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Malnutrition .. A Threat to Future of Human Capital in Yemen

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Introduction

Malnutrition is one of the world's most serious but leased-addressed development challenges. Its human and economic costs are enormous, falling hardest on the poor, women, and children.

By March 2022, Yemen had nearly 2.2 million children who suffer from one form of acute malnutrition[1]. To put things in perspective, a SAM child is ten times more at risk of death if not treated on time than a healthy child his or her age[2].

This means the child will be less likely to grow to his/her fullest potential, let alone other development related impediments, including disruption to their cognitive skills and less future economic opportunities. Malnutrition does also undermines the ability by the country to develop human capital. Given the conditions unfolding in Yemen, malnutrition could have irreparable damages to the child's cognitive skills and development, and other consequences on education, income and productivity that extend through adulthood. The economic cost of undernutrition, in terms of national losses in productivity and economic growth are huge, given the additional burdens of malnutrition due to the current conditions in Yemen and their ensuing repercussions, including higher number of poor people who suffer from extreme poverty, which increases in their vulnerability in the face of health and economic shocks. Therefore, malnutrition is one of the key and difficult impediments to development in Yemen, and without concerted actions at the national and international levels, the issue would remain largely unaddressed.

Despite this growing concern, it is encouraging that these losses can largely be avoided if sufficient investments are made in proven interventions, especially those focusing on achieving optimal nutrition in the first crucial 1,000 since conception till the child reaches 2 years. Reducing malnutrition in Yemen is critical to develop the human capital being a major driver of sustainable growth and poverty reduction, and can have a significant impact on the HDI Index. To achieve an optimal level of nutrition, the poor people in Yemen shall have access to the resources and services they need.

[1] IPC, Yemen: Acute Malnutrition Situation January- May 2022 and Projection for June - December 2022. Mar 2022.
https://www.ipcinfo.org/ipc-country-analysis/details-map/en/c/1155480/?iso3=YEM
[2] Yemen needs urgent assistance to prevent famine.
https://www.fao.org/news/story/en/item/522843/icode/

Facts and Indicators*

Prevalence of malnutrition

About 2.2 million children and 1.3 million pregnant and lactating women are projected to suffer from acute malnutrition over the course of 2022

%70 of women suffer from anemia compared to **33%** globally and **40%** in least developed countries

538,000 children are projected to suffer from severe malnutrition over the course of 2022, compared to **395,2** severely malnourished children in 2021

Factors contributing to the prevalence of malnutrition

17.4 million people (%54 of the population) suffer acute food insecurity (**IPC Phase 3 and above**) in need of an urgent assistance

161,000 people are projected to face extreme hunger levels by June 2022, compared to **31,000 people** in March 2022

Only %50 of the health facilities are fully functional

19 million people are projected to suffer acute food insecurity starting June to December 2022

5 million women and girls at the childbearing age, and 1.7 million pregnant and lactating women have limited or no access to reproductive health services

%57.9 of children for illiterate mothers suffer from stunting. The higher the educational ladder of the mother, the less stunting rates we get, to reach **16.3%** among children for mothers with higher education. As for wasting, the rate stands at **17%** and **7.2%**, respectively

Over %80 of the population face major challenges in accessing food and health care services

There are only 10 health workers per **10,000 people** – less than half the WHO minimum benchmark.

Economic costs

7.5 $ billion the estimated economic losses triggered by malnutrition during the period 2021- 2030

%63 the loss in next generation productivity according to the World Bank HCI, in view of the current educational and heatlh situation, particularly malnutrition, compared to **57%** in the MENA region

* All facts and indicators are referenced to by source throughout this bulletin.

I: Malnutrition Overview

Malnutrition as a concept

According to WHO[3]; Malnutrition refers to deficiencies, excesses, or imbalances in a person's intake of energy and/or nutrients. The term malnutrition addresses 3 broad groups of conditions: 1) undernutrition, which includes wasting (low weight-for-height), stunting (low height-for-age) and underweight (low weight-for-age);2) micronutrient-related malnutrition, which includes micronutrient deficiencies (a lack of important vitamins and minerals) or micronutrient excess; and 3) overweight, obesity and diet-related noncommunicable diseases (such as heart disease, stroke, diabetes and some cancers).

Various forms of malnutrition[4]

There are 4 broad sub-forms of undernutrition: wasting, stunting, underweight, and deficiencies in vitamins and minerals. Undernutrition makes children in particular much more vulnerable to disease and death. Low weight-for-height is known as wasting. It usually indicates recent and severe weight loss, because a person has not had enough food to eat and/or they have had an infectious disease, such as diarrhea, which has caused them to lose weight.

