link nca

NUTRITION CAUSAL ANALYSIS

ACTION AGAINST HUNGER

UKaid from the British people

NIGERIA

NANGERE LGA, YOBE STATE

Publication : August 2017

FINAL REPORT

KEY MESSAGES

Photo : © Guy Calaf for Action Against Hunger

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Marie-Noëlle has a background in biology and she completed a PhD in anthropology. The first field of research she explored was the notion of cooperation between human beings.

Following consultations with international companies (Nestlé, Robertet) and local association (UNIS-MED), Marie-Noëlle has extended her field of expertise to humanitarian intervention.

She was trained to the Link NCA research method and she conducted a first NCA study in Centrafrican Republic in 2016. She specializes her field of expertise in studying the causes of undernutrition in a volatile context with this second Link NCA study in North Nigeria.

NIGERIA

NANGERE LGA

YOBE STATE

DECEMBER – JULY 2017

Key results

By **Marie-Noëlle Ottavi**

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With the support of **Blanche Mattern**

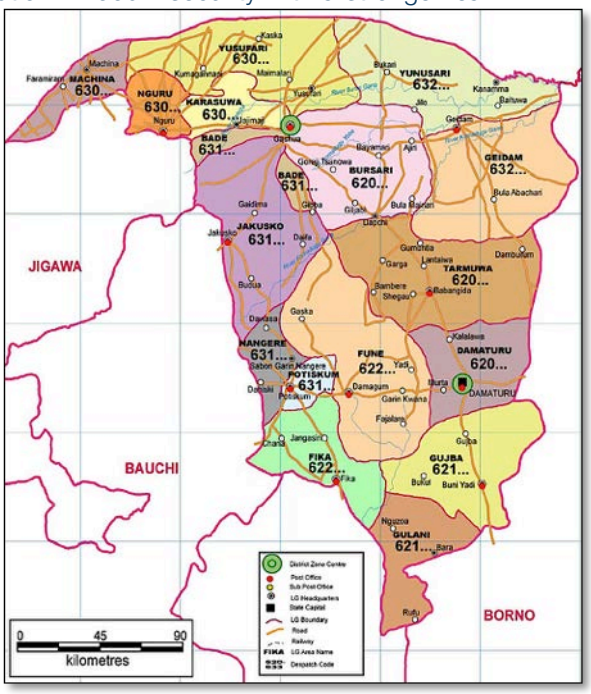
Action Against Hunger-France

TABLE OF CONTENTS

1/ EXECUTIVE SUMMARY

Giant of Africa, Nigeria continue is journey towards a contemporary world with success and determination. Nonetheless, for a part of the country it remains difficult to have the same perspective. The northern part of Nigeria meets lot of issues since the beginning of the second millennium. Economic instability, decrease of agricultural production, climate change and more recently armed conflict against Boko Haram excluded a part of this population to the benefit of Nigeria growing. Moreover, since 2011-2012, the nutritional insecurity is alarming and Yobe State is a good example of conflict impact in terms of nutritional degradation through the following year. Indeed, until 2013-2014, Yobe state and Nangere LGA as well has been impacted and very drastically during 2014-2015. The Link NCA study highlights the premises of stabilization (agricultural production, market price), which will be favor of agropastoral population. Nevertheless, the levels of monetary inflation and agricultural production still put Nangere LGA population in food insecurity with a stronger lean season. The situation remains alarming and the social resilience is tired. The undernutrition prevalences in the study area (14.6% wasting, 68.3% stunting), captured in November 2016, out of the lean season, invited Action Against Hunger to question the causes of this situation and their mechanisms.

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 Nangere LGA – Yobe State, Nigeria. Indeed, severe wasting is associated with more than nine times higher risk of death[1]. 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.



Map of Yobe State by Local Government

[1] Joint statement WHO – UNICEF, 2009. "Child growth Standards and the identification of severe acute malnutrition in infants and children"

Specific objectives of the this study

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

Methodology

- **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.
- **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. Those hypotheses had been validated to be field tested by Technical Experts during a workshop held on the 30th January 2017 in Damaturu, Nangere LGA, Yobe State.
- **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.
- **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 8th and 9th May 2017, where technical and NCA experts tried to reach a consensus on the most important risk factors and priorities for action. 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

Breastfeeding practices and complementary feeding: The study highlights very clearly that a child is more vulnerable between 3 to 24 months old, which shows the violence of this nutritional crisis. During this time, she/he will be more exposed to wasting from 3 to 9 months, and to stunting from 15 months to above.

Wasting seems related to weak breastfeeding practices and an earlier complementary feeding. Vulnerability to hydric disease is also high due to unhealthy environment and weak hygiene practices. Then, the repetitiveness of child diseases devitalise the child who will be more vulnerable to hydric diseases in a context of weak health care practices (medicinal recipes).

Stunting seems to be related to the drastic decreased of the HDDS since 2010, which affected WDDS and IDDS. Availability of food items in the household is problematic and the children do not have access to sufficient nutritional supply. Nutritional insecurity impactz women who started to be more undernourished and mentioned difficulties on using adequate breastfeeding practices. Lack of breast milk, fear of producing breastmilk of poor nutritional quality, low weight birth, lead mother to start introducing complementary feeding too early (around 3 months old when it was around 5 months old in 2011). Nevertheless, complementary feeding food is nutritionally poor and remains a door open for hydric diseases. Looking at this global picture, it seems that after suffering from wasting, the child nutritional and health status drives her/him to stunting.

HEALTH

Degradation in accessing health system contributes also to the nutritional situation. Not prepared to face the surge of low weight birth cases or undernutrition peak, the main problem for Nangere household is the sudden lack of monetary access to health care. This fact reinforce the existence of local diseases (rana, olsa), which are not taken in consideration by the actual health system and drastically impacts the nutritional status of children. The traditional health system try to adjust to this undernutrition situation but if the traditional doctors seems to encourage women to reach health centre with their undernourished child, the use of medicinal recipes into an unhealthy environment appeared problematic. Moreover, adults suffered from the degradation of access to health centre what impact household management.

WASH

The unhealthy environment and hydric diseases are important causes of undernutrition in this context. Indeed, despite governmental efforts, the study of water access teaches us that quantity of water is less problematic than quality of water. Condition of water management outside and inside the household, weak presence of soap, weak practice of water treatment, all sources of contamination (water point or household: animal excreta) appeared challenging. Level of hygiene practices is low and levers to maintain some of them are absent. The sanitation situation is also extremely concerning. The extremely weak presence of safe latrine is a major cause of contamination inside and outside household (water point). Nonetheless an important sink appeared. The sub-optimal management of women livestock into the household contribute mainly to the unhealthy environment and the low level of incomes.

FSL

The terrible degradation of the food security in the northern part of Nigeria appeared in this study as the major cause of undernutrition. If low level of care and health practices, or problematic access and water management can explain chronic malnutrition, high prevalence of acute malnutrition seems more linked to the drop of agricultural production. This drop is caused by an unfavourable economic context, climate change context and conflict context. The problem is that actual agricultural production is twice less than in 2005 and in Nangere LGA, well known to be Yobe's granary, the average household can no longer product food for 6 months. Infertility of soil, modern fertilizer price increase, rudimentary agricultural tools and knowledge affects agricultural resilience.

The best way to have a quick impact on this undernutrition situation will be to improve livelihoods such as crop production or women livestock.

PROTECTION

Lack of knowledge is also an important cause of this situation according to our participants. Illiteracy rates among parents and particularly among mother is alarming and this situation is deteriorating. School coverage and school monetary access are the main issues for the average household of Nangere. In front of this situation, girls are more exposed than boys to illiteracy.

Women empowerment and recent drop of self-confidence due to the conflict context have to be supported by a strong social policy. It should be the best way to start a new humanitarian program in collaboration with the national, state and local authorities. Indeed the social structure of each family, village, ward, LGA, State has to be considered as the first pattern in the fight against undernutrition.

2/ UNDERNUTRITION: KEY RESULTS

2.1 ANTHROPOMETRIC RESULTS

The anthropometric results associated to this research originate from the SMART survey conducted from 17th to 20th October 2016 by Action Against Hunger in Nangere LGA[2].

