

EXECUTIVE SUMMARY

link nca

NUTRITION CAUSAL ANALYSIS

Kamonia, Kamwasha, Kanzala, Mutena and Tshikapa Health
Zones, Kamonia Territory,
Kasai Province, Democratic Republic of the Congo

December 2023 - June 2024



*Please note that this document has been machine translated from French. In case of inconsistencies, the French version prevails.

EXECUTIVE SUMMARY

Project Tudienzele, funded by USAID's Bureau of Humanitarian Assistance (BHA), is a multi-sectoral, multi-year project aiming to sustainably improve the food, nutritional and economic security of vulnerable households in Kasai province. The project will be implemented from October 2023 to September 2028 in 5 of the 8 health zones of Kamonia Territory (Kamonia, Kamwasha, Mutena, Tshikapa, and Kanzala) by a consortium led by Adventist Development and Relief Agency (ADRA) and including 4 international organisations (ADRA, Action Against Hunger, Adam Smith International, Johns Hopkins University Center for Communications Programs), and one local organisation (Femmes Main Dans La Main Pour Le Développement Intégral).

The nutrition causal analysis Link NCA conducted in Kamonia Territory from December 2023 to June 2024 aimed to understand the mechanisms of undernutrition at local level with a view to contributing to improving the relevance and effectiveness of undernutrition prevention strategies in the project intervention area. Out of 20 studied risk factors, five were identified as having a major impact on the prevalence of undernutrition (wasting and stunting) in the study area, namely a) low birth spacing, early, repeated or unwanted pregnancies, b) low nutritional status of women, c) non-optimal breastfeeding practices for children aged 0-6 months, d) poor access to sources of income and e) low coping strategies.

METHODOLOGY

A nutrition causal analysis Link NCA studies the multiple factors responsible for undernutrition. It represents a starting point for improving the effectiveness and relevance of nutritional security programmes in a given context. The Link NCA is a structured, participatory and holistic study based on the UNICEF causal framework, with the aim of developing a consensus based on the plausible causes of undernutrition in a local context¹.

The Link NCA study in Kamonia Territory comprised of the systematic review of secondary data, followed by the primary qualitative data collection. Primary quantitative data collection was replaced by statistical analyses using existing databases in order to maintain a mixed-methods approach.

KEY STEPS

Systematic review of secondary data was conducted in December 2023 - January 2024. The secondary data review included over 67 documents from various sectors, including previous research applicable to the study area, with the aim of identifying a set of risk factors and their interactions that might trigger undernutrition in children under 5 years of age.

Secondary quantitative data analyses (bivariate logistic and linear regressions) were conducted from January to February 2024, using the 2014 Demographic and Health Survey (DHS)² and the 2018 Multiple Indicator Cluster Survey (MICS)³ databases.

The summary of the secondary data review, including the secondary data analyses, was presented to stakeholders and technical experts at an initial technical workshop held on 15 February 2024 in Tshikapa.

In-depth qualitative research was conducted from February to March 2024 in three qualitatively representative localities in the study area. At village level, a variety of participants, including traditional leaders, health facility personnel and community health workers, as well as mothers and fathers of children under 5 years of age, were invited to participate. A total of 45 focus group discussions and 43 semi-structured interviews were held with 367 participants, 231 of whom were women. The qualitative study included a comparative study of malnourished children and their non-malnourished siblings.

Synthesis of findings was conducted from March to April 2024. *The final findings were presented to the main decision-makers and operational partners at the final technical workshop on 13 June 2024 in Tshikapa.*

¹ For more information on the methodology, please visit www.linknca.org.

² 'EDS 2013-2014'.

³ 'Multiple Indicator Cluster Survey, MICS Palu, Survey Results Reports, 2017-2018'.

