?	Yes 1	No 0	Don't know X
<b>CP.71</b>	How many times did ( <b>name</b> ) eat solid, semi-solid, or soft foods other than liquids yesterday during the day or at night?	Number of times:  _   _  Don't know = X		

**Please describe everything that (*name*) ate yesterday during the day or at night, whether at home or outside the home.**

**Please, think about when (*name*) eat yesterday from the time he/she woke up yesterday morning, till the time he/she woke up that morning, at home or outside.**

**Think about the time he/she woke up yesterday. Did (*name*) eat anything when he/she woke up?**

**IF YES: Tell me everything (*name*) ate at that time.**

**What did (*name*) after that? Did he/she eat something at that time?**

**IF YES: What did (*name*) eat at that time?**

**Anything else?**

Continue till the person answer “nothing else”. Repeat the question till this morning weak up.

If the participants answer a mix dishes, ask: “what were the ingredient of this dish?”

Tick all the food category related to the mix dishes

Each time one is telling what the child ate, tick “yes” in the food category

<b>IDDS.210</b>	Porridge, bread, rice, noodles, or other foods made from grains/cereals such as rice, millet etc.	Yes 1	No 0	Don't know X
<b>IDDS.220</b>	Pumpkin, carrots, squash, or sweet potatoes that are yellow or orange inside	Yes 1	No 0	Don't know X
<b>IDDS.230</b>	White potatoes, cassava, plantain, lotus roots or any other foods made from roots	Yes 1	No 0	Don't know X
<b>IDDS.240</b>	Any dark green leafy vegetables as spinach, bean greens...	Yes 1	No 0	Don't know X
<b>IDDS.250</b>	Ripe mangoes, ripe papayas, apricots	Yes 1	No 0	Don't know X
<b>IDDS.260</b>	Any other fruits or vegetables?	Yes 1	No 0	Don't know X
<b>IDDS.270</b>	Liver, kidney, heart or other organ meats?	Yes 1	No 0	Don't know X
<b>IDDS.280</b>	Any meat, such as beef, goat, chicken, pig, snakes or other meats	Yes 1	No 0	Don't know X
<b>IDDS.290</b>	Eggs	Yes 1	No 0	Don't know X
<b>IDDS.300</b>	Fresh or dried fish, sea snakes, shellfish, or seafood	Yes 1	No 0	Don't know X
<b>IDDS.310</b>	Any foods made from beans, jack beans, peas, lentils, nuts, soya or seeds	Yes 1	No 0	Don't know X

<b>IDDS.320</b>	Cheese, curd, yogurt or other milk products	Yes 1	No 0	Don't know X
<b>IDDS.330</b>	Any oil, fats, margarine, butter, or foods made with any of these	Yes 1	No 0	Don't know X
<b>IDDS.340</b>	Any sugary foods such as chocolates, sweets, candies, pastries, cakes, or biscuit, sugary drinks or any sugary made from sugar or honey?	Yes 1	No 0	Don't know X
<b>IDDS.350</b>	Condiments for flavour, such as chillies, spices, herbs, fish powder, Maggi cubes. Tea and coffee?	Yes 1	No 0	Don't know X
<b>IDDS.360</b>	Any grubs, snails or insects?	Yes 1	No 0	Don't know X

<b>H.10</b>	Has ( <i>name</i> ) received DPT3 immunization before his/her first birthday?	Yes 1	No 0	Don't know X
<b>H.11</b>	Specify the source	On statement = 1	Checked on health record = 2	

<b>UE.80</b>	The last time ( <i>name</i> ) passed stool, where did he/she defecate?	1 = Used potty 2 = Used washable diaper 3 = Used disposable diapers 4 = Went in his/her clothes 5 = Went in house/yard 6 = Went outside the premises 7 = Used own sanitation facility 8 = Used public latrine 9 = Other X = Don't know
<b>UE.90</b>	The last time ( <i>name</i> ) passed stool, where were his/her faeces disposed? <u>If UE.80 answer is 7, 8, or X don't ask UE.90</u>	1 = Dropped into toilet facility 2 = Buried 3 = Solid waste/trash 4 = In yard 5 = Outside premises 6 = Public latrine 7 = Into sink or tub 8 = Thrown into waterway 9 = At the well 10 = Thrown elsewhere ( <u>ask to specify</u> ) 11 = Washed/rinsed away ( <u>ask to specify</u> ) X = Not applicable

## B. Child 0-59 months

<b>CP.100</b>	Does anyone help ( <i>name</i> ) to eat?	Yes 1	No 0	Don't know X
<b>CP.110</b>	What do you do when ( <i>name</i> ) refuses to eat? <u>Categorize answer into the positive, negative or no reaction</u>	1 = Nothing (the child is left alone) 2 = Other (coax, play with, change food) 3 = Force		

<b>H.30</b>	Has ( <i>name</i> ) had fever in the past 14 days?	Yes 1	No 0	Don't know X
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<b>H.40</b>	Has <b>(name)</b> had diarrhoea (more than 3 loose or watery stools in a 24-hour period) in the past two weeks?	Yes 1	No 0	Don't know X
<b>H.50</b>	Has <b>(name)</b> had an illness with a cough (trouble breathing or breathe faster than usual with short, quick breaths) in the past two weeks?	Yes 1	No 0	Don't know X

**Ask this question, only if the children is aged more than 11 months**

<b>WORM.10</b>	Did your child take any deworming in the past year?	Yes 1	No 0	Don't know X
<b>WORM.20</b>	How many times did <b>(name)</b> take deworming in the past year?	--		

**Now I would like to ask you some question regarding your relation with **(name)****

<b>MC.10</b>	In the past 3 days, did you or any household member over 15 years of age engage in storytelling, singing or playing with <b>(name)</b> ?	Yes 1	No 0	Don't know X
<b>MC.20</b>	Do you leave <b>(name)</b> alone or in the care of other children younger than 12 years of age?	Yes 1	No 0	
<b>MC.30</b>	If yes, how often?	1 = Every day 2 = Several times a week 3 = Less than once a week X = Not applicable		

**Now, I would like to ask you some question about **(name)** when she/he born**

<b>LBW.10</b>	How much did <b>(name)</b> weigh at birth? <u>If don't know, ask LBW.20</u>	____ kg X = Don't know
<b>LBW.11</b>	Specify the source	1 = Caregiver's statement only 2 = Health record
<b>LBW.20</b>	When <b>(name)</b> was born, was he/she very large, larger than average, average, smaller than average, or very small?	1 – Very Large 2 – Larger than average 3 – Smaller than average 4 – Very Small 5 – Average size 6 – Don't remember X – Don't know

<b>RH.60</b>	Does <b>(name)</b> have a younger sibling? <b><u>If no, ask caregiver questionnaire</u></b>	Yes 1	No 0
<b>RH.61</b>	If yes, what is the age difference between <b>(name)</b> and his/her direct younger sibling? <b><u>Use the event calendar</u></b> <b><u>If don't know, ask RH.62</u></b> <b><u>If answered, ask next questionnaire</u></b>	__ months X Don't know	

<b>RH.62</b>	If don't know, what is the age of his/her direct younger sibling? <b>Use the event calendar</b> <b>Calculate immediately his/her age, then fill RH.61</b>	-- months
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**OBSERVATIONS Child 0-59 months**  
**To be filled at the end of the questionnaire**