INDEX	INDICATOR	Proportion
WHZ-scores	Prevalence of global acute malnutrition (<-2 z-score and/or oedema)	14.6% (11.4-18.6 95%CI)
	Prevalence of moderate acute malnutrition (<-2 z-score and >=-3 z-score, no oedema)	12.0% (9-15.8 95%CI)
	Prevalence of severe acute malnutrition (<-3 z-score and/or oedema)	2.6% (1.5-4.4 95%CI)
MUAC	Prevalence of global acute malnutrition by MUAC (<125mm) or oedema	14.0% (10.8-17.9 95%CI)
	Prevalence of moderate acute malnutrition by MUAC (>=115-<125 mm)	10.2% (7.9-13.1 95%CI)
	Prevalence of severe acute malnutrition by MUAC (<115mm or oedema)	3.8% (2.2-6.5 95%CI)
HAZ-scores	Prevalence of stunting (<-2 z-score)	68.3% (63-73.2 95%CI)

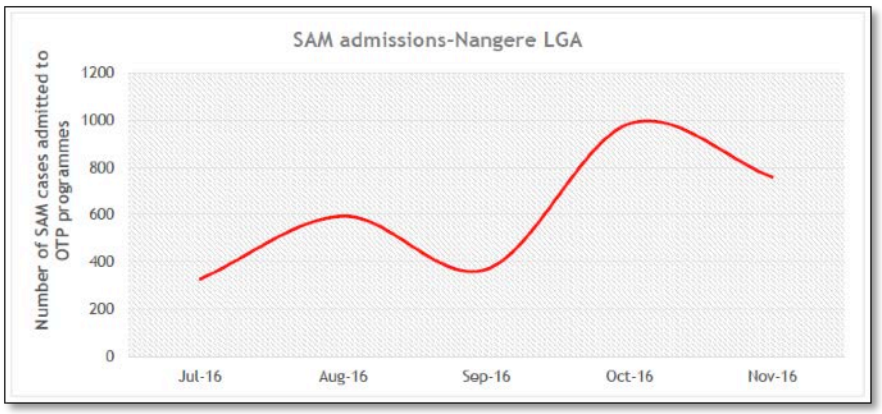
[2] SMART Survey Report - Nangere LGA (2016), Kevin Mutegi.

	Prevalence of severe stunting (<-3 z-score)	37.4% (32.7-42.4 95%CI)
WAZ-scores	Prevalence of underweight (<-2 z-score)	51.6% (46-57.1 95%CI)
	Prevalence of severe underweight (<-3 z-score)	17.5% (14.7-20.6 95%CI)

Summary of SMART Anthropometric results at Nangere LGA (WHO-2006 Standards)

Local trend of undernutrition prevalence

According to the Nangere LGA SMART survey, one child on two is in a situation of undernutrition. In 2011, the MICS survey found in Yobe State that the prevalence of acute malnutrition was 14.9%, stunting 64.8% and underweight 48% (p.20.). Clearly, levels are similar to those revealed by the SMART survey, indicating overall a little deterioration of the nutritional situation. However, the National Nutrition and Health Survey conducted in 2015 discovered that in Yobe state all the prevalence were less than ours: GAM=10.9%, (MAM: 8.9%, SAM: 2%; p.46.); Stunting=52% (MS: 30.5%, SS: 21.6%; p.55.); Underweight =32.8% (MU: 22.6%, SU: 10.2%; p.50.).



Local trend of undernutrition prevalence since 2011

If those results remain high, particularly the severe trends of GAM from the SMART survey (2016), generally the NNHS survey (2015) shows a decrease in the prevalence. This diminution can be surprising in regard of the conflict temporality and his consequences in terms of child nutrition. Although it seems reasonable to suppose that before the conflict the nutritional situation was improving, which is observable in the NNHS survey, but the conflict stop this progression. Actually, in Nangere LGA, the nutritional status of children under five years is worst than before the conflict despite the national and international effort to improve the situation.

This research attempt to understand the roots causes of chronic and acute undernutrition as well as it apprehends recent causes, as the conflict, in terms of degradation of children nutritional security.

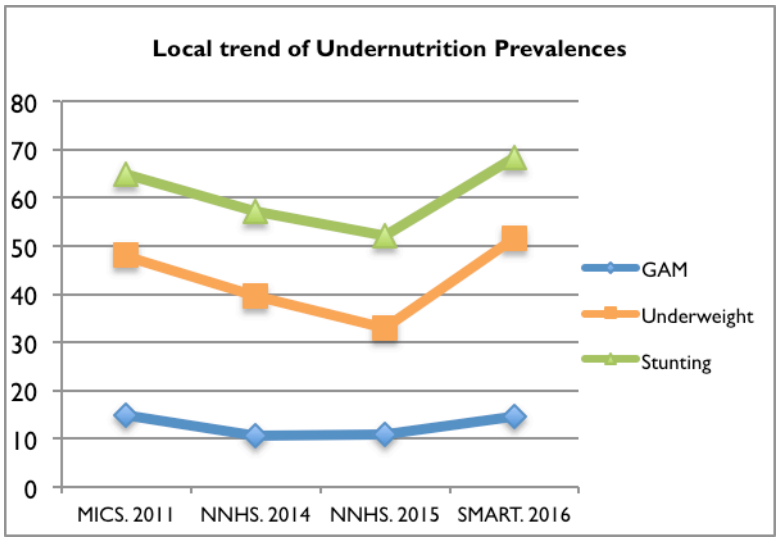
Seasonal trend of malnutrition admission (OTP)

To initiate our discussion on the seasonal calendar of undernutrition, surveillance data, based on MUAC screening, have shown increasing trends over time in severe acute malnutrition

cases admitted to the Out-Patient Therapeutic Programs (OTP) across Nangere LGA (Figure 2). Nevertheless, the peak of undernutrition case in October can be explained by beginning of treatment and not by a peak of nutritional degradation. It reflects a decision-making process link to other factors that this study proposed to explore.

In fact, the results of this Link NCA study will show that the increase of undernutrition case in the children bellow 5 years old population starts in March due to a link with short storage of food into the household[3]. If there is a clear impact of malaria on the undernutrition prevalence during the cropping season, this research will demonstrate the role played by diarrhea on the degradation of children nutritional status since the start of the lean season. As shown in Figure 2, this degradation gets stronger in June-July-August due to the long shortage of food, an increase of malaria case (rainy season) and the augmentation of caregivers' workload due to the cropping season. It is only when parents are more available and that they can use a small amount of money from the first harvest that they can finally go to the health center (October-November).

Number of SAM Admission on OTP Programs supported 2016 (SMART, 2016: 11)



2.2 NUTRITION VULNERABLE GROUPS

In Nangere LGA, the majority of the population depends on the agro-pastoral production. During the study, we found that the nutritional security of this part of the population **was deteriorating** mainly because of a bad harvest season.

The following groups were identified as vulnerable nutrition groups by local experts during the preliminary workshop:

- children under five years old and more especially children aged more than 6 months,
- children of single parents and particularly single mother,

[3] Normally the lean season is supposed to start in May, March is quite early. This report will demonstrate that the shortage of food into the HH is a consequence of the conflict and can be linked to lack of rainfalls, followed by bad harvest, lack of food availability in markets, prices, and access to land.

- children of large families,
- lactating and pregnant women.

Some participants (experts or respondents) also mentioned elder children, elderlies and persons with disabilities.

2.3 LOCAL DEFINITION OF UNDERNUTRITION AND GOOD NUTRITION

2.3.1 Local definition and description of undernutrition

ENGLISH	HAUSA	KARAÏ-KARAÏ
MISSING WEIGHT OR FOOD	Tamua	Dartau tina
MISSING FOOD	Rashin cin	Dartau tina
MISSING FOOD	Abincin mai	Wada ma

Undernutrition lexica English/Hausa/Karaï-Karaï

The local term used by the population to designate undernutrition is "*Tamua*". It means, "something is missing"; it can be food or weight. This definition indicates a basic understanding of undernutrition as a lack of food, lack of nutritious food, lack of weight but also hunger or lack of money.

The participants mentioned as symptoms of undernutrition: fever, skin swelling and shrinking (legs, hands), lack of strength and general weakness, vomiting, changing in hair color from black to yellow or red, big belly, abnormal child's head size. We noticed that some criterion did not characterize the physical appearance of the young child as immune system inability to fight diseases, not able to walk, unhappy and more recently low birth weight. Usually, men give a longer list of signs than women do but all the previous symptoms had been mentioned by both gender.