KEY FINDINGS

A. CATEGORISATION OF RISK FACTORS

Following a triangulation of data from various sources (Cf. *Key steps*), the risk factors for undernutrition were categorised as *major*, *important* and *minor*, depending on their plausible effect on the prevalence of undernutrition in the study area. Five (5) risk factors were identified as having a **major** impact, eleven (11) risk factors were classified as having an **important** impact and four (4) risk factors were considered to have a **minor** impact. Among the major risk factors, two were identified in the health sector, namely low birth spacing, early, repeated or unwanted pregnancies and low nutritional status of women; one risk factor was identified in the mental health and care practices sector, namely non-optimal breastfeeding practices for children aged 0-6 months; and two risk factors were identified in the food security and livelihoods sector, namely low access to sources of income and low resilience capacities.

Risk factors		Overall interpretation/ Impact of risk factors
A	Limited access to health services	++
B	Limited use of health services	+
C	Low birth spacing / Early, recurrent or unwanted pregnancies	+++
D	Low birth weight	+
E	Poor nutritional status of women	+++
F	Caregiver's well-being	++
G	Inadequate breastfeeding practices for children 0-6 months	+++
H	Inadequate feeding practices for children aged 6-23 months	++
I	Low quality of interaction between the child and the caregiver	+
J	Low access to quality food	++
K	Low access to sources of income	+++
L	Limited access to markets	+
M	Low coping capacities	+++
N	Inadequate accessibility, availability and quality of water at household level	++
O	Non-optimal sanitation practices	++
P	Non-optimal personal hygiene practices	++
Q	Non-optimal food hygiene and environmental practices	++
R	Heavy workload of women	++
S	Low female autonomy / Low decision-making power	++
T	Low social support for women	++

B. SIGNIFICANT QUALITATIVE RESULTS

Perception of acute malnutrition. Generally speaking, the population perceives kwashiorkor as an advanced state of marasmus when the initiated treatment(s) do(es) not produce the desired results. Etymologically, the term *nsadi* refers to intestinal diseases caused by parasites. A child designated as suffering from *nsadi wa tshiombe*⁴ has a bloated stomach, which is associated with the presence of intestinal worms, combined with a lack of adequate nutrition. Traditional treatment therefore seeks to purge the child, eliminating pathogens that may be responsible for the deterioration in the child's health. If traditional treatment fails (after 1 to 2 months) and/or if treatment is initiated late, the child may reach the state of *nsadi wa tshibulebule*⁵, manifested by oedema. The child is considered to be in a critical condition with both external and internal wounds. Depending on the financial resources of the household, the child may be taken to a health centre for a modern treatment. The *caleb* child is another representation of a marasmic child, but his thinness is linked to his parents' failure to space births. In other words, the child suffers from a lack of adequate nutrition due to early and abrupt weaning. Traditional treatment seeks both to symbolically disconnect the child from their mother and to enrich the child's meals to ensure its healthy development.

Household size. Thriving on the principle that "*children are wealth*", children represent an "insurance policy for an old age" in a context where the state does not offer means of survival to the population that has passed the active working age. Nowadays, however, children also represent a survival mechanism during their parents' active years as they are no longer able to meet the needs of the

⁴ Illness following over-consumption of cassava and/or cassava-based fufu, child who does not eat well but defecates a lot and loses weight as a result.

⁵ "Mole disease", which manifests itself as swelling of the body (oedema).

household without help. As a result, households are expanding in the hope that children will contribute to the generation of income for the household from an early age, without necessarily benefiting from any prior investment, in the form of adequate food and education, to enable them to succeed in this challenge. Men feel a responsibility to expand their clan and/or tribe, especially by producing male heirs who will then continue to expand the tribe during their turn. Daughters will contribute to the growth of their husband's clan, so their births are not as highly valued, although their dowries have become increasingly important in recent years. The expansion of households was associated with the division of groupings in the 1980s. During this period, a grouping could only be pronounced in the case of populous clans, which apparently triggered accelerated reproduction in order to ensure that clans were eligible to be declared groupings if a new division was organised. The acceleration of reproduction was also linked to the hidden competition among men to have more wives and/or children than other men in their circle, as well as to their idleness (due to a lack of income-generating and leisure activities), which favours the pursuit of sexual intercourse to relax and give meaning to a day. However, concerned men did not distinguish between sexuality and procreation, not supporting the use of contraceptives to both satisfy their sexual appetite and control the consequences.