<b>Caregiver-child interaction observation:</b>		<b>Yes</b>	<b>No</b>
<b>OC.10</b>	Caregiver tends to keep the child within visual range and looks at the child quite often	0	1
<b>OC.20</b>	Caregiver talks to the child during the course of the visit	0	1
<b>OC.30</b>	Caregiver interacts with child to promote development and learning	0	1
<b>OC.40</b>	Caregiver smiles at the child, laughs with the child, caresses, kisses or hugs the child	0	1
<b>OC.50</b>	Caregiver spanked or hit the child during the visit, or shouted or yelled at him/her.	1	0

**C. Child 6-59 months (anthropometric measurements)**

<b>Anthropometric measurements:</b>		<b>Yes</b>
<b>ANT.30</b>	Weight in kilogram, record to the nearest 0.1 kilograms (100 grams)	-----
<b>ANT.40</b>	Height/Length in centimeters, record to the nearest 0,1cm	-----
<b>ANT.50</b>	Edema If yes, contact your team supervisor to refer the children	0 = Yes 1 = No
<b>ANT.60</b>	MUAC (mm)	-----

**VI. Main caregiver questionnaire**

<b>Code</b>	<b>Question</b>	<b>Answer</b>
<b>ID.210</b>	Number of the municipality (1 to 4)	
<b>ID.220</b>	Number of the cluster (1 to 36)	
<b>ID.230</b>	Team ID number (N° 1 to 8)	
<b>ID.240</b>	Household number	

<b>Now I would like to ask you questions about yourself</b>		
<b>HoH.40</b>	What is your relationship with the child?	1 = Mother 2 = Father 3 = Grandparent 4 = Other
<b>HoH.50</b>	What is your occupation?	1 = Housewife 2 = Farmer 3 = Fisherman 4 = Labourers/unskilled workers 5 = Unemployed 6 = Other
<b>HoH.60</b>	What is your marital status?	1 = Married/In an union 2 = Separated

		3 = Single 4 = Widow
<b>CG.10</b>	How old are you?	-- years
<b>CG.11</b>	Source	1 = Caregiver's statement 2 = Birth certificate

**Now I would like to measure your MUAC (Mid-Upper Arm Circumference) using this tape. It is safe, non-harmful and will take only few minutes.**

<b>ANT.10</b>	MUAC in millimetre	--- mm
<b>ANT.20</b>	The mother looks like  <u>Don't probe, it is an observation</u>	1 = Very Fat 2 = Fatter than average 3 = Thinner than average 4 = Very Thin 5 = Average

<b>CG.20</b>	Did you eat more/less/same amount as usual when you were pregnant or breastfeeding?	1 = More 2 = Less 3 = Same
<b>NUT.10</b>	Did you take any nutrient supplementation during your last pregnancy, such as multivitamin?	Yes No 1 0
<b>NUT.20</b>	Did you take any nutrient supplementation during your last pregnancy, such as iron and folic acid?	Yes No 1 0

<b>CG.30</b>	Did you go to school? <u>If no, ask question CG.50</u>	Yes 1	No 0
<b>CG.40</b>	What grade or level did you finish??	Grade:  _   _  Vocational = 14 Bachelor = 15 Master = 17 Doctorate = 19	

<b>CG.50</b>	Do you feel supported? <u>Include all kind of support such as financial, social etc.</u> <u>Do not probe, this question is left to the understanding of the mother</u>	Extremely.....1 Somewhat.....2 Not very.....3 Not at all.....4
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<b>CG.60</b>	Do you feel you have too much work to take care of your child?	Yes 1	No 0
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**Please indicate for each of the five statements, which is closest to how you have been feeling over the last two weeks.**

**Example: If the respondent has felt cheerful and in good spirits more than half of the time during the last two weeks, put a tick in the box with the number 3.**

Over the last two weeks:		All of the time	Most of the time	More than half of the time	Less than half of the time	Some of the time	At no time
<b>WHO5.10</b>	I have felt cheerful and in	5	4	3	2	1	0

	good spirits						
<b>WHO5.20</b>	I have felt calm and relaxed	5	4	3	2	1	0
<b>WHO5.30</b>	I have felt active and vigorous	5	4	3	2	1	0
<b>WHO5.40</b>	I woke up feeling fresh and rested	5	4	3	2	1	0
<b>WHO5.50</b>	My daily life has been filled with things that interest me	5	4	3	2	1	0
<b>TOTAL (calculate immediately by summing up all answers)</b>							

**If WHO5 total is below or equal 13, run MDI10 from WB.10 to WB.100**

**If WHO5 total is more than 13, ask RH.10**

<b>MDI10</b>	<b>How much of the time in the last two weeks:</b>	<b>All the time</b>	<b>Most of the time</b>	<b>Slightly more than half the time</b>	<b>Slightly less than half the time</b>	<b>Some of the time</b>	<b>At no time</b>
<b>WB.10</b>	Have you felt low in spirits or sad?	5	4	3	2	1	0
<b>WB.20</b>	Have you lost interest in your daily activities?	5	4	3	2	1	0
<b>WB.30</b>	Have you felt lacking in energy and strength?	5	4	3	2	1	0
<b>WB.40</b>	Have you felt less self-confident?	5	4	3	2	1	0
<b>WB.50</b>	Have you had a bad conscience or feelings of guilt?	5	4	3	2	1	0
<b>WB.60</b>	Have you felt that life wasn't worth living?	5	4	3	2	1	0
<b>WB.70</b>	Have you felt difficulty in concentrating, e.g. when reading the newspaper?	5	4	3	2	1	0
<b>WB.80</b>	Have you felt very restless?	5	4	3	2	1	0
	Have you felt subdued or slowed down?	5	4	3	2	1	0
<u>For the calculation of the MDI, keep the highest number answered.</u>							

MDI10	How much of the time in the last two weeks:	All the time	Most of the time	Slightly more than half the time	Slightly less than half the time	Some of the time	At no time
WB.90	Have you had trouble sleeping at night?	5	4	3	2	1	0
WB.100	Have you suffered from reduced appetite?	5	4	3	2	1	0
	Have you suffered from increased appetite?	5	4	3	2	1	0
		<u>For the calculation of the MDI, keep the highest number answered.</u>					
<b>TOTAL 0-50 (calculate Immediately by summing up all answers)</b>							

<b>Now, I would like to ask you some questions related to family planning For women from 15 to 49 years old married or in an union</b>				
RH.10	Couples use various ways or methods to delay or avoid a pregnancy. Are you currently doing something or using any method, including sterilization, to delay or avoid getting pregnant? <u>If no, ask RH.40</u>	Yes 1	No 0	Not Applicable X
RH.20	<u>If yes, What are you doing to delay or avoid a pregnancy?</u> <u>Do not probe</u> <u>Multiple answers can be accepted</u>	1 = Female/male sterilization 2 = IUD 3 = Injectable 4 = Implants 5 = Foam/jelly 6 = Contraceptive Pill 7 = Male/female condom 8 = Diaphragm 9 = Lactational amenorrhea method 10 = Withdrawal method 11 = Calendar method 12 = Other (specify)		