A young child who is moderately or severely wasted has an increased risk of death, but treatment is possible. Low height-for-age is known as stunting. It is the result of chronic or recurrent undernutrition, usually associated with poor socioeconomic conditions, poor maternal health and nutrition, frequent illness, and/or inappropriate infant and young child feeding and care in early life. Stunting holds children back from reaching their physical and cognitive potential. Children with low weight-for-age are known as underweight. A child who is underweight may be stunted, wasted, or both.

Micronutrient-related malnutrition: Inadequacies in intake of vitamins and minerals often referred to as micronutrients, can also be grouped together. Micronutrients enable the body to produce enzymes, hormones, and other substances that are essential for proper growth and development. Iodine, vitamin A, and iron are the most important in global public health terms; their deficiency represents a major threat to the health and development of populations worldwide, particularly children and pregnant women in low-income countries.

In many countries, and even within households, these three forms of malnutrition – undernutrition: hidden hunger and overweight – co-exist. This means that a single country may face the challenge of addressing high rates of stunting, micronutrient deficiencies, and obesity. Or a family may have an overweight mother and a stunted child. These trends reflect what is known as the triple burden of malnutrition, a burden that threatens the survival, growth and development of children, economies and societies[5].

[3] WHO, Malnutrition, 9 June 2021. https://www.who.int/news-room/fact-sheets/detail/malnutrition
[4] Ibid.
[5] UNICEF, The State of the World's Children 2019. https://features.unicef.org/ar/state-of-the-worlds-children-2019-nutrition/index.html#group-km-mnthomt-aghthy-taaml-lmslh-latfl-8Gk6Ff8P76

Fig (1): Definition of All Forms of Malnutrition

UNDERNUTRITION
When children don't eat or absorb enough nutrients to grow

HIDDEN HUNGER
When children don't get enough essential vitamins and minerals

OVERWEIGHT
When a child's weight is too high for his or her height

OBESITY
The most severe form of overweight

STUNTING
A form of undernutrition when populations of children are too short for their age

WASTING
An extreme form of undernutrition when a child is too thin for his or her height

FOOD SYSTEMS
All the elements and activities involved in the production, processing, distribution, preparation and consumption of food

FOOD ENVIRONMENT
A mix of factors that influence how children and families eat, including food availability, accessibility, affordability and preference

FOOD DESERT
An area or neighbourhood where there are few or no healthy food choices

FOOD SWAMP
An area or neighbourhood where there are proportionally more fast food and junk food options than healthy food options

Source: UNICEF, The State of the World's Children 2019. https://features.unicef.org/ar/state-of-the-worlds-children-2019-nutrition/index.html#group-km-mnthomt-aghthy-taaml-lmslh-latfl-8Gk6Ff8P76

Phases of IPC AMN

The IPC is a set of tools and procedures to classify the severity and characteristics of acute food insecurity and acute malnutrition crises as well as chronic food insecurity based on international standards.

The IPC Acute Malnutrition Classification provides information on the severity of acute malnutrition Fig (2), highlights the major contributing factors to acutemalnutrition, and provides actionable knowledge by consolidating wide-ranging evidence on acute malnutrition and contributing factors to be explined in II.

Fig (2): Name and description of Acute Malnutrition phases in IPC Analysis

Phase 1 Acceptable	Phase 2 Alert	Phase 3 Serious	Phase 4 Critical	Phase 5 Extremely Critical
Less than **5%** of children are acutely malnourished.	**5% – 9.9%** of children are acutely malnourished.	**10% – 14.9%** of children are acutely malnourished.	**15%-29.9%** of children are acutely malnourished. The mortality and morbidity levels are elevated or increasing. Individual food consumption is likely to be compromised.	**30%** or more children are acutely malnourished. Widespread morbidity and/or very large individual food consumption gaps are likely evident.

Source: IPC, Yemen: Acute Malnutrition January - July 2020 and Projections for August - December 2020 and January - March 2021. https://www.ipcinfo.org/ipc-country-analysis/details-map/en/c/1153006/?iso3=YEM

II: Analysis of the Current Malnutrition Situation in Yemen

The acute food insecurity and malnutrition situation in Yemen has deteriorated further in 2022 with 17.4 million people (IPC Phase 3 and above) in need of assistance as of now,increasing to 19 million starting June to the end of the year.

Of greatest concern is the 2.2 million children under the age of five, including 538,000 acutely malnourished, and about 1.3 million pregnant and lactating women are projected to suffer from acute malnutrition over the course of 2022 (Table 1).