Use of contraceptives. Women disapprove of using modern contraceptives for fear of side effects. Contraceptive implants are one of the most widely used but also the most feared methods. Women are afraid of heavy, irregular and prolonged bleeding and/or the disappearance of menstrual periods, with consequences on their ability to conceive at the desired time (infertility). The 10-year use period discourages the use of intra-uterine devices (IUDs); condoms are not appreciated because they reduce sexual pleasure and can break, while the use of pills is limited due to the requirement of consuming them at the same time every day. Injection is one of the least used methods, as it cannot be stopped and/or removed if a woman changes her mind and/or her circumstances require it. Moreover, a husband's unfavourable opinion on the subject represents a major barrier to non-use, should the women try to use contraceptives secretly. The use of contraceptive methods involves not only the risk of anger from the husband, linked to accusations of infidelity, but also the risk of divorce. In some religious communities, contraceptive methods may be banned in their entirety, supposedly going against the word of God.

Birth spacing. The community has noted a shortening of the period between two births, from 2-3 years in the past to less than a year today. In the past, couples observed a separation of beds, i.e. abstinence, for a year after giving birth. This allowed a woman to regain her strength and ensure optimum care for the child. Today, the separation of beds is no longer practised, with the exception of small pockets of traditionalist communities. This change is linked to the idleness of men, who no longer leave home to work as much as in the past and can therefore continually demand sex. According to the older generations, they lack the discipline to abstain as well as the knowledge of a woman's menstrual cycle to limit intercourse during the fertile period. If a woman tries to avoid sexual relations after giving birth, during her period and/or during the fertile period, this may trigger husband's suspicions that she is having sexual relations with another man and/or result in physical violence towards her, as the decision-making power on this issue is in the man's hands. The fear of being abandoned and/or replaced - interpreted as jealousy by men - is also an important factor in motivating women to maintain frequent sexual relations with their husbands, whatever the inconvenience. As men seek to satisfy their needs in other women - which may lead to the distribution of already scarce financial resources and/or a new marriage - wives rush to satisfy them despite the risk of early pregnancy in the hope that the man will be satisfied.

Breastfeeding and complementary feeding. Most communities are observing predominant breastfeeding. Exclusive breastfeeding is becoming increasingly inaccessible for women in the most vulnerable households, who are obliged to resume their income-generating activities in the first week(s) after giving birth. Given that the period of rest after childbirth has become shorter than in the past (1 week to a month vs. 3 months), the introduction of water in the first few hours after birth plays a practical role with mothers preparing the baby for water consumption when they are away from home. This absence is also associated with the introduction of semi-solid and solid foods from the 2nd or 3rd month, i.e. 3 or 4 months earlier than in the past, to ensure that the child does not "cry from hunger" when the mother is engaged in income-generating activities. However, more than the early introduction of food, the focus group participants attached importance to a change in the quality of meals served to infants and young children due to the reduction in household income sources and the irregularity of

meals offered to children (their first and last meal of the day eaten after 2pm, most often around 5 or 6pm).

Access to income sources. While agriculture continues to be a main source of household income, men tend to prefer "quick" occupations that allow them to generate financial resources during the day to provide the meal in the evening (e.g. commerce) and/or generate a considerable sum in a short period of time to cover the household's needs for several months (e.g. artisanal diamond mining). Men who are graduates and/or former businessmen refuse to work in the fields because they are ashamed to conduct such activity after having studied and/or run a business. As a result, farming is more of a source of income for women, who may receive financial and/or labour support from men at the start of the season. Otherwise, they carry out the rest of the work in the fields on their own.