RH.40	How old were you when you gave birth for the first time?	__ years
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H.60	Did you see anyone for Antenatal care for your last pregnancy? <u>If no, tick 4 “no one”, then ask H.80</u> <u>If yes, “Whom did you see?”</u> <u>Probe “Anyone else?” till the respondent answer “no one else”</u> <u>Probe for the type of person seen and tick all answers given.</u>	1 = Health professional (Doctor, nurse/midwife, auxiliary midwife) 2 = Other person (Traditional birth attendant such as “partira” or “komadrona”, traditional healer such as doctor kwak-kwak/albularyo, community health worker, Relative/friend) 3 = Other (specify) 4 = No one
H.70	How many times did you see someone for Antenatal care?	Number of times:  _   _

<b>H.80</b>	What are your main barriers from going to the health centre when someone is sick?	1 = Money/cost 2 = Time 3 = Transportation means 4 = Geographical distance 5 = Decision power 6 = The service is not good enough 7 = Culture (specify) 8 = Other (specify) 9 = No barriers
<b>H.90</b>	How long does it take you to go to the nearest health centre?	-- minutes

<b>H.100</b>	Where did you go for your last delivery?	1 = Health centre or hospital 2 = Home (Your home/Other home) 3 = Other
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<b>WORM.30</b>	During your last pregnancy, did you get dewormed?	Yes 1	No 0
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## VII. Water point observation



Refer to question UE.10 “What is the main source of drinking water for members of your household?” and fill accordingly (1 to 5).

According to question UE.10, go to the correspondent water point and answer to the correct questionnaire (if UE.10 answer is 1, then fill the questionnaire 1, if answer is 2 fill questionnaire 2, if answer is 3 fill questionnaire 3, if answer is 4 fill questionnaire 4, if answer is 5, fill questionnaire 5).

<b>1. Groundwater: open well, well/borehole with hand pump, well/borehole with motorized pump system:</b>		<b>No</b>	<b>Yes</b>
<b>G.10</b>	Is there a latrine or any source of pollution within 30 m of the well?	0	1
<b>G.20</b>	Does the fence around the well allow animals in? <u>If there is no fence, answer is yes</u>	0	1
<b>G.30</b>	Is the drainage channel less than 2 m long, broken or dirty?	0	1
<b>G.40</b>	Is there stagnant water close to the well?	0	1
<b>G.50</b>	Is the apron less than 1 m wide all around the well?	0	1
<b>G.60</b>	Are there any cracks in the well apron and headwall?	0	1
<b>G.70</b>	Is the cover of the well unsanitary and closed?	0	1
<b>G.80</b>	Is the well poorly sealed for 3 m below ground level?	0	1
<b>G.90</b>	Is the water point dirty?	0	1
<b>G.100</b>	Is the lift system in a bad condition / are ropes and buckets dirty? <u>If it is a borehole, then no</u>	0	1

<b>2. Protected spring</b>		<b>No</b>	<b>Yes</b>
<b>S.10</b>	Is there a latrine or any source of contamination within 30m uphill of the spring?	0	1
<b>S.20</b>	Does the fence around the spring allow animals in?	0	1
<b>S.30</b>	Is the drainage channel blocking the flow and allowing stagnant water?	0	1
<b>S.40</b>	Is the spring open to surface water contamination?	0	1
<b>S.50</b>	Is the spring box cracked?	0	1

<b>S.60</b>	Is the inspection cover cracked or unsanitary?	0	1
<b>S.70</b>	Is the cut-off ditch above the spring blocked or non-existent?	0	1
<b>S.80</b>	Is the water point dirty?	0	1
<b>S.90</b>	Is there standing water at the collection point?	0	1
<b>S.100</b>	Is the gutter disposed upstream of the site is missing or improperly maintained?	0	1

<b>3. Roof rainwater harvesting sanitary inspection form</b>		<b>No</b>	<b>Yes</b>
<b>RW.10</b>	Is the roof area dirty?	0	1
<b>RW.20</b>	Are the gutters that collect water dirty?	0	1
<b>RW.30</b>	Is there absence of a filter box at the tank inlet or is it not working well?	0	1
<b>RW.40</b>	Is there any other point of entry to the tank that is not properly covered?	0	1
<b>RW.50</b>	Are there cracks in the wall of the tank?	0	1
<b>RW.60</b>	Is the inside of the tank dirty or not periodically cleaned and disinfected?	0	1
<b>RW.70</b>	Are the taps leaking?	0	1
<b>RW.80</b>	Is the concrete apron near the tank absent or broken or dirty?	0	1
<b>RW.90</b>	Is the drainage in bad condition and the water inadequately drained?	0	1
<b>RW.100</b>	Is there any source of contamination around the tank or water collection area?	0	1

<b>4. Water trucking sanitary inspection form</b>		<b>No</b>	<b>Yes</b>
<b>WT.10</b>	Is the water point where the truck collects the water unsanitary?	0	1
<b>WT.20</b>	Is there no, or inadequate, chlorination of the water during the trucking process?	0	1
<b>WT.30</b>	Is the pipe used to fill and empty the water in the truck unsanitary or dirty?	0	1
<b>WT.40</b>	Is the tanker ever used for transporting other liquids besides drinking water?	0	1
<b>WT.50</b>	In the filler hole of the truck unsanitary or is the lid missing?	0	1
<b>WT.60</b>	Are any parts of the system (water tank of the truck, storage tank in the community, distribution point) not periodically cleaned and disinfected?	0	1
<b>WT.70</b>	Is the storage tank / distribution point unsanitary and dirty?	0	1
<b>WT.80</b>	Is there <b>no</b> chlorination of the water at the storage tank / distribution point?	0	1
<b>WT.90</b>	Is the storage tank at the distribution point badly covered?	0	1
<b>WT.100</b>	Is there stagnant water around the water tank / distribution point?	0	1

<b>5. Piped supply sanitary inspection form</b>		<b>No</b>	<b>Yes</b>
<b>PS.10</b>	Is the source badly protected, or not protected?	0	1
<b>PS.20</b>	Is there any point of leakage between the source and the reservoir?	0	1
<b>PS.30</b>	If break-pressure tanks, are they covers unsanitary? <u>(If no break-pressure tanks, answer is no)</u>	0	1
<b>PS.40</b>	Is the storage tank cracked or leaking and the inspection cover or the air vent unsanitary?	0	1
<b>PS.50</b>	Is the storage tank dirty or not regularly cleaned?	0	1
<b>PS.60</b>	Are there any leaks in the distribution lines of the system?	0	1
<b>PS.70</b>	Are the areas around the taps unfenced or allowing access to animals?	0	1
<b>PS.80</b>	Is there inadequate drainage and standing water around the taps?	0	1
<b>PS.90</b>	Are the surroundings of the taps dirty and with possible contamination source (excreta, refuse, etc.)?	0	1

<b>PS.100</b>	Is the water not chlorinated?	0	1
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### VIII. Observations hygiene/sanitation facilities