In addition, it happened that participants talk about fever as a symptom of undernutrition, in fact for most of them undernutrition is a consequence of sickness.

In this perspective, during FGDs about nutrition and health, we figured out a second definition culturally deeper. Lot of qualitative data show that a disease called "Rana" for children and "Olsa" for adults seems to be linked to undernutrition. All the signs of undernutrition describe this disease: mouth, hands, feet, articulations and sometimes genital parts are red, skin is swelling, the child or the adult loose appetite and weight. After investigation toward Nigerian medical practitioners, 'Rana' is defined as perianal ulcer and *Olsa* as an ulcer. This definition illustrates the link between undernutrition and diarrhea. In a local language, *Rana* means sun, hot, afternoon (when the sun is high) because initially this disease appears when the weather becomes hot and the sun is strong. However, the qualitative survey shows that sickness is no longer depending on the season even if there is an increasing of cases before and during the

rainy season. According to the participants, the main symptom of *rana* is diarrhea and sometimes vomiting.

Moreover, they indicated that since 5-3 years the number of cases of *rana* and *olsa* is increasing as the cases of Low Birth Weight. Commonly they linked these increase with lack of food and hunger, which started for them in 2010-2011 with low crop production and get stronger since Boko Haram insurgency started in 2012-2013[4].

Moreover, the study did not highlight any specific ethnic representations or food taboos correlated with undernutrition. For most of the persons interrogated, undernutrition is not related with believes like curses, maledictions or spirits. In addition, the study did not highlight any cultural artifact connected to undernutrition such as 'grigri'. Necklaces or cords around belly can be sawn but, most of the time, for children, these artifacts are specifically associated with diseases like respiratory infections or growth of teeth.

2.3.2 Local understanding of undernutrition (*causes, temporality, calendar*)

Local understanding of undernutrition causes

For the participants undernutrition is a disease related to others diseases. It can be directly linked with fever, respiratory infections and diarrhea or indirectly with *rana*. However, for them if this disease is not contagious it knows no boundary in terms of whom can be affected. It targets and touches all the population and not only a small part of the population it can touch all the members of their community. Nevertheless, they declared that poor people, farmers' family and IDPs are the most exposed.

In fact, in their own understanding they perceive undernutrition as a sickness also linked to a lack of food to eat in terms of quantity, quality and frequency during the day. For them, farmers, poor people and IDPs do not have access to enough food, which explains why they are more susceptible to encounter some undernutrition issues. But the best instance of this link between undernutrition and lack of food comes when they said that if pregnant and lactating women do not eat enough the child will be directly affected from his/her birth but also after as he/she will not be properly and efficiently breastfed. It happens that some participants declared "unhealthy and undernourished adults" give birth to "unhealthy and undernourished children". Finally, it happened that undernutrition was also linked with "dirty" as lack of hygiene practices and water in quality and quantity. Indeed, participants also called undernutrition "dirty".

"We don't eat enough, the women don't eat enough and when a pregnant or lactating woman don't eat enough, the children will suffer. We can give birth to small child, not healthy, or the child can become undernourished because of the lack of breast milk." Woman in Gain Gaye

When a child is suffering from undernutrition his/her parents will first try to improve his/her dietary and stop the associated disease. Mothers will try some medicinal recipes (cf. Annex n°8), they will also take the child to the medicine shops or/and the traditional doctor and if the situation continues, they will go to the health center for further tests and examinations by health experts. Nonetheless, they declare that if they have enough money they will privilege the HC.

Local understanding of the undernutrition: temporality

According to women and health workers, during the FGDs and interviews, there are two periods of risks of undernutrition during the first 24 months of life of a child. The first period

[4] For the population the increase of undernutrition cases is related to the conflict. For them, consequences of the conflict such as "lack of money", "lack of fertilizer", "lack of food" and "stress" induce an increase of undernutrition cases since 3-4 years. There is a tendency of the participants living in big villages (more than 2500 people) to refer to 4-5 years.

starts and continues for 4-6 months at 10 months old and the second period starts around 15 months and goes to 24 months and above.

Mostly for the women the first period of vulnerability is linked to the first big diarrhea episodes but also to lack of milk and the introduction of *pap* (local porridge). The second period starts when the child is weaned. The total dependence of the child to his/her usual food source (breast milk) and the total absence of others sources rather than milk makes him/her fragile[5]

According to the NNHS survey (2015: 56), during the first 1000 days of life, children are more exposed to undernutrition. In this survey, two peaks are also observable. The first peak is around 6 months old (GAM-MUAC) and the second one around 20 months (Chronic Malnutrition).

Those observations confirm that children are more exposed to wasting when complementary feeding is introduced and stunting when they are weaned.

The local understanding of the undernutrition temporality during the first 1000 days (3 years) is corroborating by the analysis done during the MICS (2011) and the NNHS (2015) surveys.

This perspective allowed this research to suppose that early complementary feeding introduction (4-6 months) expose children to wasting. According to the caregiver declarations, diarrhea seems to participate to the degradation of the nutritional child status.

Then, particularly after the weaning period (12-20 months), children are exposed to stunting consequences. If the low HDDS and IDDS score found during this study seems to allow an explanation for this vulnerable period, the purpose of this research is to understand and classified the risk factors of undernutrition in order to explain chronic and acute undernutrition.

Local calendar of undernutrition

Months	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Season		Rani				Damina			Sanyi			
Under -Nutrition	Decreasing		Increasing of undernutrition cases				Improvement of the situation		Decreasing			
Agriculture			Preparation of crops			Crops			Harvest			
Food incomes	Food from crops		Buying food			Lack of food			Food from crops			
Diseases			Increasing of Rana cases (Diarrhea)			Increasing of Malaria cases						

Local seasonal calendar, Nangere LGA

[5] These two peaks are observable in the repartition of undernourished child by age groups in Nigeria (MICS survey 2011: 22, Figure 3). The graph shows that first, child is particularly exposed to wasting around 6-18 months and stunting between 12 at 59 months. This observation allowed us to suppose that early complementary feeding might be related to wasting, and the non-adequate breastfeeding practices might lead to stunting in the given context

2.3.3 Understanding of nutritious food

During the Nutrition FGDs with women and men, we had asked what was the top 5 of nutritious food for them. It appears that men and women do not have the same representations. Men identify commonly more effective nutritious food than women do. Specifically in a rural context and among women, there is a lack of knowledge about nutritious food (cf. Table n°19).

	Garin Kadaï	Garin Gaye	Garin Kolo	Degubi Zakar	Dan Disa
Women	Beans Rice Local spaghetti Macaroni Yam	Beans Macaroni Spaghetti Rice Oil/spice	Yam Spaghetti Beans Meat Oil	Beans Groundnuts Egg Fish Meat	Beans Millet Sorghum Rice Yam
Men	0	Beans/Yam Meat Egg Fish Banana	Meat Beans Yam Fish Rice	Yam Beans Millet Vegetable Fish	Fish Egg Meat Beans Spaghetti

Classification by village and gender of the top 5 nutritious food (Qualitative Survey, 2017)

Only beans are called nutritious food in every village and by every gender we noticed that animal proteins were frequently absent of the discussions with women, as well as vegetables and fruits. Indeed, during the exercise on nutritious food categorization, ability of men to talk about meats and vegetables is better than women.

All the participants have noticed that most of these nutritious foods are not affordable. For example, they used to eat rice once or twice a year. Meat or egg appears in the diet once every two month.

2.3.4 Meal organization and shared meal rules

Meal responsibility

During the Nutrition FGDs with men, it appeared that most of the time fathers are considered as in charge of the children education, health and mothers are considered as in charge of children diet. In fact, fathers are not always present during meals, he assures household food supply and ensure, by behavioral observations, how the child eats (“playing outside”, “healthy”, “energetic”). If they notice some issues they can also advice mothers on the diet but they declare that the household diet depend mostly on the financial strength.

Number of meal

During individual interviews with key informant and through the FGDs, it appears that the number of meal taken per day decreased in the past years. The first decreased starts about 30 years ago. Grandfather and grandmother said that before the food was more available in quantity and quality. The number of meal per day for each member of the family was superior

and reaches three meals per day. Today, the number of meal taken is almost 2 meals per day for each member of the household[6].