Women's heavy workload. Women feel that their workload is very heavy, and much heavier than in previous years. The increase in workload is linked to a lack of support from husbands who are no longer able to cover the financial needs of their households, thus pushing women to absorb income-generating responsibilities in order to balance the inflows and outflows of the household budget. As a result, women are no longer in the same place, travelling far and wide to find opportunities that would enable them to "put food on the table in the evening". The population believes that the imbalance in the workloads of men and women began to appear around 2010, when it became increasingly rare to find diamonds. The situation worsened substantially following the *Kamuina Nsapu* rebellion in 2017. Women find that their workload is heaviest during the periods from January to March and September to November, when they are working in the fields (sowing). During these months, they spend long days in the field, every day of the week except Sunday, with no opportunity to rest. The feeling of exhaustion is intensified by a lack of food that could regenerate their strength. The women say that these months are particularly hard on pregnant women, who are unable to work as much, while skipping the sowing season has major consequences for the household diet in the following months, increasing their mental workload. During the same periods, breastfeeding women admit that it is difficult for them to breastfeed because of their absence from home, i.e. their lack of availability to breastfeed on demand, their fatigue which limits their patience to breastfeed for as long as the baby requires, and their hunger which creates a perception that they are not producing breast milk in sufficient quantity and quality to satisfy the infant's needs.

Social support for women. Whereas in the past, men were economically active, creating a favourable environment for women to devote themselves to housework and childcare, today a weakening of men's financial support due to deteriorating access to income sources is not balanced by an increase in support within the household. Men refuse to engage in activities perceived as 'feminine', leaving women to juggle multiple priorities at once, while they spend their days in idleness. While some men have left home in search of opportunities elsewhere, leaving their wives to fend for themselves as best they can, others remain behind, out of work, asking their wives to temporarily fill the void. However, they are not sufficiently aware of the pressure this so-called temporary solution creates in their partners, especially as it has already been going on for several years, making difficult choices between their own well-being and the well-being of the little ones versus the well-being of the household as a whole. Some men have clearly abandoned their responsibility to look after their families, arguing that their children's lives depend on God and the Congolese state. The situation seems particularly alarming among the younger generations, who are rushing to accumulate wives and/or children faster than their means will allow.

"They take us for goats that will fend for themselves. Children are like cattle that have to be multiplied. Men have become women and women have become men, carrying a great load on their shoulders."

The intergenerational divide. With life circumstances having steadily deteriorated over the last few decades, some parents admit that they can't find the time or energy to forge links with their children. As a result, ancestral values are dissipating and the intergenerational divide is becoming apparent. The community regrets the ban of *tshiota*, evening family gatherings, by Joseph Kabila's government, which for some twenty years prevented the transmission of values in Luba communities. It was found that children born between 2002 and 2017 are indeed showing signs of a "bad" upbringing, as they were not been able to benefit from these family meetings. However, the young people pointed the finger at their parents, who they felt had failed their responsibilities to prepare them properly for the future. Early marriages. As parents are no longer able to provide for their offspring, young people are forced from an early age to fend for themselves. Girls in their teens are particularly vulnerable as they perceive potential

differences between the treatment of girls and boys in the household, often finding themselves at a disadvantage⁶. If the opportunity arises, they may see their needs met by their boyfriend(s). As they are not sufficiently educated about sexual health, they can become pregnant and marry to protect the family's reputation. However, pregnancy is not the ultimate reason for early marriage. It is enough for rumours to circulate that the girl is going out with a boy, potentially spending the night at his house, and the parents arrange to catch them *in flagrante*. In this case, the girl will be married by force, to regularise the union, because she can no longer live in her father's house. In addition, early marriage is one of the coping strategies used by households in an extremely precarious situation that they cannot otherwise overcome. Marriage, including early marriage, becomes a source of income, as the father receives a dowry that can help the rest of the household get through a difficult period. In the same way, marriage serves to reduce the size of the household so that the available resources can be better distributed.

C. STATISTICAL ASSOCIATIONS

An increasing weight and height of the child were observed to have a protective effect on the nutritional status of children, even in the case of nutritional deficits for which the concerned criterion is not included in the calculation of the respective index, for example, an increasing weight being a protective factor for stunting. Child's age naturally showed an inverse association for *wasting* and *stunting*, with increasing age being a protective factor for the former but a risk factor for the latter. The increasing rural wealth score and mother's increasing Body Mass Index (BMI) were shown to be **protective factors** for both *wasting and stunting*. Common **risk factors** for *wasting* and *underweight* include an increasing number of household members and open defecation. Common **protective factors** for *stunting* and *underweight* include mother's increasing level of education, mother's mental well-being, the use of family planning, household's hand-washing practices and the child's increasing haemoglobin level.