<b>Individual sanitation Observation</b>		<b>Yes</b>	<b>N</b>
<b>SAN.10</b>	Are the faeces well isolated from the environment? (Leak, crack) *	1	0
<b>SAN.20</b>	Is the outlet safe? (Leading to open sewer, river, sea water...) *	1	0
<b>SAN.30</b>	Presence of any anal cleaning item/material (paper, water...)	1	0
<b>SAN.40</b>	Is there a hand washing station inside the latrine or within 10 paces of the latrine?	1	0
<b>SAN.50</b>	Is there a cleansing agent at this hand washing station inside/near the latrine? <u>Yes includes soap, detergent and ash, whereas no include mud, sand and other</u>	1	0
<b>SAN.60</b>	Presence of flies or other insects entering or exiting the pit	1	0
<b>SAN.70</b>	Presence of excreta on the ground or around the pit or seat	1	0

<b>Water management Observation</b>		<b>Yes</b>	<b>No</b>
<b>WAT.10</b>	Is the container used to carry water left uncovered during transportation?	1	0
<b>WAT.20</b>	Is the container used to carry water dirty?	1	0
<b>WAT.30</b>	Is the water storage left open/uncovered?	1	0
<b>WAT.40</b>	Is there a water cleaning system visible (filter, boiling container, chlorine tablets...)?	0	1
<b>WAT.50</b>	While serving water to drink, is there a risk of water contamination? (do the fingers touch the water? Or is the scooping container used dirty?)	1	0

<b>Food hygiene Observation</b>		<b>Yes</b>	<b>No</b>
<b>FH.10</b>	Are there cooking utensils or food leftovers left on the ground or uncovered?	1	0

<b>Animal waste Observation</b>		<b>Yes</b>	<b>No</b>
<b>Waste.10</b>	Are there any animal excreta in or near the compound/playground/surroundings?	1	0

<b>ID.60</b> - Ending time of the interview:
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## Annex 15: Qualitative enquiry discussion guide

### DAY 1 – Community leaders and local key informants

In advance to the day 1: courtesy call to inform about the NCA team venue and to fix a meeting with the barangay captain.

#### Community leaders: Initial meeting (barangay captain)

1 - Our names are xxxxx, xxxxxx and xxxxx. We are working for ACF, an organisation that is fighting against hunger. ACF is working in Masbate district since 2014 and in the Philippines since 2000.

We are doing a research project to learn more about the causes of child malnutrition in communities of Masbate. This study is funded by UNICEF.

To learn more about Undernutrition we need to conduct several FGD and we would like to invite your community to participate to this study.

I will explain the study and if you want to ask any questions, please ask at any time.

We expect that this study will help to improve the understanding of under-nutrition for you, your community, local authorities and other agencies in order to reduce under-nutrition in the future. As a community member, you are in a position to provide us with insight into the situation, and we would appreciate it if we could interview several women during several focus group discussions.

To do so, we would like to visit your barangay for 4 days during the coming weeks. We will organize FGD where we will debate about nutrition, health, care practices, sanitation and Undernutrition.

We would like to come (*present a calendar*). Each day we will speak about one subject, and we will hold several FGD with maximum 10 participants to each. For the all survey we will provide healthy snacks and water to the women who are participating and the last day we will share a meal together.

Do you agree to let us do this survey among your barangay?

We also would like to know where we could seat to do our FGD?

Do you have any question?

2 – For today, we would like to ask your help to find a community mobilizer. This person will help us to identify the potential participants to the FGD. We are looking for someone from the barangay. Ideally this person will help us to have a list of households that fit the selection criteria and of person who may wish to participate to the FGD. It can be a health worker; a nutrition worker, a teacher or anyone you think will be happy and able to help us.

3 - We would like also to interview some key informants as health workers, teachers, traditional doctors, birth intendant etc. Can you help us to meet them today?

4 - To participate to the FGD, we are looking for mothers/fathers and grand parents of children under 5 years old. Ideally we would like to have approx. 3 groups of max. 10 mothers and one group of max. 10 grandmothers for the 3 first days, it should be the same participants each day. For the last day, we would like to welcome two groups of max. 10 fathers/grandfathers the last day. If we can welcome mothers from different socio-economic status (very poor, poor, not poor), it could be very helpful for our study. The last day, we will all share a meal together.

**Meeting with stakeholders: NGO staff, governmental representatives, local leaders, health workers, teachers...**

### **1 – Presentation**

Our names are xxxxx, xxxxxx and xxxxx. We are working for ACF, an organisation that is fighting against hunger. ACF is working in Masbate district since 2014 and in the Philippines since 2000.

We are doing a research project to learn more about the causes of child malnutrition in communities of Masbate. This study is founded by UNICEF.

To learn more about undernutrition we would like to ask you some question.

I will explain the study and if you want to ask any questions, please ask at any time.

We would like to ask you some question to obtain an “orientation” to key facets of the culture: beliefs, norms concerning gender roles, motherhood, fatherhood, and life cycle. And we also would like to ask for your help to identify mothers of malnourished and positive deviant children.

We have 3 objectives: develop a local definition of malnutrition, characterize food security, health and care in your community, understand your perceptions of the causes and consequences of poor food security, health and care in relation to malnutrition.

Do you agree to discuss a while about those subjects with us?

### **2 – Malnutrition: definition/understanding and behaviour**

A - Did you ever heard about “malnutrition” or “undernutrition”?

What does it means for you?

Do you know different form of undernutrition? If yes, what are they?

*Definition if the respondent does not know what undernutrition is: “Malnutrition is when someone doesn’t receive the intake that her/his body needs. It can be undernutrition or over nutrition?”*

B - What does look like a child suffering from malnutrition? Did you ever see one?

C - What can be the causes of undernutrition? Do you think that some behaviours or practices can cause undernutrition?

D - Do you think some children can be more likely affected than some other? Which kind of children? And why?

E - Are all the children you know growth equality? If no, what do you think? Why do not they growth in the same way?

F - Are anyone can be affected by undernutrition? Who can? Only children?

G - Is malnutrition a disease? If yes, it is contagious?

H - Do you think that mothers can be affected by undernutrition? If no, why? If yes, which kind of mothers? What are the impacts of undernutrition among pregnant and lactating women?

Do you think it can be because of their age? If yes, what age is at risk?

I - Is undernutrition a big problem in you barangay?

J - What do you do if you think a child is undernourished in your neighbourhood, family?  
In some communities, you will find children/mothers undernourished and some healthy. How the last ones manage to remain healthy?

### **3 – FSL**

K - What is your definition of food security?

L - What are the livelihoods in your barangay? Does everyone work?

M - Is it easy to go to the market? What can you buy from the market? Are people coming inside to the barangay to sell food? If yes, what kind of food? Is there any shop in the barangay? What does it sell? Is it more expensive than the market? Can everyone afford food items from this shop?

N - How people get their food? Do they fish? Do they hunt?  
Do they pick up from jungle? If yes, what kind of food?  
Do they have their own land/vegetable gardens? If yes, do you have enough for your family?  
Do they trade food? If yes, what kind of food? Is there a trade market? With whom do they trade food?

O - Do people have livestock here? If yes, which animals? What is the use of these animals (to be sold/to work/to eat)? Usually, where people keep their livestock? Do you know if they have specific place for their poultry?

P - Does the family migrate from here? If yes, why? Is the entire household migrating?  
Where do they go? Do they migrate forever?  
Do you know what they do there? Where they live?