A seasonal decrease can also be observed. Just after the harvest, meals are taken twice a day, but during the welding period, only one meal is taken in the evening.

The common meal usually eaten is the "*Tuwo*": Millet or sorghum powder plus water. This meal is served mostly at night and can be warmed up the next morning for breakfast. It is usually served with a green vegetable sauce ('Okra': Gumbo).

Shared meal rules

In the household, during the day, the men do not use to eat with the family. They use to eat outside with others men and neighbors. They come back home in the evening. Basically, co-wives and the youngest child (less than 3 years old) eat in the same plat and women will help them to eat. At the same time, plates will be distributed following the age of each child. Children between 3 to 7 years old will eat together, and the elder children also. However if there is lot of daughters and sons, the plates can be arranged by gender. Food portion will be adjusted by age and sometimes by health status. If the men eat at the house, he will have a plate for him-self and he will invite the younger male child to join him. Sometimes when he eats outside the wives can provide food for him. All the family eat exactly the same food, there is no special meal or food for children.

Shared meal in the household between co-wives and birth spacing

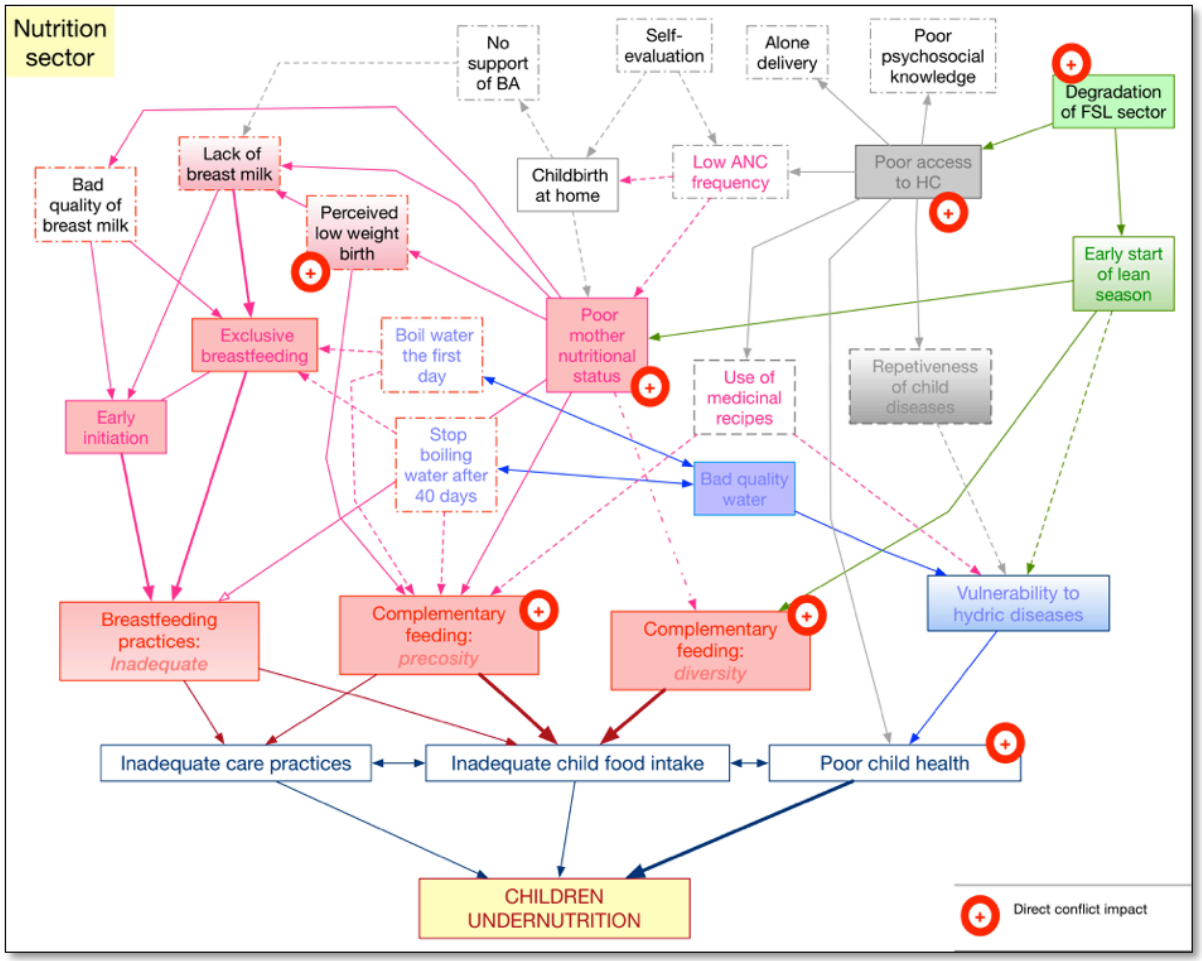
The qualitative survey made possible to update a very interesting fact; there is a link between how meals are shared in the household and birth spacing. Interviews with grandmothers and KI have revealed that "30 years ago" birth spacing between two children was longer than now. They talk about three years between each child whereas now it is one year and half or two. The first explanation given was about a longer period of the breastfeeding: 3 years in the past for one year, now. However, deeply it appears that birth spacing is related for them to the rule of sharing meals in the household. Thirty years ago the rules among the co-wives was different. Generally, each wife was in charge to cook for her children and the husband, as long he decided to stay with her. Then it was the turn of another wife to guest the husband. Because it was common for the husband to spend long period with each wife, the births were more spaced. Now, each wife is in charge of the meal for the entire household and to guest the husband every two days. Then, he will stay with other co-wives. This change of rules is explained by the improvement of Islamic rules and the explicit none practice of wife favoritism[7]. It is also interesting to notice that despite the absence of desire of birth control (religious value); interviewed women mentioned that the increase of birth rate is a consequence of this practice, explaining food access or availability difficulties and augmentation of undernutrition cases.

6 Men used to eat outside of the household. It was more difficult to collect data on the number of meal taken per day but it seems to be a little bit higher.

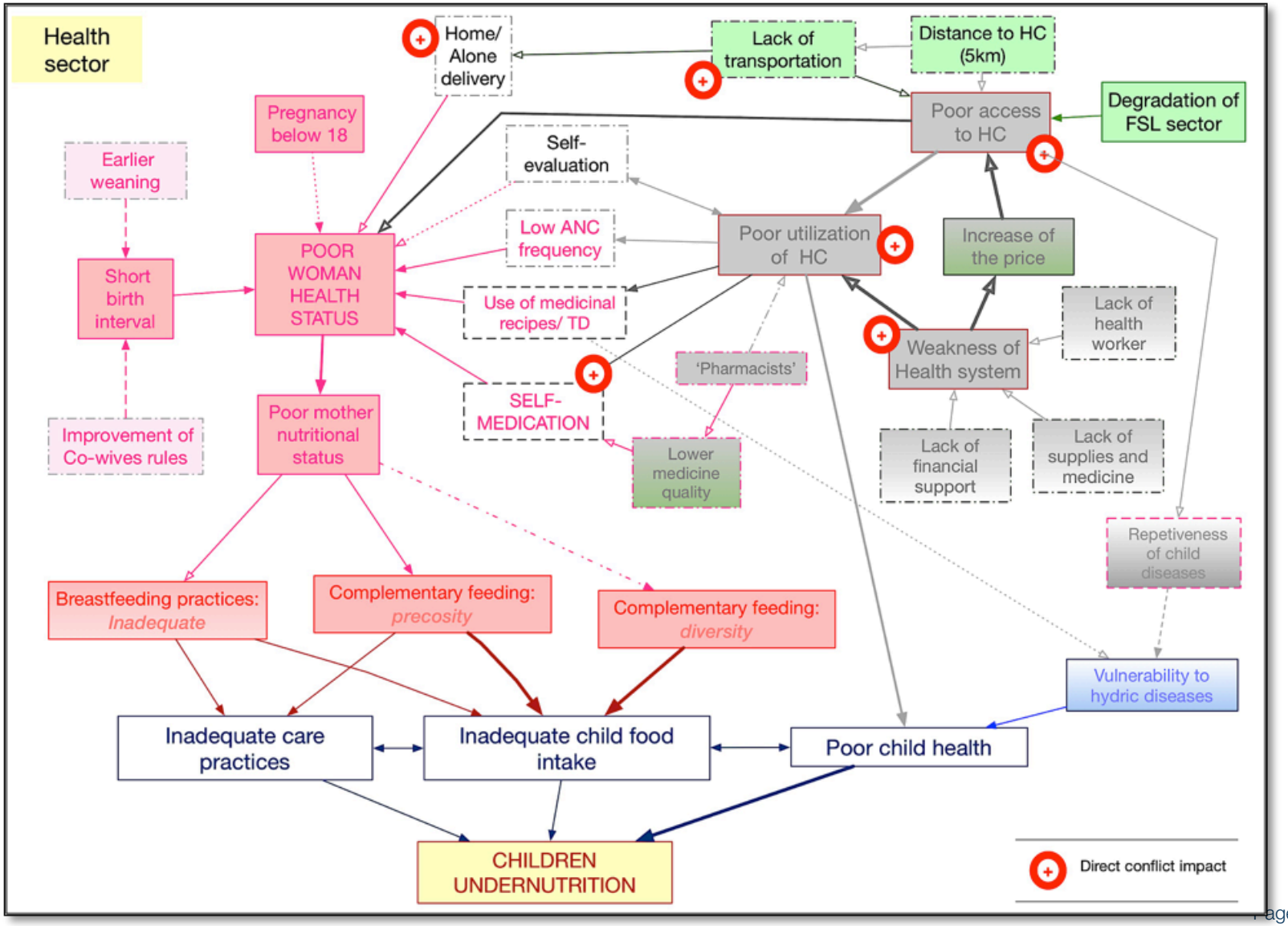
7 In Nigeria, the Shari'a question entered a new phase on the 27th October 1999 when the Governor Ahmed Sani Yerima of Zamfara state inaugurated the adoption of the Shari'a legal system, which took effect on the 27th January 2000. The Zamfara Law extended the application of Shari'a from personal law to criminal law. Following the Zamfara example, eleven other Muslim dominated states in the North also adopted similar laws.