D. CAUSAL PATHWAYS

Community perception. According to communities, undernutrition is caused by poor access to income due to the decreased availability of income-generating activities in the study area and/or a change in their capacity to generate income compared with previous years. Among the most frequently cited reasons are a lack of access to (formal) employment, dwindling mineral reserves and/or abandonment of farming activities. As a result, access to quality food is considerably reduced, with a direct effect on women's nutritional status - and their ability to breastfeed their children - and/or on infant and young child feeding practices.

At the same time, poor access to income can trigger the use of negative coping strategies if the household exhausts other available options over the years. Among other things, men accelerate the expansion of their households by increasing the number of wives and children, without being able to look after them properly, in the hope that the latter can contribute to the generation of income needed for household's survival and care at the old age. This translates into the absence of family planning and the low birth spacing that women cannot sufficiently control due to their lack of decision-making power.

It goes without saying that repeated pregnancies and births weaken the nutritional status of women, who may suddenly and prematurely wean their breastfed children if they become pregnant again. Moreover, non-optimal breastfeeding practices are influenced by women's heavy workload, due to the low support given to women, who move away from home in order to generate income. Newborns are introduced to drinking water, often untreated, from the first days after birth, to get them used to drinking other liquids when their mothers are away. Very young children are looked after by other children in the household who do not often have the maturity to provide appropriate care for the child.

Poor access to income also leads to poor access to health services, potentially delaying appropriate care in the event of illness. These illnesses can be caused by an unhealthy environment, due to non-optimal environmental hygiene and sanitation practices, which compromise the quality of drinking water in their environment and thus increase the risk of water-borne diseases.

⁶ Generally speaking, girls represent a loss of investment, especially when they become pregnant before completing their studies. In some communities, however, they may be more privileged than boys because of the dowry they can generate, which will benefit the family, and/or the gifts they can bring home from their boyfriends.