Q - Do you know who prepares the food at home?  
Who is choosing the food to buy and go to buy it?

R - Do all the family eat together or there is any kind of order? If yes, who eat first?  
Do you think the family give more food to boys/girls/both same?

S - What kind of food the children are eating?  
Does anyone give advice on child's diet?  
Is there any special items given only to the children?  
Is all the year the children eating the same food?

### **3 – Family relation, gender aspects**

T – Who is mainly taking care of children?  
Do any one give advice to the father and the mother regarding their child (diet, health, school etc.), who?  
What is the role of the grandparents regarding their grandchildren?  
At what age the mother/father use to get married? First baby? How many children per family? It is better to have many children or to have few children? Why?  
Is it same to have a baby girl or a baby boy?

#### 4 – Health

U - If a child is sick, what the family do first? Where do they go?  
Who take care of the sick child?

V - Is some child sick because of bad spirits?  
If yes, what do you do?

W - How do we recognize a healthy child?  
What the family do if the sick child doesn't get better?  
Are some traditional treatments available at the barangay? What kind? Who gives advice to use this kind of treatments?

X - Is immunization done at the health centre? Is it a good or a bad thing?  
Are children usually dewormed? Who take the initiative? (parents by themselves, parents through specific programs)

Y - Who get more sick girls or boys, or same? Why girls/boys get sicker?

Z - Programs on deworming are implemented in Masbate to control helminth infections as a public health problem.  
Do you know who can be affected by worm infections? Which groups do you think are at high risk for these infections?  
How do people get worm infections? How do we prevent it? What should be done if a person is infected by worms?  
Who can administer deworming drugs? How should it be administered?  
Can anyone take deworming drugs? Is it dangerous for some people? Why? Are there side effects of deworming? If yes, what are these side effects?

#### 5 – Mental health and care practices

AA - Who is taking care of the infants?  
Do the fathers take care of their infant?

AB- When a baby born, what does she/he eat first? For how long? And after?

AC - Do mums breastfeed their child? Do some mothers don't breastfeed their child? Why?  
Is breastfeeding a good thing? Is there any believing regarding breastfeeding?

AD - Do you think mothers are working too much? Why some mothers are working and some not?  
For the workingwomen, do they come back to work soon after delivery? Why?

AE – How will you describe family relationship in your communities?  
Do women have access to the same resource than men? (water, food, money....)  
Who is taking mainly the decision within the household?  
Do women are able to take decision for themselves in their own?

AF - In some families fight can happen for different reasons. Do you think there is a lot of family fight in Masbate? According to you what can be the reasons? *Probe: money and family income*

*management, household work, alcoholism, etc. If the respondent answers anything related to politic, move to another topic.*

How will you describe this fight? Is it really violent? What is the reaction of the surrounding of the couple if a fight gets very violent? Is it happening often?

## **6 – WASH**

AG – What are the main problem regarding water in your barangay? Is the water available all the time? Where people do usually collect their water?

AH – Can we directly drink the water collected in the barangay? Do we need to treat it? How?

AI – What are the main issues regarding sanitation in your barangay? If villagers need to go to the toilets, is it easy for them? Where do they go? And small children? What is the impact of this behaviour?

AJ – What people use to wash their hands? Do you think they use soap? If no, why?

AK – Where do you put your garbage? Is there a dumping site? Do you think the majority of the people go there? And what about liquid wastes? Do you think it is having an impact?

## **6 – External shocks**

AL – Is you area usually flooded during raining season? How do you cope during this time and during typhoon? Do heavy rainfall, wind, or the sea current situation can affect the organization of the barangay?

AM – Did you notice a change on the climate this past years?

AN – Is there any DRR program in your barangay? Organized by whom?

## **Day 2 – Malnutrition and FSL**

### **FGD Malnutrition**

1 – Did you ever heard about “malnutrition” or “undernutrition”? What does it means for you? Do you know different form of undernutrition? If yes, what are they?

### **2 – TOOL PHOTO**

I will show you some pictures; what do you think about these babies? Do you think one of them is suffering from malnutrition? Which one?

How did you see that this child is suffering from undernutrition? For you, are there any other sign?

You told me this baby is fine, why?

3 - Is undernutrition a big problem in your community?

4 – Do you think an adult can suffer from undernutrition? What can happen if a mother (PLW) is suffering from undernutrition?

5 - Do you think some children can be more likely affected than some other? Which kind of children? And why?

6 - Are all the children you know growth equality? If no, what do you think? Why do not they growth in the same way?

7 – TOOL PHOTO (one healthy and one SAM child)

In some communities, you will find children/mothers undernourished and some healthy. How the last ones manage to remain healthy? What do you think they do differently?

8 - What can be the causes of undernutrition? Do you think that some behaviours or practices can cause undernutrition? Do you think it is a disease? Is it contagious?

9 - TOOL PHOTO (one SAM child)

If you think your child is suffering from undernutrition, what do you do? What do you do if you think a child is undernourished in your neighbourhood, family?

## **FGD Food Security and livelihoods**

1 - What are your livelihoods? Is it a regular job? **Are you doing this job all the year? (Seasonal calendar)**

2 – Where do you usually get your food? Do you fish, haunt?

Do you pick up from jungle? If yes, what kind of food? **All the year? (Seasonal calendar)**

Do you have you own land/vegetable gardens? If yes, do you have enough for your family?

Do you trade food? If yes, what kind of food?

3 - What are market day in your barangay? Do you get enough food for the week? (probe veg/fruit, pulse, rice, non veg items)

If you need something else during the other day, where do you get/buy it? Is it more expensive than the market? Do you think it easy to buy food? If no, why? **At what time of the year the market price are the highest? When it is most difficult to find food? (Seasonal calendar)**

4 - Do you have livestock? What kind of?

If yes, what for (to be sold, to work, to eat)? Do you keep their product or do you sell it (eggs, milk...)? **At what time of the year do you trade your livestock? (Seasonal calendar)**

Do you vaccinate your livestock?

Sometimes, some of your livestock can be sick. Is it happening often? Do some of them die from diseases? Often? What kind of disease? **At what time of the year is it happening more? (Seasonal calendar)**

5 - You told me that you have chickens, do you have a coq? I saw in Manila, coq fights; do you do it also in your barangays? Is it a good business? Do you game often? Do you play to other game? What kind of game?

6 – *You told me that you have a garden/land*

Is it a big land/garden?

Does your land is a good land? Do you grow food easily? If no, why?

**Are you facing period of waterlogging? When? (Seasonal calendar)**

What do you grow? Did you try something else?

How do you grow your food? Do you get problem to make it grow? What kind of?

**What months do you use to harvest staple food/fruit/vegetable? (Seasonal calendar)**

**What months do you work in your land? (Seasonal calendar)**

**What months do you sell your grains? (Seasonal calendar)**

7 – *You told me that you/your husband are/ is fishing*

Do you keep the sea products for your family or do you sell it? Do you have enough to meet your family needs? **Do you fish all the year? At what time of the year fish are more available? (Seasonal calendar)**

In the past year, did you notice a change on the fish availability/quality? If yes, what kind of? Do you know the reason?

Do you easily sell your fish catch? At a good price?

8 – What is a typical meal for you?

Do you eat a lot of “kinilaw” and shells?