3/ CAUSAL MODELS

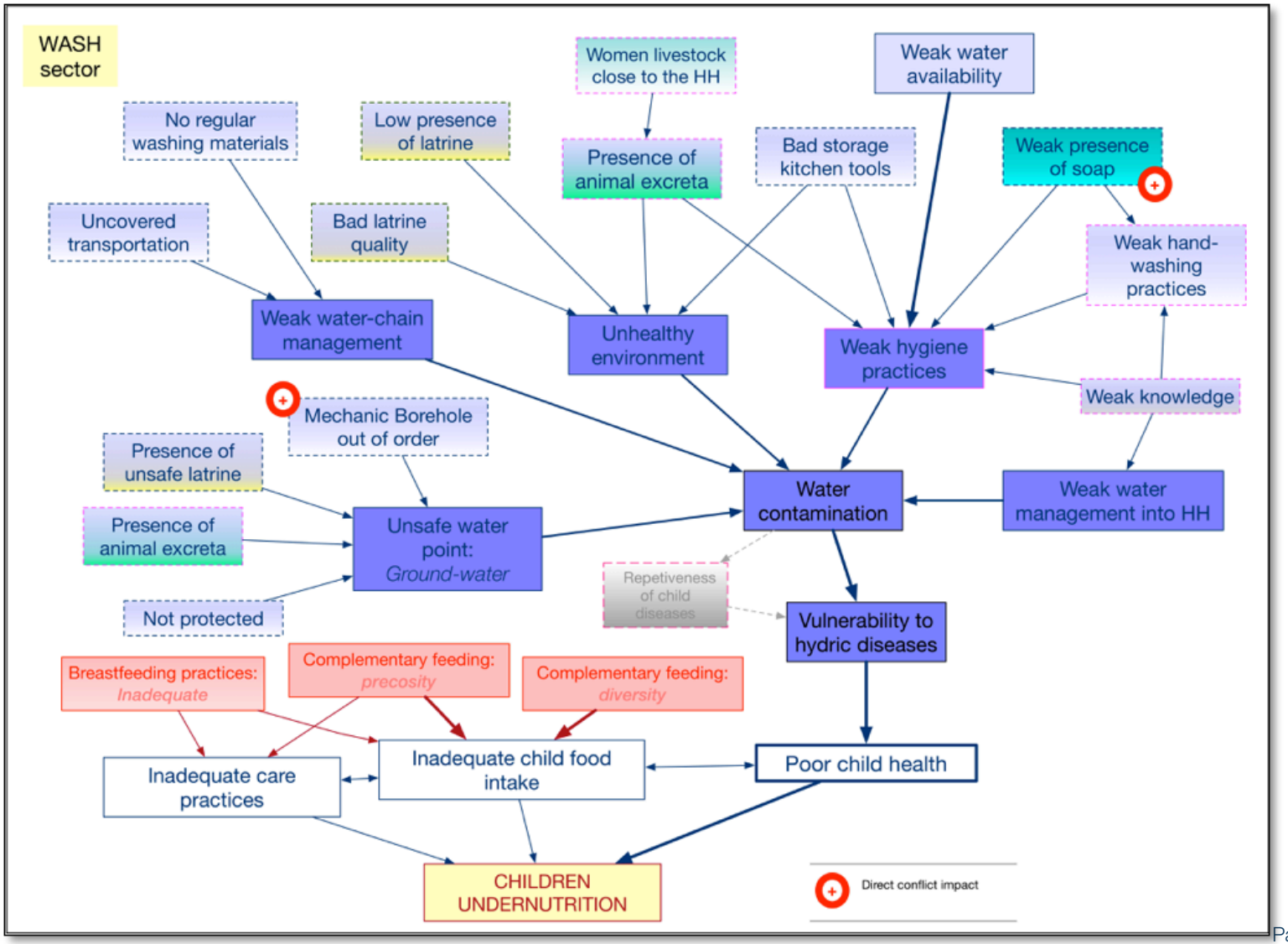
3.1 CAUSAL MODEL RELATED TO NUTRITION AND CARE PRACTICES



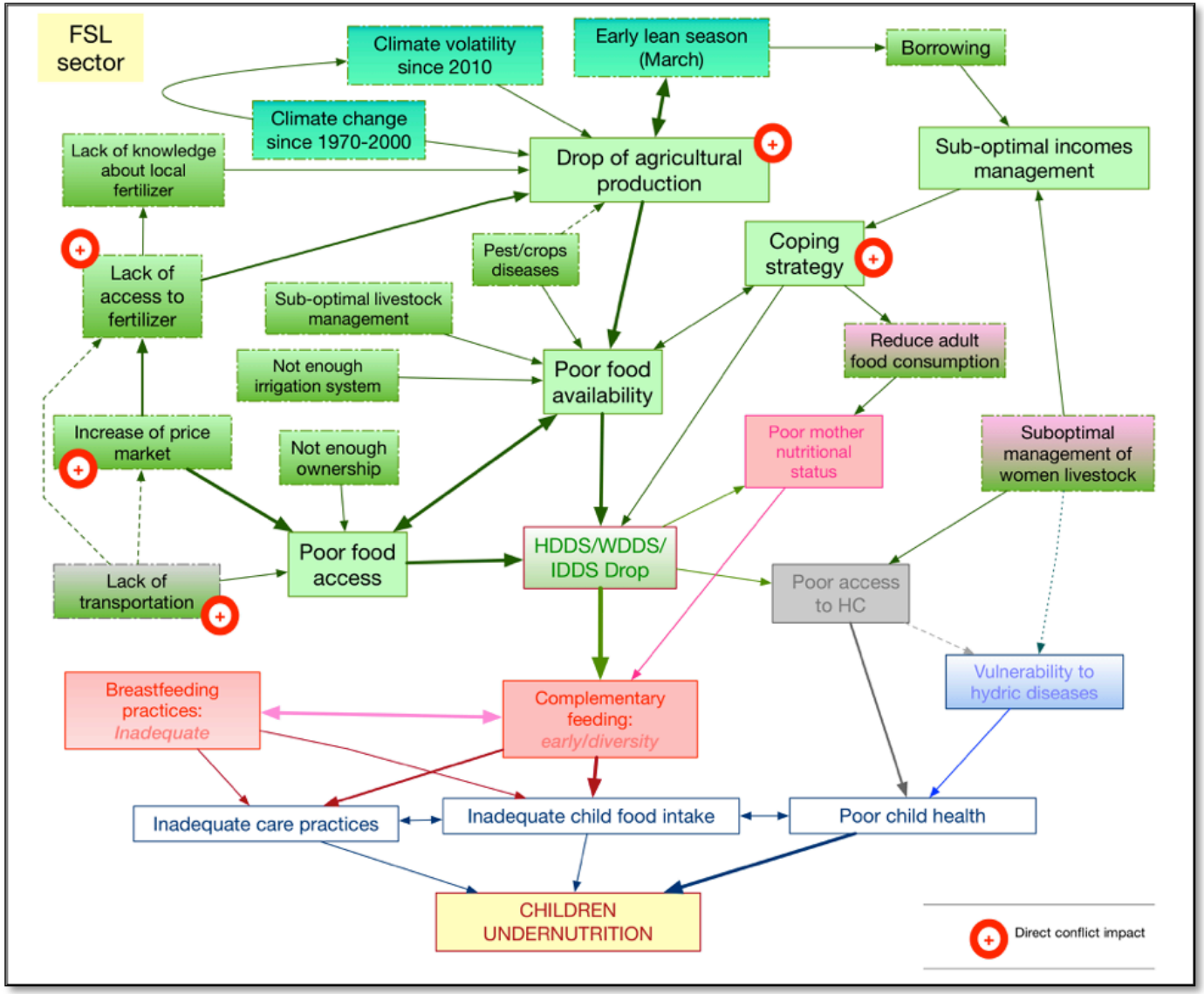
3.2 CAUSAL MODEL RELATED TO HEALTH SECTOR