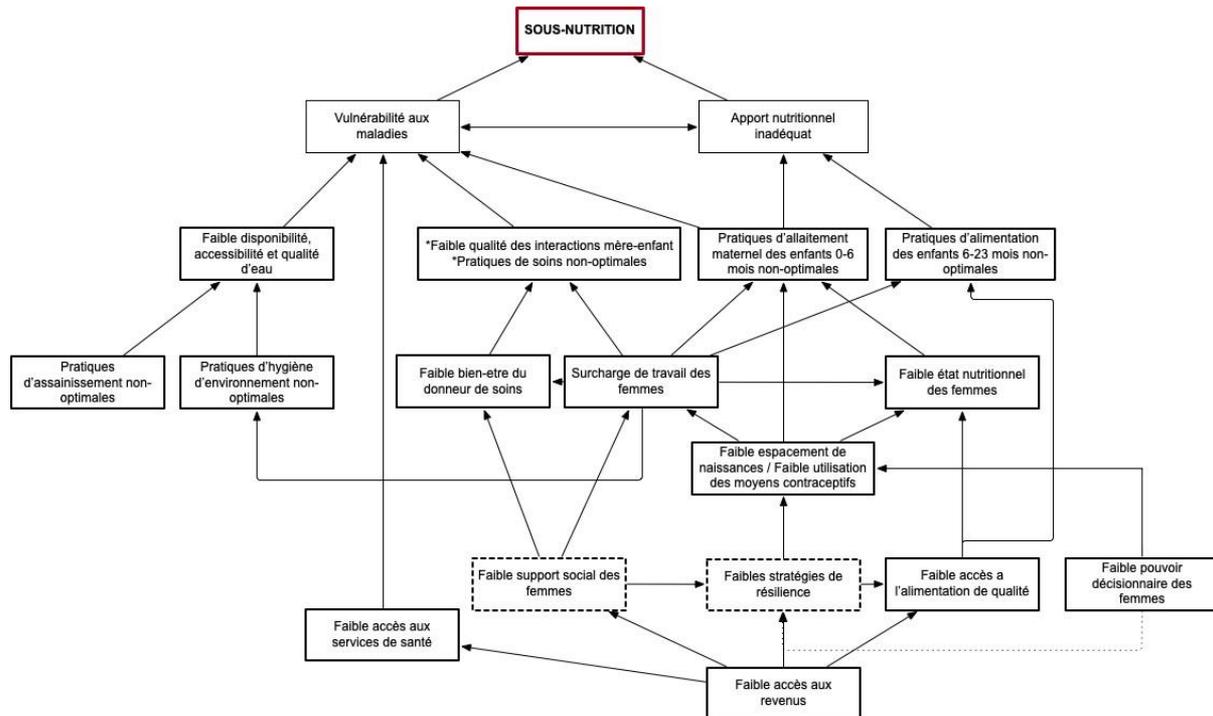


Figure 1: Community perceptions of causal pathways of undernutrition, Kamonia Territory⁷

This perception seems to be in line with a typology of malnourished children derived from a study comparing malnourished children with their non-malnourished brothers or sisters, which noted the cumulative effect of women's poor support and heavy workload over prolonged periods on their nutritional status and mental well-being, gradually diminishing with each new birth. As a result, younger children under the age of 24 months, especially boys, do not benefit from optimal care, and are exposed to higher risks of infection and, consequently, malnutrition.

The causal pathways presented below are based on the pathway constructed during the community consultations (see Figure 1), while the results of statistical analyses have been added to visually summarise the evidence available for each form of undernutrition. It is important to note that statistical associations are not systematically valid for all forms of undernutrition.

Wasting⁸. On the basis of available evidence, two causal pathways built around seven key risk factors can explain most cases of wasting in the study area. Firstly, *limited access to income* plays a role in *low coping capacities* and consequent *low birth spacing*. This contributes to *women's poor nutritional status* and *sub-optimal breastfeeding practices*, potentially exacerbated by their *poor mental well-being*. At the same time, poor access to *income* leads to *poor access to health services*, delaying access to appropriate care in the event of illness, especially recurrent illness, caused by the unhealthy environment.

Risk factors: The risk of wasting increased among children born smaller than average, children living in larger households and in households with a higher number of children under the age of 5 years of age. Children of pregnant mothers and/or older fathers were also more likely to be wasted. The risk of wasting was higher among children living in households where it was perceived that violence was justified if the wife went out without her husband's permission, if the wife did not take care of the children and if the wife refused to have sex. Children under 6 months of age who drank the broth in the 24 hours prior to the survey also had a higher risk of wasting, as did children whose mothers had problems accessing health care due to obtaining permission to go there or children living in households practising open defecation. **Protective factors:** The risk of wasting decreased with an increasing age of the child, as well as an increasing value of the mother's Body Mass Index (BMI), increasing number of antenatal visits, increasing rural wealth score and higher level of education of the child's father.

⁷ The dashed cells represent risk factors that apply only to certain communities, especially those with access to unimproved water points. All other risk factors are applicable to the entire study area.

⁸ A form of acute malnutrition, weight loss.