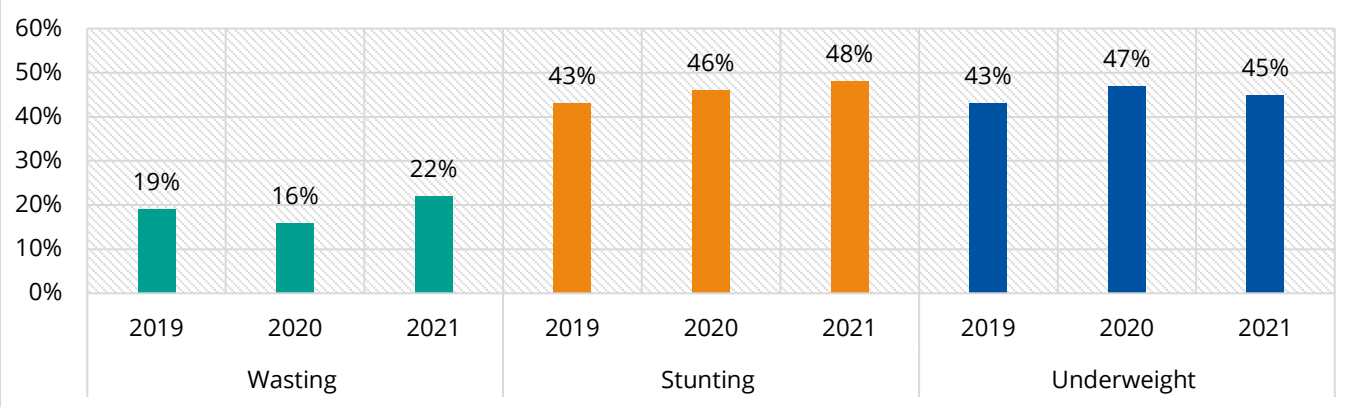
Table (1): Acute Malnutrition Caseload in 2021 (IPC)

	Total SAM Cases (000)	Total Acutely Malnourished PLWs (million)	Children Aged 0-59 Months (million)
2021	395.2	1.15	2.25
2022	538	1.3	2.2

Source: IPC , YEMEN ACUTE MALNUTRITION HITS RECORD LEVELS IN YEMEN WITH A DEVASTATING TOLL ON CHILDREN UNDER FIVE https://www.ipcinfo.org/ipc-country-analysis/details-map/en/c/1153006/?iso3=YEM
IPC, Yemen: Acute Malnutrition Situation January- May 2022 and Projection for June - December 2022. Mar 2022. https://www.ipcinfo.org/ipc-country-analysis/details-map/en/c/1155480/?iso3=YEM

According to IPC Analysis for March 2022, there is a huge risk as out of the 43 zones (333 districts) analyzed, 40 districts (13%) are classified as Critical (IPC Phase 4) and 199 (60%) in Serious (IPC Phase 3), with the remaining 94 (28%) in Alert (IPC Phase 2). In the projection period, similar to food insecurity, there is a dramatic increase in severity, with 72 districts moving from Serious to Critical making up 108 districts (32%) and 66 districts moving from Alert to Serious making up 193 districts (58%). Of greatest concern are the two districts in Hajjah (Abs and Hayran) classified as Extremely Critical (IPC Phase 5)[6]. Results of children under 5 years of age who attended a health facility in 2021 showed that 22% of children were found to be "wasted", which is above the WHO "Critical" threshold (15%). Also, 45% are underweight, yet again above the WHO "Serious" threshold (%20).

Fig (3): Malnutrition rates among children under 5 years who attended a health facility for screening during (2019-2021); (%)



Source: WHO, 2022, Nutrition, http://www.emro.who.int/yemen/priority-areas/nutrition.html

Analysis of malnutrition trends at the governorate and district levels and critical cases in Yemen

Malnutrition is one of the greatest challenges facing Yemen. Acute malnutrition threatens half of children under five in Yemen in 2022: the humanitarian crisis continues to exert a terrible toll on children, where each malnourished child also means a family struggling to survive. The crisis in Yemen is a toxic mix of conflict, economic collapse and a severe shortage of funding to provide the life-saving help that's desperately needed.