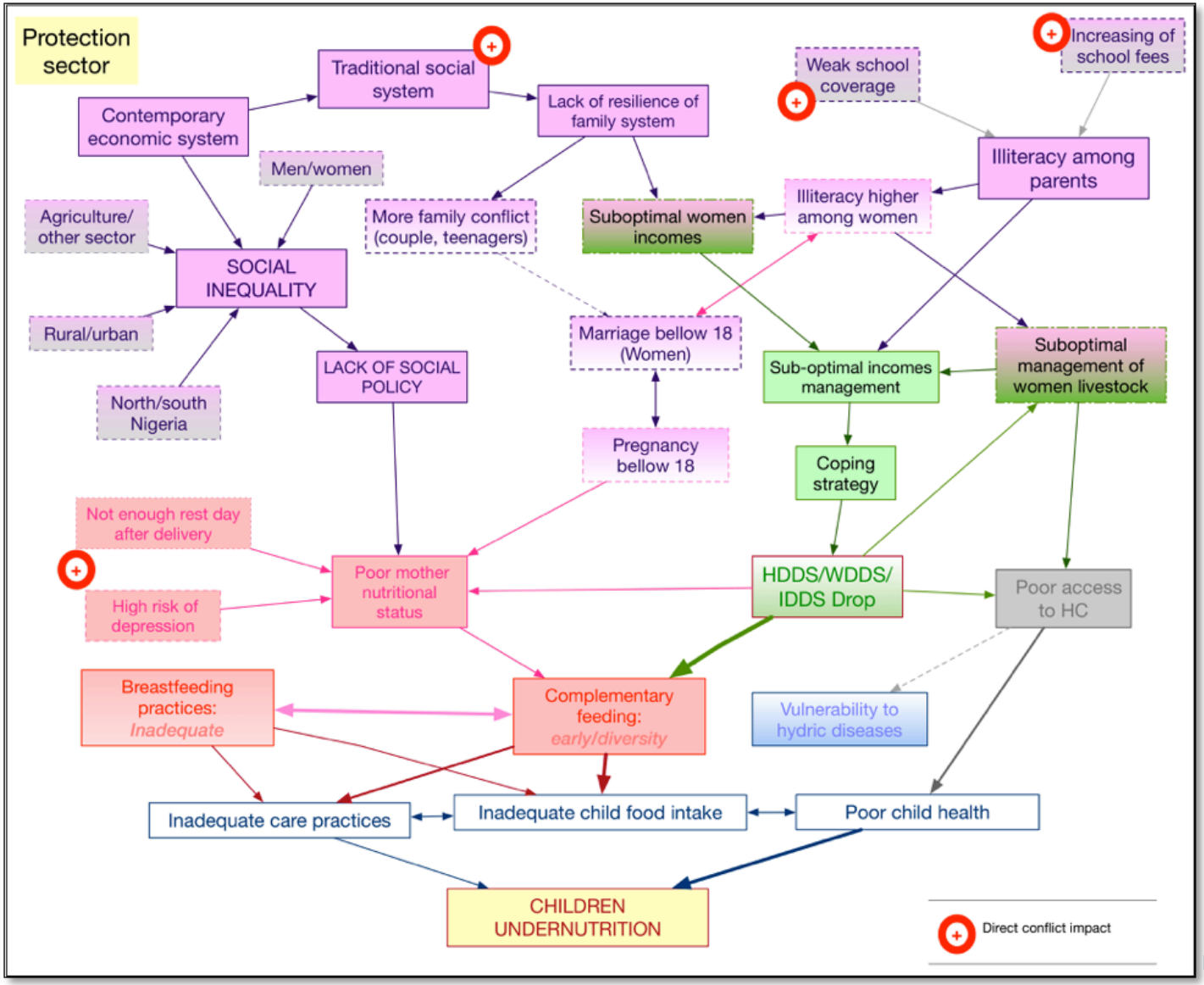
3.3 CAUSAL MODEL RELATED TO WASH SECTOR



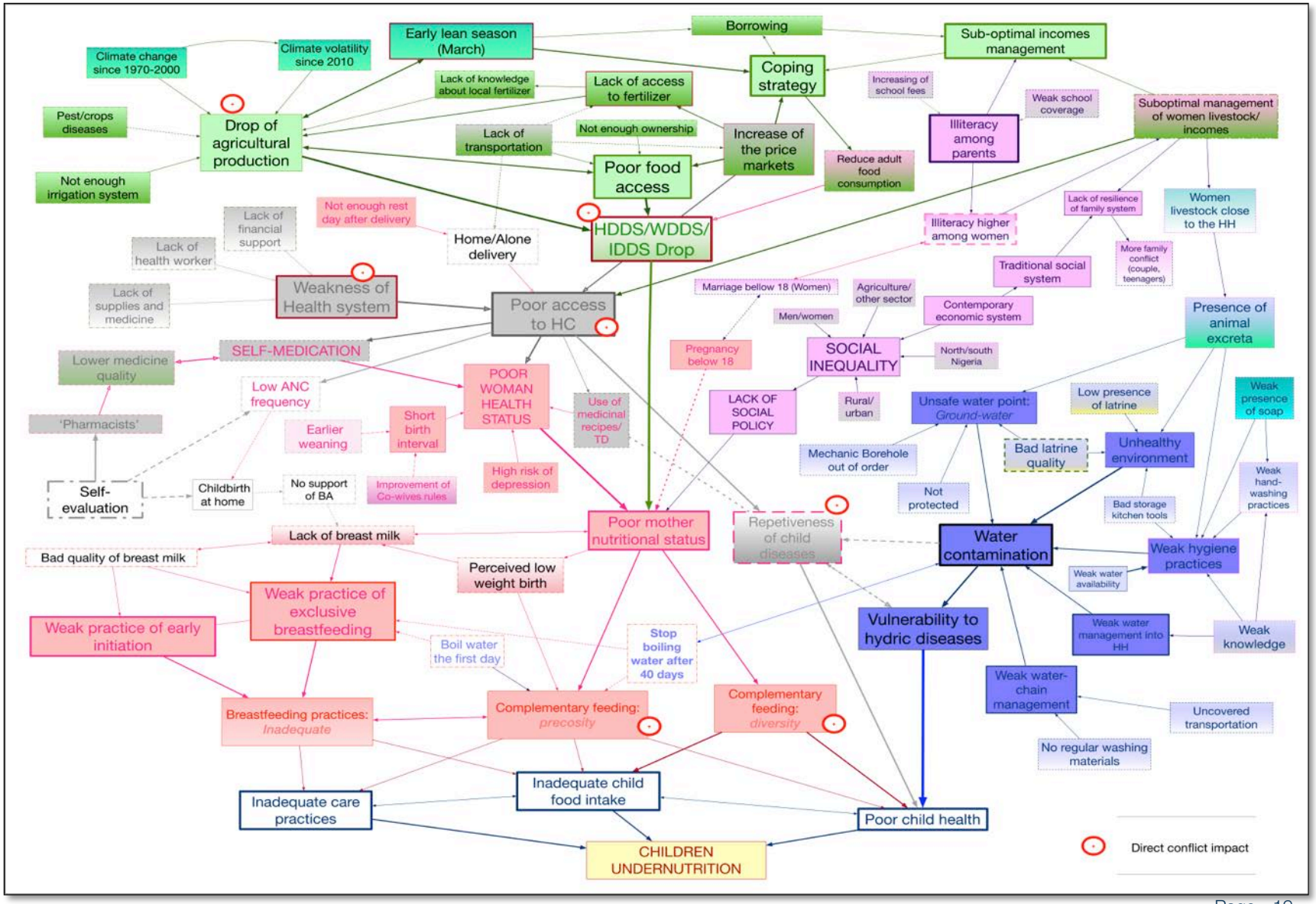
3.4 CAUSAL MODEL RELATED TO FSL SECTOR



3.5 CAUSAL MODEL RELATED TO PROTECTION SECTOR



3.6 GENERAL LOCAL CAUSAL MODEL



4/ CALENDAR

Seasonal variation	J	F	M	A	M	J	J	A	S	O	N	D
Seasonal variation of the undernutrition												
Weakness of food availability						Lean season						
Seasonal characteristics												
Rain season												
Cold season												
Hit season												
Wind season												
Seasonal disasters		Drought				Floods						
Seasonal increased of market prices												
Market price												
Seasonal disease factor												
Diarrhea												
Malaria												
IRA												
Typhoid												
Seasonal calendar of the activities												
Agriculture			Land preparation		Planting	Weeding			Harvest			
Millet												
Sorghum												
Groundnut												
Livestock			Calving season for ovine								Ovine reproduction	
Divers												

Seasonal variation	J	F	M	A	M	J	J	A	S	O	N	D
Festivity			Weddings period									
School [1]												

Tab. 1. Seasonal calendar, Nangere LGA (Qualitative Survey)

Nangere LGA seasonal calendar of Nangere LGA was built by synthesising 5 seasonal calendars collected built the qualitative survey with the participants to the studies in each village. Personal interviews and mini-FGDs methods were used.

The seasonal calendar highlights that starting in March many households do not have any remaining food from their harvest. The population starts to buy food in the market or borrowing money to buy food. During the months of June, July and August the lean period is stronger as food is missing for most of the households, crops workload is high and market price increased a little bit. Indeed, market prices peak twice a year. One in December-January due to the celebrations and second one in June, July and August because of high level of borrowing and low access to product due to the rainy season. Then, in September and October most of the harvesting is done and food is available for the households. There is a season of planting and weeding. Farmers start preparing their land in March and start planting in May. Weeding is done in June July and August and harvesting in September and October.

The calving period for ovine is from March to May. Reproduction period is in December and January for ovine and bovine.

Regarding weather, initially the rainy season started in May until august. Nowadays, rainfalls are less during May and June and it can have floods during July and August. The participants described also a longer and stronger hot season with lot of winds. The hot season start around March and can length until July while the rainy season is related the malaria cases increase.

The rainy season coincides with the peak of malaria cases; however, fever occurs at any time of the year, associated with typhoid during hot season, or Yellow fever during cold season. Although diarrhoea can happen at any time of the year, two peaks of diarrhoea cases are described: one during the hot season and a second one during the rainy season. For IRA, two peaks are described: one related to the hot and windy season, another one with cough during rainy season. *Rana* disease can occur through the year as diarrhoea, but it one major peak is noticed during the hot season and continue during the lean season.

[1] Official Holydays: New Year's Day: 1st January; Good Friday: 14th April; Easter Monday: 17th April; Workers' Day: 1st May; Democracy Day: 29th May; Eid el Fitr (End of Ramadan); Independence Day: 1st October; Eid el Kabir (Feast of Sacrifice); Eid el Maulud (Birth of the Prophet Muhammad); Christmas Day: 25th December 2017; Boxing Day: 26th December 2017

5/ RISK FACTORS PRIORIZATION AFTER THE FINAL WORKSHOP