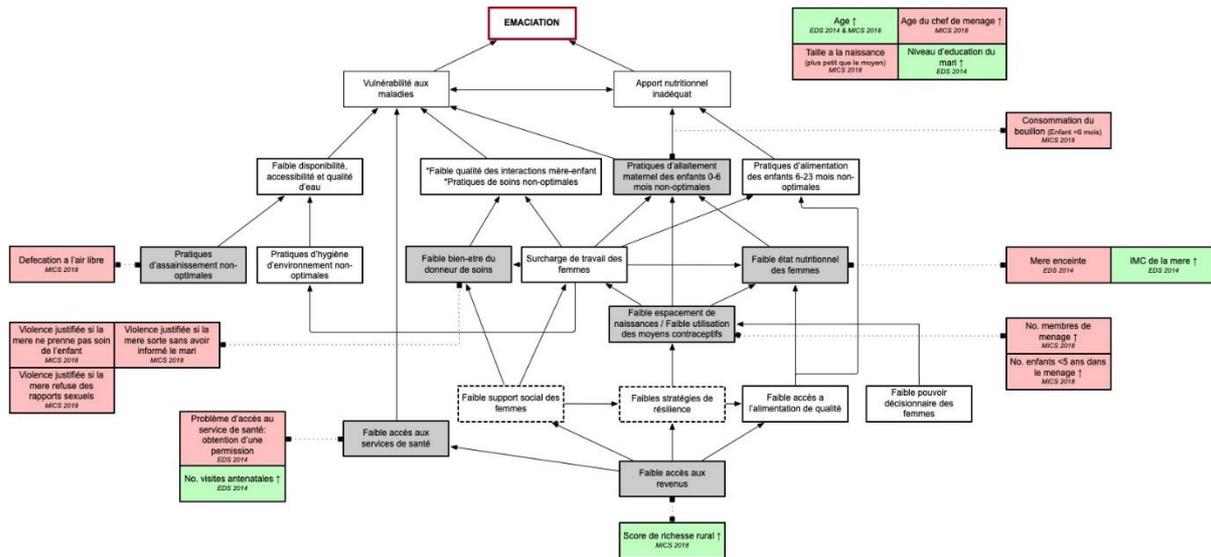


Figure 2: Causal pathway of wasting, Kamonia Territory⁹

Stunting. Based on the available evidence, a causal pathway built around seven key risk factors can explain most cases of stunting in the study area. First, *limited access to income* plays a role in *low coping capacities* and consequent *low birth spacing*. This contributes to *women's poor nutritional status* and *sub-optimal infant and young child feeding practices*, which are potentially exacerbated by their *poor well-being*, especially for women who are not in a union and do not benefit from optimal support.