In the past year, did you notice a change on the market price and item available? What kind of? Do you know the reason?

Do you have difficulty to buy some items? Why? What kind of food is too much costly for you?

9 – At home, how do you preserve the food you bought and the leftover? When do you cook?

10 - **Are you facing long drought period/flood? Typhoons? When? (Seasonal calendar)**

How do you manage to get food at this time? And during a typhoon? Is it having impacts on your livelihoods?

11 - Sometimes, you can face a lack of income. What do you do if you need extra money?

If credits/debts, to who do you ask them? Do you ask for it often?

12 - Do you know any bad food for kid? Do you cook specially for your children?

Who give you advice regarding your baby diet?/Who told you what to give to your baby?

What do you give to your child?

Everyone is giving regular meal to her baby. Does someone give a different meal? If yes, why?

13 - Did you change your food habits when you were pregnant/lactating? Can you tell us a usual meal you take?

14 – TOOL RESSOURCES MANAGEMENT

In this board, we draw several items (water, veg/fruits, rice, meat/fish, snacks/soda, gambling, medicine, alcohol, clothes, petrol, micro-saving), can you show me in which one you spent the most? Can you put stones according to the amount you spent? (little, average, a lot)

15 - TOOL FOOD PICTURES

Can you put some stones on the items you usually buy?

Can you now put some stones on the items you prefer to eat (meal/snack)?

## DAY 3 – WASH, Health and Care Practices

### FGD WASH

1 - What are the different sources of water you use? And where did you get your drinking water?

*Try to get precise information to check the following possibilities:*

*Spring with protection / unprotected spring / protected HP wells / unprotected HP wells / unprotected dug well / protected dug well / river / community Tap Stand / household Connection-GFS / water district / buy (bottle/vendor)*

2 - Are you using the same source for drinking/animal/hygiene?

3 - How long per day do you need to collect water? (go/queue/take/back)  
Is it all the year the same? Do you go with your kids? When do you use to collect water?

4 - Is the water free?

5 - Is the water safe? How do you know?

6 - What is going to happen if you drink a “non safe” water?

7 - Do you drink directly the water? Do you do something before? What? (*if confusion probe “filter” as a starter*)

8 – How is the water being transported from the source to the household? How and where do you store the water? In what kind of container do you keep the water at home? Can you please describe me the container? *Try to get precise information to check the following possibilities (without probing): Open jar, close jar, open bucket, close bucket, open container, close container, other (specify)*

9 - Does everyone is able to drink the quantity of water one wants?

10 – Is the water available in the same quality and quantity all the year? **At what period is it less available? (Seasonal calendar)**

10 - Where do you go for toilet?

*Note: People will often answer for defecation. Ask then, and for urinate?*

11 - Do you use the same place as the man? Where the children go? At what age? What is the distance for you/children? What about the babies? What do you do with their stools?  
How children excreta are disposed? *Don't probe but check: water sealed toilet, pit toilet, open field, drainage, potty, other (specify)*

12 - Do you bring water with you? What do you do after? (*Accordingly to the group ask: what for do you use the water?*).

13 - There are any common latrines on your village? Are they used? By who?

14 – Do you think it is better to have latrines? Why? / Is it a problem not to have latrines? Why?

15 – Do you know why people don't have latrines in your barangay?

- 16 - When do you wash your hand? Where? How?
- 17 - What do you consider as good/bad hygiene practices for your child?
- 18 - What are the major hygiene/water constraints you are facing? (example: price of soap, security in the open defecation location...)
- 19 – Where do you put your garbage? And liquid waste?
- 20 – Some of you have livestock. Are you keeping them inside the village? Are they free to walk around the house? I saw many chickens, are they coming close to or inside your house? Do you have a specific place for you chickens? What do you do with their feces?

## **FGD HEALTH**

- 1 - How do you know a child is healthy?
- 2 - Do girl and boy growth on the same way? (size/weight)
- 3 - What are the challenges to maintain your child healthy? What are the practices to do so?
- 4 - What are the most common child diseases in your village?
- 5 – **When people can get ARI (pneumonia...)? Dengue/Chikungunya? Diarrhea? (Seasonal calendar)**
- 6 - What do you do if your child is sick? Who give you advice? And what do you do if your child health gets worst? Do you consult a doctor kwak-kwak/albularyo/ manghilot? How can he help your child?
- 7 - Do you use self-medication? What kind? Do you use any herbs? What kind? Where and when do you find it? What do you do if your kid is crying too much/get fever?
- 8 - Grand-mothers. In the past years, did you notice any change regarding child treatment? What kind? Why does it change?
- 9 - What do you think about immunization? It is a good/bad thing? Why? Do your kids are vaccinated?
- 10 - Lactating/Pregnant women. Do/did you eat less/more/different food? Why? Who gave you advices? Do/did you have time to eat? If no, why? Did you eat the same food than usual? Did you take any medicine? What kind of? Who advised you to take this medicine?
- 11 - According to you, what is the better age to get a first baby?
- 12 - Do you think you get your baby too young? How many children do you have?

13<sup>52</sup> - If you want no more children, what do you do? If you want to wait before two children, what do you do?

You told me: “operation”, “tablets”, “IUD”. Did you do/use it? Do you use any of these items? You told me, you had an operation. Can you explain me what is it for? How it works? Are you happy of it?

I am not sure to understand what you mean by tablets/IUD. Is your tablet look like that (show or draw)? *If matching with contraceptive pills, ask: when do you take it?*

Can you explain me what is an IUD? *If explanation matching, draw the dispositive to confirm.*

Did you take this decision by yourself? Does your husband knows/your in-laws?

14 - When you got pregnant, did you see a health worker? A doctor? A traditional birth attendant such as a “partira”, “komadrona”, “mananabang” or “hilot”? *If yes to the last question, how did she/he help you? How many times did you see her/him?*

Where did you deliver your infant? Who helped you? Why did you choose to go there?

15 - Programs on deworming are implemented in Masbate to control helminth infections as a public health problem. Helminth is a kind of worm.

Do you know who can be affected by worm infections? Which groups do you think are at high risk for these infections?

Why and how do people get worm infections? What can be done to avoid it?

To whom do you get advice regarding worm infections?

If you think your child is infected, what do you do? Who can explain you what to do? Do you take any medicine or do you give anything to your children? What kind of medicine do you give?

How often do you give it? Who can help you to get the deworming drug?

What happens when one is dewormed? Do you think it is safe for everyone?

Were you dewormed when you were pregnant? Do you think deworming can be bad/dangerous? If yes, to whom is it dangerous? Why?

You seem to have a lot of knowledge about deworming! How did you learn all this information?

## **FGD Care Practices**

1 - At home, who is taking care of your child? And when you are working?

2 - Remember when your baby just born. How did you feed her/him the first time? Or what was his/her first food? When? Why?

If not breastfeed what did you give her/him? For how long? Why?

Did you get any problem to breastfeed your child? What solution did you find?

3 - Up to 6 months, what your baby ate? Anything else? Did you give her/him water?

4 - When did you give her/him a different food the first time? What? When did you give her/him the first time a solid food? What? What frequency? How did you know it was the good moment to change the diet of your baby? Who gave you advices? How did you know what to give? Is there any food that we should not give to young children? Why?