On the 8th and 9th May 2017, Action Against Hunger held a final technical workshop with national and local experts from the following fields: Nutrition, Health, Food Security and Livelihoods, WASH, Protection and Education. This workshop followed a preliminary workshop held on the 30th of January 2017.

The final workshop was held to validate the findings of the field survey. After a presentation of the Link NCA findings, working group sessions were organized to validate the results and draw recommendations. Group confidence note were attributed to the risk factors rates proposed by the Link NCA analyst. Experts proposed their own rating for each risk factor and a debate was organized to attribute a final rating to each factor (cf. Final Workshop Report).

Final the experts were asked to discuss and improve the Link NCA recommendations during a validation exercise (cf. Annex n°10).

Risk Factors	NCA Analyst rating	Average group confidence note	Final rating (validated during the workshop)	Average individual confidence note	Comment from working group
1	Major	3.00	Major[1]	2.95	
2	Major	3.00	Major	2.95	
3	Major	2.60	Major[2]	2.85	
4	Important	3.00	Major	2.75	Bad child health practices can lead to undernutrition and in this local context, it does
5	Minor	2.80	Minor	2.35	
6	Important	3.00	Important	2.55	
7	Major	3.00	Major	2.85	
8	Minor	2.40	Minor	2.40	
9	Important	2.80	Important	2.30	
10	Major	3.00	Major	2.95	
11	Important	2.80	Major	2.85	Water management is the link

[1]

[2] For both hypotheses, the rating should be taken with caution as some evidences gathered after the workshop seem to indicate an "over rating". Therefore, readers might prefer to consider them as "important risk factors".

Risk Factors	NCA Analyst rating	Average group confidence note	Final rating (validated during the workshop)	Average individual confidence note	Comment from working group
					to hygiene practices and quantity of water
12	Major	3.00	Major	2.95	
13	Major	3.00	Major	2.90	
14	Minor	2.40	Minor	2.20	
15	Important	2.60	Important	2.50	
16	Major	3.00	Major	2.95	
17	Major	3.00	Major	3.00	
18	Minor	2.40	Important	2.55	There is a real situation of sub-optimal incomes with a big impact of the seasonality
19	Important	2.80	Important	2.45	
20	Minor	2.40	Minor	2.30	
21	Minor	2.80	Important	2.55	Empowerment of woman have a direct impact on the financial health of the household
22	Important	2.00	Major	2.70	Level of education among parents have a direct impact on parents empowerment

Tab. 2. Final rating of the risk factor by the local experts

6/ CONCLUSIONS AND RECOMMENDATIONS

6.1 CONCLUSIONS

Giant of Africa, Nigeria continue is journey towards a contemporary world with success and determination. Nonetheless, for a part of the country it remains difficult to have the same perspective. The northern part of Nigeria meets lot of issues since the beginning of the second millennium. Economic instability, decrease of agricultural production, climate change and more recently armed conflict against Boko Haram excluded a part of this population from the benefit of Nigeria growth. Moreover, since 2011-2012, the nutritional insecurity is alarming and Yobe State is a good example of conflict impact in terms of nutritional degradation through the following years of a conflict. Indeed, until 2013-2014, Yobe State, and Nangere LGA as well, had been impacted and more very drastically during 2014-2015. The Link NCA study highlights signs of stabilization (agricultural production, market prices), which will be in favor of agro-pastoral population. Nevertheless, monetary inflation and low agricultural production still put Nangere LGA population in food insecurity situation with a stronger lean season. The situation remains alarming and the social resilience is tired. Undernutrition prevalences in the studied area (14.6% wasting, 68.3% stunting), captured in November 2016, not during the lean season, invited Action Against Hunger to question the causes of this situation and their mechanisms.