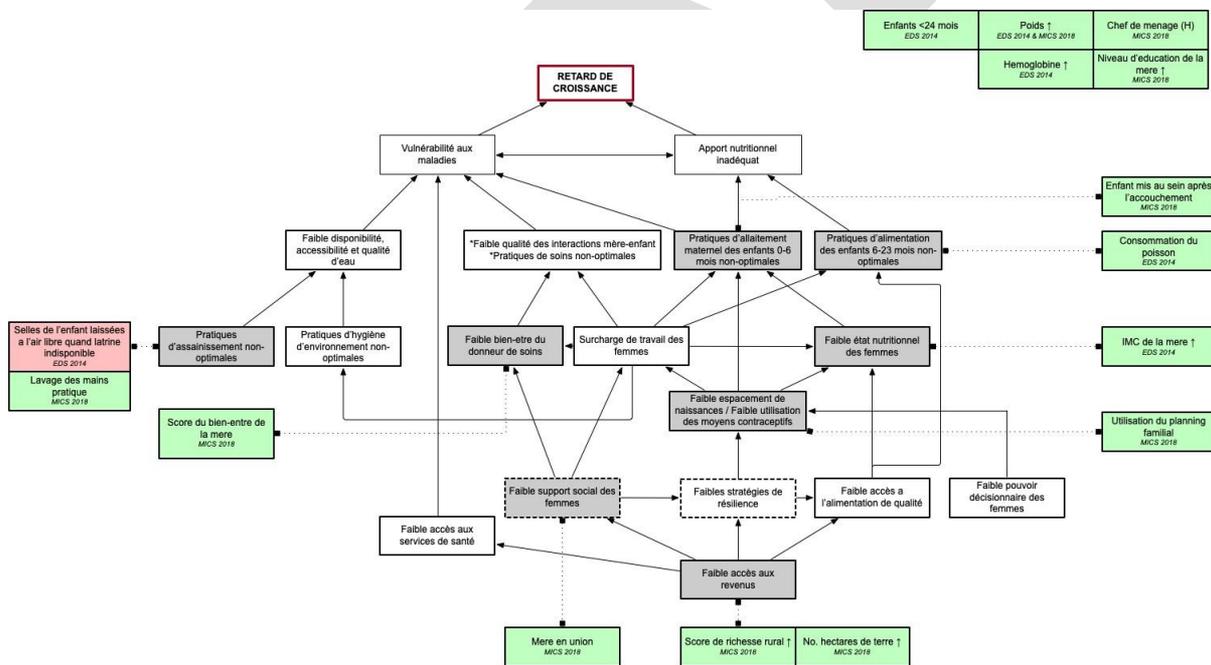


Figure 3: Causal pathway of stunting, Kamonia Territory⁹

Risk factors: The risk of stunting increased as the age of the child increased. Children living in households without latrines whose faeces were left in the open had a higher risk of stunting. **Protective factors:** The risk of stunting decreased as the child's weight and/or haemoglobin level increased. Children living in male-headed households had a lower risk of stunting, as did children of mothers who reported using contraception. The risk of stunting decreased with increasing maternal well-being score, increasing rural

⁹ Red cells represent risk factors significantly associated with acute malnutrition (wasting), while green cells indicate protective factors significantly associated with acute malnutrition (wasting), based on p-value calculations < 0.05. Grey cells represent risk factors supported by the available evidence. The dotted line cells suggest risk factors mentioned in certain communities but which cannot be generalised to the entire study area.

wealth score and higher level of maternal education. Children of women in union at the time of the survey, children who were breastfed after delivery, children who consumed fish and children living in households where hand washing was practised had a lower risk of stunting.

RECOMMENDATIONS

- By involving men and community leaders, strengthen social and behaviour change strategies focusing on health and sexual and reproductive rights (for example via model couple approach) in order to facilitate women' and young girls' access to contraceptive methods to promote optimal birth-spacing, pre- and postnatal consultations and childbirth in health facilities;
- Increase the availability of contraceptive methods in health facilities as well as the capacities of health personnel to support women and men in the choice of contraceptive methods appropriate for their couple;
- Support women and/or women's associations in setting up home and/or community gardens in order to promote the diversification of foods consumed by women and their children, especially during the period of pregnancy and breastfeeding;
- Strengthen social and behaviour change strategies focusing on nutrition in order to enable women to properly use the foods available to them throughout the year for the better nutritional health of their households;
- Strengthen the identification of children under 6 months at risk by increasing the points of contact and adapting the care pathway for this target population in order to be able to put in place appropriate support to promote optimal development for these children;
- Strengthen the promotion of infant and young child feeding (IYCF) by revitalizing IYCF support groups and/or model mothers' groups, addressing barriers to the appropriation of optimal practices, especially women's work overload and poor support from women during the first six months of the child's life;
- Support communities in the diversification of sources of income, particularly with regard to "quick" income-generating activities which can allow men to take care of their households on a daily basis, while at the same time offering professional training (for example carpentry, shoemaking) and/or technical support to associations on the path to increasing their capacity to generate income throughout the year and to develop additional sources of income during lean periods. This may include the establishment and/or capacity building of village savings and credit associations (VSLAs) to enable community members to access small loans and/or micro-credits to start or expand income-generation activities;
- Identify opportunities for sources of income for women in order to revitalize certain sectors and activities (for example sewing, hairdressing, food processing), while minimizing potential risks on their workload and availability for child care;
- Facilitate community dialogue on the risks of early marriage and/or pregnancy, especially addressing risks at the household level that trigger the vicious cycle;
- Promote coaching of couples on life skills and responsibilities in the household in order to allow all members to flourish and prosper;

LIMITATIONS

Unavailability of some key Link NCA standard indicators. The EDS 2014 and MICS 2018 databases did not include all the indicators used in a Link NCA study. For this reason, some risk factors could not be sufficiently triangulated and their categorisation was partially impacted as they generally rank lower than other risk factors, for which quantitative analyses could be conducted. Statistical associations. It is recommended to assess statistical associations with caution, as observed links do not necessarily prove causality, while unobserved links do not mean that causality does not exist. Confounding variables: The statistical analyses performed during this study are based on unadjusted regression models that do not take into account the effects of confounding variables. Temporal limitations. Given that it was not possible to run regressions on more recent data, the statistical associations do not take into account potential temporal changes that have occurred since 2018 and therefore cannot reflect their potential impact on undernutrition in the study area.