Acute malnutrition among children aged 0-59 months is a major problem in Yemen. Overall acute malnutrition is rated 80% at phase 3 (IPC 3), with significant disparities across the geographical regions. Areas witnessing active war and conflict are among the most affected during the period 2017-2019, including (Hodeidah, Ta'iz, Sana'a, Lahj), which recorded a prevalence rate of 40%, with some areas classified as Critical. Considering Hodeidah and Ta'iz, levels of

[6] IPC, Yemen: Acute Malnutrition Situation January- May 2022 and Projection for June - December 2022. Mar 2022. https://www.ipcinfo.org/ipc-country-analysis/details-map/en/c/1155480/?iso3=YEM

acute malnutrition have sharply deteriorated in Ta'iz lowland, with 21.8% for Moqbana and Mocha districts, 17.8% for Thu Bab, Mawza'a and Al-Wazi'iyah. While AMN prevalence rates in Hodeidah lowland reached 25.2% in 2017. The most critical levels in 2021 were recorded in (Hodeidah, Abyan Lowland, Lahj Lowland, Ta'iz Lowland, Hajjah Lowland, and West Dhamar), with an overall combined prevalence rate of about 20%. Prevalence rate in Hodeidah highland and lowland reached about 30% [7].

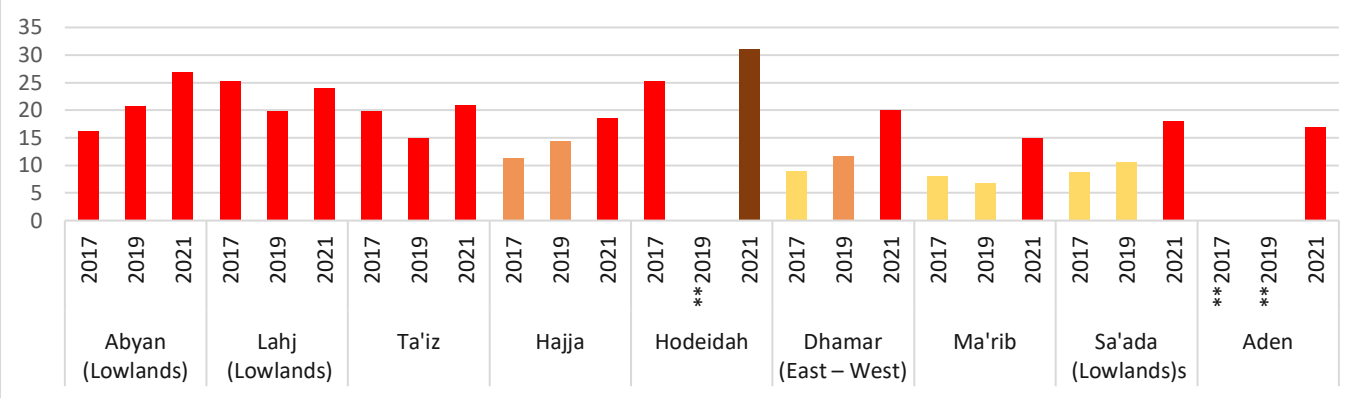
Fig (4): Patterns of critical* cases by governorate during 2017-2021

Source: Acute Malnutrition IPC during the period Jan. 2020 to March 2021, Yemen, February 2021.

* Critical cases in IPC 3 and IPC 4, as shown in Figure (2), Page (3).

Figure (5) shows that the situation of acute malnutrition has deteriorated during the past years in many zones. In Abyan lowland, it recorded 16.3% in 2017, and continue to rise to reach 27% in 2021. In Lahj (lowland), AMN prevalence rate jumped to 24%, however, a noticeable increase was reported in Hajjah ,Sa'ada (Lowland), Hodeidah and Ma'rib, where Hajja moved from "serious" to "Critical" recording 18.5% in 2021 compared to 11.3% in 2017 and Sa'ada (Lowland) moved from "Alert" to "Critical" recording 18% in 2021compared to 8.7% in 2017. Hodeidah was the most affected, as it moved from "Critical" to "Extremely Critical" level, recording 31%, compared to 25.2% in 2017. Ma'rib recorded an improvement, as the rate fell from 8.1 in 2017 to 6.8% in 2019, but this situation has deteriorated again in 2021 to 15%. This increase is attributed to the concentration of IDPs and further displacement to the governorate. Also, figure (5) shows that Aden recorded AMN at 17% in 2021.

Fig (5): Acute malnutrition rates in critical governorates during (2017, 2019 and 2021*); (%)



Source: Based on "Acute Malnutrition IPC" during the period Jan. 2020 to March 2021, Yemen, February 2021.
* Forecasts.
** Not available by source.