The purpose of this Link NCA study is to identify the most important causes of child undernutrition, in particular wasting of children age 0-59 months and to question the links between them, in order to propose adequate solutions. In Nangere LGA context, the Link NCA problematic was to question the mechanisms of a long situation of chronic malnutrition and a more recent acute malnutrition, and how they were interlinked.

*

The study highlights very clearly that a child is more vulnerable between 3 months old and 24, which shows the violence of this nutritional crisis. During this period, she/he will be exposed to wasting between 3 months to 9 months, and to stunting from 15 months and above.

Wasting is mainly related to weak breastfeeding practices and early introduction of complementary feeding. The vulnerability to hydric disease is also highly related to unhealthy environment and weak hygiene practices. Then, the repetitiveness of child diseases devitalise the child who will be more vulnerable to hydric diseases in a context of weak health care practices (medicinal recipes).

Stunting seems related to drastic decrease of HDDS since 2010, which affects WDDS and IDDS. Availability of food items in the household is problematic and the children do not have access to sufficient nutritional supply. Nutritional insecurity affects women who started to be more undernourished and expressed some difficulties to practices good breastfeeding practices. Lack of breast milk, fear of producing low nutritious breastmilk, low weight birth, led the mother to start introducing complementary feeding too early (around 3 months for 5 months in 2011). This complementary feeding is nutritionally poor and remains a door open to hydric diseases. Looking at this global picture, it seems that after suffering from wasting, the child nutritional and health status drives her/him to stunting.

Degradation in accessing health system contributes also to the nutritional situation. Not prepared to face the surge of low weight birth cases or undernutrition peak, the main problem for Nangere household is the sudden lack of monetary access to health care. This fact reinforce the existence of local diseases (rana, olsa), which are not taken in consideration by the actual health system and

drastically impact the nutritional status of children. The traditional health system try to adjust to this undernutrition situation but if the traditional doctors seems to encourage women to reach health centre with their undernourished child, the use of medicinal recipes into an unhealthy environment appeared problematic. Moreover, adults suffered from the degradation of access to health centre what impact household management.

*

The unhealthy environment and hydric diseases are important causes of undernutrition in this context. Indeed, despite governmental efforts, the study of water access teaches us that quantity of water is less problematic than quality of water. Condition of water management outside and inside the household, weak presence of soap, weak practice of water treatment, all sources of contamination (water point or household: animal excreta) appeared challenging. Level of hygiene practices is low and levers to maintain some of them are absent. The sanitation situation is also extremely concerning. The extremely weak presence of safe latrine is a major cause of contamination inside and outside household (water point). Nonetheless an important sink appeared. The sub-optimal management of women livestock into the household contribute mainly to the unhealthy environment and the low level of incomes.

*

The terrible degradation of the food security in the northern part of Nigeria appeared in this study as the major cause of undernutrition. If low level of care and health practices, or problematic access and water management can explain chronic malnutrition, high prevalence of acute malnutrition seems more linked to the drop of agricultural production. This decrease is caused by an unfavourable economic context, climate change context and conflict context. The problem is that actual agricultural production is twice less than in 2005 and in Nangere LGA, well known to be Yobe's granary, the average household can no longer product food for 6 months. Infertility of soil, modern fertilizer price increase, rudimentary agricultural tools and knowledge affects agricultural resilience.

The best way to have a quick impact on this undernutrition situation will be to improve livelihoods such as crop production or women livestock.

*

Lack of knowledge is also an important cause of this situation according to our participants. Illiteracy rates among parents and particularly among mother is alarming and this situation is deteriorating. School coverage and school monetary access are the main issues for the average household of Nangere. In front of this situation, girls are more exposed than boys to illiteracy.

Women empowerment and recent drop of self-confidence due to the conflict context have to be supported by a strong social policy. It should be the best way to start a new humanitarian program in collaboration with the national, state and local authorities. Indeed the social structure of each family, village, ward, LGA, State has to be considered as the first pattern in the fight against undernutrition.

***

As explained previously, the purpose of the Link NCA is not to design programs, though the results can be used to inform program 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 those recommendations and to validate them. Final recommendations had been defined and validated together with the experts.

Therefore and based on the results of the Link 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 factor but must interact for a better improvement of the situation in Nangere LGA.

6.2 RECOMMANDATIONS

MAJOR HYPOTHESIS RISK FACTORS	IMPORTANT HYPOTHESIS RISK FACTORS
NUTRITION - Young child non-optimal feeding practices - Inadequate child health care HEALTH - Poor access and utilization of health services WASH - Inadequate water access - Non-optimal of water management (water chain) - Poor hygiene practices - Inadequate management of human and animal excreta FSL - Limited access to food - Limited food availability PROTECTION - High illiteracy rates among parents	NUTRITION - Non-optimal breastfeeding practices for children up to 6 months old - Poor nutritional status among pregnant and lactating women HEALTH - Weakness of health system - Short birth interval FSL - Sub-optimal food & other sources of incomes management - Emerging coping strategies PROTECTION - Women empowerment

Humanitarian interventions or programs at Yobe State, in Nangere LGA, have to be design with the collaboration of State, local authorities and communities. This cooperation is the base of humanitarian programs implementation. Through it a local and contextual approach can be built and assure the intervention success and sustainability.

The challenge is the volatility of the context. The conflict and climate change need to be considered in the design of future interventions. Community resilience has to be improved and nutritional security programs for the next years need to be built according to the volatility of the context.

A multisectorial approach will contribute to assure the impact of intervention in a short time. Nevertheless, this integration has to be done on specific objective. Harmonization between donors regarding those objectives will improve the humanitarian interventions impact in the Nigerian context.

Recommendations associated to risk factors classified as “major”

NUTRITION

Increase the age of complementary feeding introduction

Increase IDDS

Reinforcement of awareness on IYCF

Create protocol for women support when facing lack of breast milk situation

Add a psychosocial support for women with undernourished child

CHILD HEALTH

Free access to basic medicines for child health (diarrhea)

Create campaign on child health

Training of health workers on child diseases and treatments

Improve the monetary access to health services at the household level (incomes management)

Improvement of transportation means to reach health centre (ambulance)

Support integration of traditional health system and workers in the academic one: Pharmacists, Birth attendance, medicinal recipes

WASH

It is recommended to support a community approach including the development of employment within the community and with the support of state government.

Support awareness on hygiene practices

Support awareness on water management (water chain management, water treatment)

Support rehabilitation and improvement of water sources according to the local context (water for animals, contamination, pomp well, solar borehole)

Improve availability of soap

Promote waste management (recycling system) and excreta management (fertilizer)

Support implementation of dry latrine/ safe latrine at household level in collaboration with a local network

FSL

Improving of food availability at household level will have a large impact on the nutritional security of the household.

Improvement of agricultural production at household level (more constant, diversify, pest diseases)

Improvement of HDDS: Gardening

Improvement of livestock management (woman livestock, excreta)

Improving availability of local (safe) fertilizer

Improving water management for gardening

Material and technical support for farmers

Support farmers to cope with climate change

Support credit, micro-credit access to women and men for farming, raising and little business

Support women on incomes activities

PROTECTION

Create structures to support adults learning (short and specific learning: farm, raising, incomes activities, water, health)

Support ministry of education and Ministry of women affairs

Recommendations associated to risk factors classified as “important”

NUTRITION

Reinforcement of awareness on IYCF

Create awareness on the inconvenient of early complementary feeding

Create protocol to support undernutrition case before 6 months old: protocol low weight birth

Create protocol for support to women facing lack of breastmilk

Increase WDDS

HEALTH

Support of state health system (health workers recruitment, trainings and management, structures, medicine) for child and adult health

Empowerment of nutrition programs

Support of breastfeeding practices to reduce short birth interval

Awareness on the inconvenient of short birth interval

FSL

Support coping strategies with more resilience power

Support management of food and monetary incomes at household level

Support micro-credit, agriculture and livestock with on-going training on incomes management

PROTECTION

- Support access to school for girls
- Support access to credit for women

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USAL ANALYSIS

ACTION AGAINST HUNGER

The Link NCA methodology was developed by Action Against Hunger – France with technical support from our scientific committee including multi-sectorial experts and eminent scientists from Tufts University | Friedman School of Nutrition Science and Policy, the French Institute for Development Research (IRD), and World Food Program (WFP).

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ACTION AGAINST HUNGER

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NUTRITION CAUSAL ANALYSIS

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