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<sup>52</sup> Precise, and repeat several times during this discussion that if they are not feeling comfortable with the question, we can move to the next topic. Women do not have to feel uncomfortable during the FGD, otherwise they may stop to participate.

5 - When did you stop breastfeeding? What food did you give at this time? How your child reacts? *If children did not react well:* then what did you do?/what did you give?

6 - When do you feed your child? Who feed your child?

7 - When a baby is able to eat alone?

8 - When baby is able to eat the exact same food as her/his parents? Do you cook specially for your baby? Is it the exact same food as you? Do you have time to cook food for your children?

9 - At what age did you change the quantity of the food that your child is eating?

10 - Who gave you advices regarding your child diet? Who decide what your child will eat? You? Someone else?

11 - What do you consider as a good/bad care practices for your baby? *If not able to answer, give some example of situation:* baby is crying too much, baby is disturbing me....  
Are you facing any constraint to take care of your child?

12 - Do older siblings are feeding your child? What age?

13 - Do you give the same quantity of food to boys and girls?

14 - Do the teenagers go to school? If not, what do they do?

15 - How much time do you spend with your kid each day? It is same all the year? What are your constraints regarding the time you spend with your kids? Do you think you spend enough time with them? What are the consequences of this lack of time?

## **FGD Grandmothers**

WASH: all the questions

Health: all the questions except question 13 (ask: what a mother can do if she wants to space birth/not to have more children? Is it a good solution?)

Care Practices: ask 1, 3, 4, 6, 7, 8, 9, 11, 12, 13, 14

2. - How did your daughter-in-law first feed her baby? What do you think about it? Did you give her any advice? What kind of?

4 - What was the first solid food your grand-daughter/son ate? How did she/he react? What did you do?

10 - Did you give any advice to your daughter-in-law regarding her baby diet? What kind of advices? How do you know when is the good moment to change the diet of a baby? How do you know what to give? Is there any food that we should not give to young children? Why?

15 - Do you think your daughter-in-law is spending enough time with her child? If no, what are the reason and consequences?

16 - Did you notice any change regarding the care practices and the breastfeeding practices in the past years? What kind of? Why did that change?

## Day 4 – Mental Health and Rating exercise

### FGD Mental Health (mothers only)

- 1 – How would you describe the workload of women? At home/on the field?
- 2 – Do you think you have too much work to do? Do you feel that you have support? From whom?
- 3 - Do lactating/pregnant women have different responsibilities?
- 4 – What are the constraints for mothers to take care of their child? Are they different for mothers with numerous siblings?
- 5 – How do you feel if your child is too active/crying too much? How do you react? Do you feel that you have support?
- 6 – Did you go to school? If no, why? If yes, up to what class? Why did you stop? Who took this decision? How did you feel at this moment?
- 7 – What types of resources do women have independent access to? *If not clear, probe: money, food, water*
- 8 – How are responsibilities shared within the household? Who takes the majority of the decisions? How do you feel about this?
- 9 – Do you feel free to take your own decision? If yes, do you feel that you have support? By who? If no, why?
- 10 – In every relationship, fights can happen. What kind of conflicts can occur between a wife and her husband? And what can be the reasons (child education, contraception, interference of in-laws, consumption of alcohol/drugs, gambling...)? How do you and your partner usually resolve these issues?
- 11 – There are men who treat their wives well and men who don't. There are women who treat their husband well and women who don't. Can you give me some examples? Only if necessary, prompt: What type of physical and emotional abuse can happen? Within your community what is norm? What are the resources available to individuals who are in difficult relationships?

### FGD Mental Health (grand-mothers)

- 1 – How would you describe the workload of women? At home/on the field?
- 2 – Do you think your daughter-in-law/daughter has too much work to do? If she needs to stop working for a while, is it possible? If no, why? Who takes the decision (you/someone else)?
- 3 - Are lactating/pregnant women given different responsibilities?
- 4 – If your daughter-in-law/daughter is feeling too tired or a bit depressed, what do you do?

5 – You have many grandchildren, some of them are girls, and some of them are boys. In the past years, did you notice any significant changes on the access to education?

6 – When your daughter-in-law/daughter got pregnant, did you give her any advice? What type?

7 – What types of resources do women have independent access to?

8 – How are responsibilities shared within the household? Who is taking the majority of the decision? What do you think about it?

In the past years, did you notice any change regarding decision making at house level?

10 – In every relationship, fights can occur. What kind of conflicts can occur between a wife and her husband? And what are the reasons (child education, contraception, interference of in-laws, consumption of alcohol/drugs, gaming...)? How this conflict used to be resolved?

Do you think it is happening too much in your communities? Why? What do you think about this kind of fight?

### **Seasonal calendar and historical trends**

1 – Can you please tell me when is summer/winter/monsoon/typhoon season?

2 – Do you have a period in the year when you are facing bad road issues/travel issues?

3 - In the past years, did you notice a period when it was more difficult for your community to access food? What was the reason?

If not clear: maybe because the market price increase suddenly or because you were facing an unexpected heavy monsoon?

4 - Was there a time when prices at the market increased to a level that you could not afford? When?

5 – When was the main disaster that affected your life? How did it affect your life?

### **Rating exercise**

*Remember to the participants a short, easy-understandable and correct definition of undernutrition: disease resulting from not getting the correct nutrients regarding what the body needs.*

Propose a definition of undernutrition designed accordingly to the communities' thoughts:

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1 - Do you agree with this definition? (*Debate if not, to design a closer definition to their thoughts*).

2 - Present the most relevant hypothesis related to undernutrition raised during the FGD. Write them on a board and distribute a list of it to the participants.

Ask the participants to split in few groups. Ask to each group to pick up the hypothesis that will most likely contribute to undernutrition.

Ask to each group, what are the hypotheses they selected. Keep the top 10-15 hypotheses. Read it and ask to the participants to write it down in a paper (they can just put the letter as the

hypothesis will be written in a board in front of them). Ask the participant to rate them from 1 to 10 (1 for less likely and 10 for more likely). Ask for the rate. Debate.

## **Day 5 – Interviews, FGD men, life stories**

### **FGD fathers and grandfathers of child <5**

#### **Malnutrition (TOOL Photo SAM)**

1 - Did you ever heard about “malnutrition” or “undernutrition”?  
What does it mean for you?

*Remember to the participants a short, easy-understandable and correct definition of undernutrition: disease resulting from not getting the correct nutrients regarding what the body needs.*

2 – Is undernutrition a big problem in your community?

3 - Do you think an adult can suffer from malnutrition? What can happen if a mother (PLW) is suffering from undernutrition?

#### **FSL**

1 - What are your livelihoods?

2 - Do you have a livestock? Do you vaccinate your livestock? Sometimes, some of your livestock can be sick, is it happening often?  
What kind of diseases? How do you treat them?  
Do some of them die from diseases?

3 - What is the use of your livestock?

4 - Do you have a land/vegetable garden? Is it a big land/garden?  
What do you grow? What for? Do you have enough for you?  
What are the main issues you are facing with your land/garden? Does waterlogging impact your land?

5 – Do you fish/collect shells? Do you catch the same quantity as before? When did it change?  
Do you know why? What do you do with the fishes/shells?  
Do you easily sell your fish catch? At a good price?

6 - You told me that you have chickens, do you have a coq? I saw in Manila, coq fights; do you do it also in your barangays? Is it a good business? Do you game often? Do you play to other game? What kind of game?

#### **7 - TOOL RESSOURCES MANAGEMENT**

In this board, we draw several items (water, veg/fruits, rice, meat/fish, snacks/soda, gambling, medicine, alcohol, clothes, petrol, micro-saving), can you show me in which one you spent the most? Can you put stones according to the amount you spent? (little, average, a lot)

## **WASH**

- 1 – Where do you collect water? What do you use for water?
- 2 – Do you drink directly the water? Do you know if your water had been treated? How?
- 3 - Where do you go for toilet? Do you think it is better to have toilets? Why? Do you know why people don't have latrines in your barangay?
- 4 – When do you wash your hand? With what?
- 5 - Some of you have livestock. Are you keeping them inside the village? Are they free to walk around the house? I saw many chickens, are they coming close to or inside your house? Do you have a specific place for you chickens? What do you do with their feces?

## **Care Practices**

- 1 - Who take care of your children?
- 2 - What kind of care (feeding, bathing) are you in charge? What kind of food do you give them?
- 3 – Do you think you have enough time to spend with your children?

## **Mental Health**

- 1 - How would you describe the workload of women/men (at home/on the field)? Do you think you have too much work to do? What about your wife?
- 2 - Who is taking the majority of the decision at home? How do you feel regarding that? How does your wife feel regarding that?
- 3 – In every relationship, fights can happen. What kind of conflicts can occur between a wife and her husband? And what can be the reasons (child education, contraception, interference of in-laws, consumption of alcohol/drugs, gambling...)? How do you and your partner usually resolve these issues?
- 4 – There are men who treat their wives well and men who don't. There are women who treat their husband well and women who don't. Can you give me some examples? Only if necessary, prompt: What type of physical and emotional abuse can happen? Within your community what is norm? What are the resources available to individuals who are in difficult relationships?

## **Seasonal calendar**

Ask to the participants to put stones in the seasonal tools for each items of the seasonal calendar drew for this NCA.

## **Historical trends**

- 1 – In the past years, what as the main development in your village? *Probe: new road, electricity, tap water*

- 2 – In the past years, what was the period where you got more difficulty to work? Why?
- 3 – In the past years, do you remember if they were a period when people get more sick than usual? When?
- 4 - In the past years, did you notice a period when it was more difficult for your community to access food? What was the reason?  
If not clear: maybe because the market price increase suddenly or because you were facing an unexpected heavy monsoon?
- 5 - Was there a time when prices at the market increased to a level that you could not afford? When?
- 6 – When was the main disaster that affected your life? How did it affect your life?

### Rating exercise

*Remember to the participants a short, easy-understandable and correct definition of undernutrition: disease resulting from not getting the correct nutrients regarding what the body needs.*

Propose a definition of undernutrition designed accordingly to the communities' thoughts:

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- 1 - Do you agree with this definition? (*Debate if not, to design a closer definition to their thoughts*).
- 2 - Present the most relevant hypothesis related to undernutrition raised during the FGD. Write them on a board and distribute a list of it to the participants.  
Ask the participants to split in few groups. Ask to each group to pick up the hypothesis that will most likely contribute to undernutrition.  
Ask to each group, what are the hypotheses they selected. Keep the top 10-15 hypotheses. Read it and ask to the participants to write it down in a paper (they can just put the letter as the hypothesis will be written in a board in front of them). Ask the participant to rate them from 1 to 10 (1 for less likely and 10 for more likely). Ask for the rate. Debate.

### Life stories of positive deviant child and negative deviant

*Introduction of the surveyors and of the NCA, short explanation of the aim of the interview and oral consent form.*

- 1 - How old is your baby and how old are you?
- 2 - Did you plan to be pregnant of (name)?  
When you discovered you were pregnant of (name), how did you feel (happy, sad, no special feeling)?
- 3 - Did you consult a doctor/birth attendant/nurse/traditional birth attendant during your pregnancy? What kind of advices did you get from him/her? How many times did you see him/her?  
Did you get advices from someone else? What kind of advices?

4 - Did you take any specific medicine during your pregnancy?  
Did you change your food intake?

5 - Till when did you work before delivery? After (name) born, when did you go back to work?  
How did you feel regarding your pregnancy?

6 - Where (name) was born? Who help you to delivery? Why did you choose to deliver at this place?  
Did (name) see a doctor when she/he born?

7 - How do you know if your child is sick? From what kind of disease can he/she suffer? Do (name) was ever sick? What disease?  
What did you do at this time?/What do you do if you think your child is sick?

8 - Do you have any difficulties to go to the health centre? Usually, how do you overcome these barriers/challenges?

9 - A lot of children can suffer from diarrhoea. Do you know what it is? Is it happening often to your child? Do you know why? What do you do when your child suffer from diarrhoea?

10 - What is your daily schedule? Who is taking care of (name) when you are busy/not at home?  
How do you manage to feed her/him?

11 - Do you feel sometime, too tired to take care of (name)? How do you manage at this time?

12 - What are the main issues you are facing to raise (name)? How are you facing these issues?

13 - What was the first food she/he take and when? If no BF, why? When you were BF your baby, did you give something else as water?

14 - What kind of food do you give to your child? Are you cooking specially for her/him? How do you feed him/her?

15 - What do you do if she/he refuses to eat? How do you know what kind of food is good for him and her? Can you explain me when you change the diet of your child? For what kind of food?

16 - *If the child is the last born:* Do you want more children after (name)?  
*If no,* do you do something to avoid a new pregnancy? Did you take this decision by yourself?  
*If yes,* do you want another child now or later?  
*If later,* how do you manage to space pregnancies? Did you take this decision by yourself? Who give you advice on temporary contraception/sterilization?

17 - Between (name) and his elder sibling, did you do anything to space pregnancies?

18 - *If the child has younger sibling:* did you do something special to space both pregnancies? Who gave you advice to do that? Did you take this decision by yourself?

19 - Some women told us their husband was violent with them, it is happening to you?<sup>53</sup> How do you feel? What do you do then? Do you know why it is happening?

20 – Is there anything that help your children to stay healthy?/Do you think there is something specific that impact the health of your baby?

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<sup>53</sup> Adapt the question to the situation and never push the mother to answer

## Annex 16: Resources management tool



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SYSTEMS ANALYSIS



La méthodologie Link NCA a été développée par Action Contre la Faim (ACF) sous la supervision d'un comité scientifique regroupant des experts multisectoriels d'ACF ainsi que d'éminents chercheurs membres de la TUFTS University de Medford-Somerville et de l'Institut de Recherche pour le Développement et du Programme Alimentaire Mondial.

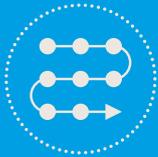
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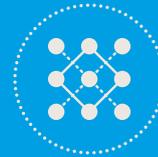


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NUTRITION CAUSAL ANALYSIS



Auteur : **Blanche Mattern** *Link NCA expert*



Pour plus d'informations concernant la conception ou la mise en œuvre d'une Link NCA, visitez notre site internet :

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