Comparing malnutrition rates in Yemen to the World and LDCs

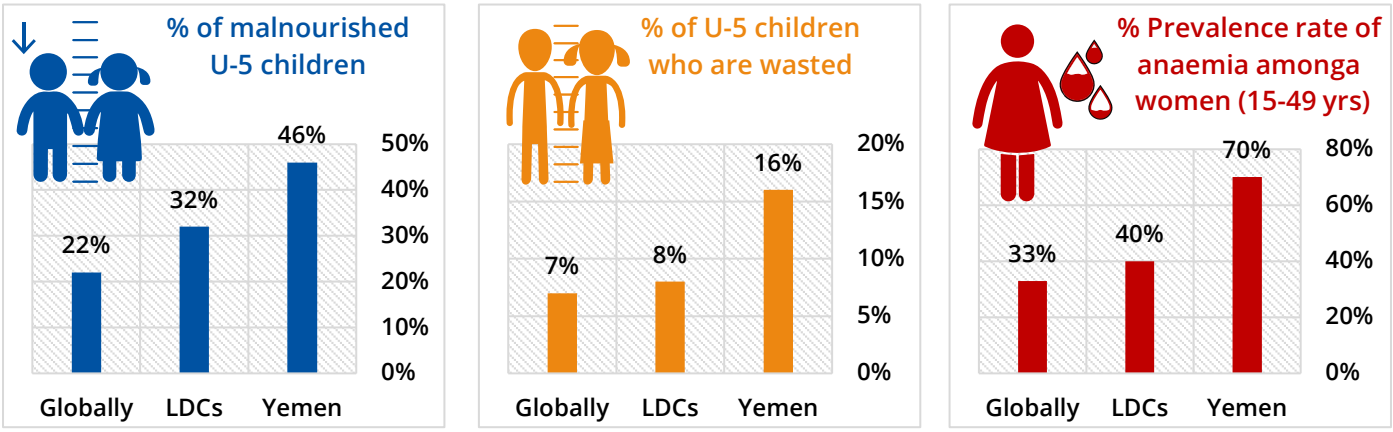
Yemen is considered one of the countries that suffer with the highest AMN prevalence rates in the world. The majority population face existential threat amid rising rates of the worst forms of acute malnutrition. Therefore, addressing acute malnutrition in all its forms remains a great challenge facing Yemen[8].

Women, infants, children and adolescents are particularly at higher risk of acute malnutrition, given that Yemen had double prevalence rates compared to global rates and in the Least Developed Countries (LDCs). According to UNICEF's State of the World Child Report 2020, nearly 5 in 10 children in Yemen(46%) aged 0-4 years are stunted, compared to only 2 out of 10 (22%) globally, and 3 out of 10 (32%) in the LDCs. In Yemen, stunting is associated with poor socioeconomic conditions, poor maternal health and nutrition, frequent illness, and/or inappropriate infant and

[7] IPC -Guidelines and criteria for decisions related to food security and nutrition - February 2021
[8] UNICEF, 2019.The State of the World's Children 2019, Children, food and nutrition: Growing well in a changing world.
https://features.unicef.org/ar/state-of-the-worlds-children-2019-nutrition/index.html#group-km-mnthomt-aghthy-taaml-lmslh-latfl-8Gk6Ff8P76

young child feeding and care in early life. Stunting holds children back from reaching their physical and cognitive potential. Stunting is a clear sign that children in a given country are not developing properly, a symptom of the deprivation they had, and an indicator of future poverty. As for the prevalence of wasting among children under 5 years, Yemen stood at 16%, compared to 7% globally, and 8% in the LDCs. It usually indicates recent and severe weight loss, because a person has not had enough food to eat and/or they have had an infectious disease, such as diarrhea, which has caused them to lose weight. A young child who is moderately or severely wasted has an increased risk of death. Anemia prevalence rate among women in Yemen is twice as high compared to the global average and that in the LDCs. 7 out of 10 (70%) of women in Yemen aged 15-49 have anemia, compared to 3 in 10 (33%) globally, and 4 in 10 (40%) in the LDCs.

Fig (6): Malnutrition rates in Yemen vs. LDCs and Global levels; (%)



Source: UNICEF, 2019.The State of the World's Children 2019, Children, food and nutrition: Growing well in a changing world. TABLE 8. P 223.
https://features.unicef.org/ar/state-of-the-worlds-children-2019-nutrition/index.html#group-km-mnthomt-aghthy-taaml-lmslh-latfl-8Gk6Ff8P76

III: Dimensions and Social Factors Contributing to Malnutrition

UNICEF's Conceptual Framework is broadly used as a useful tool to help understand the different causes and the multiple associated determinants that influence the nutritional status. It highlights the complexity, interconnectedness and related determinants that can affect the nutritional status at different levels.

Conceptual framework of malnutrition determinants in Yemen

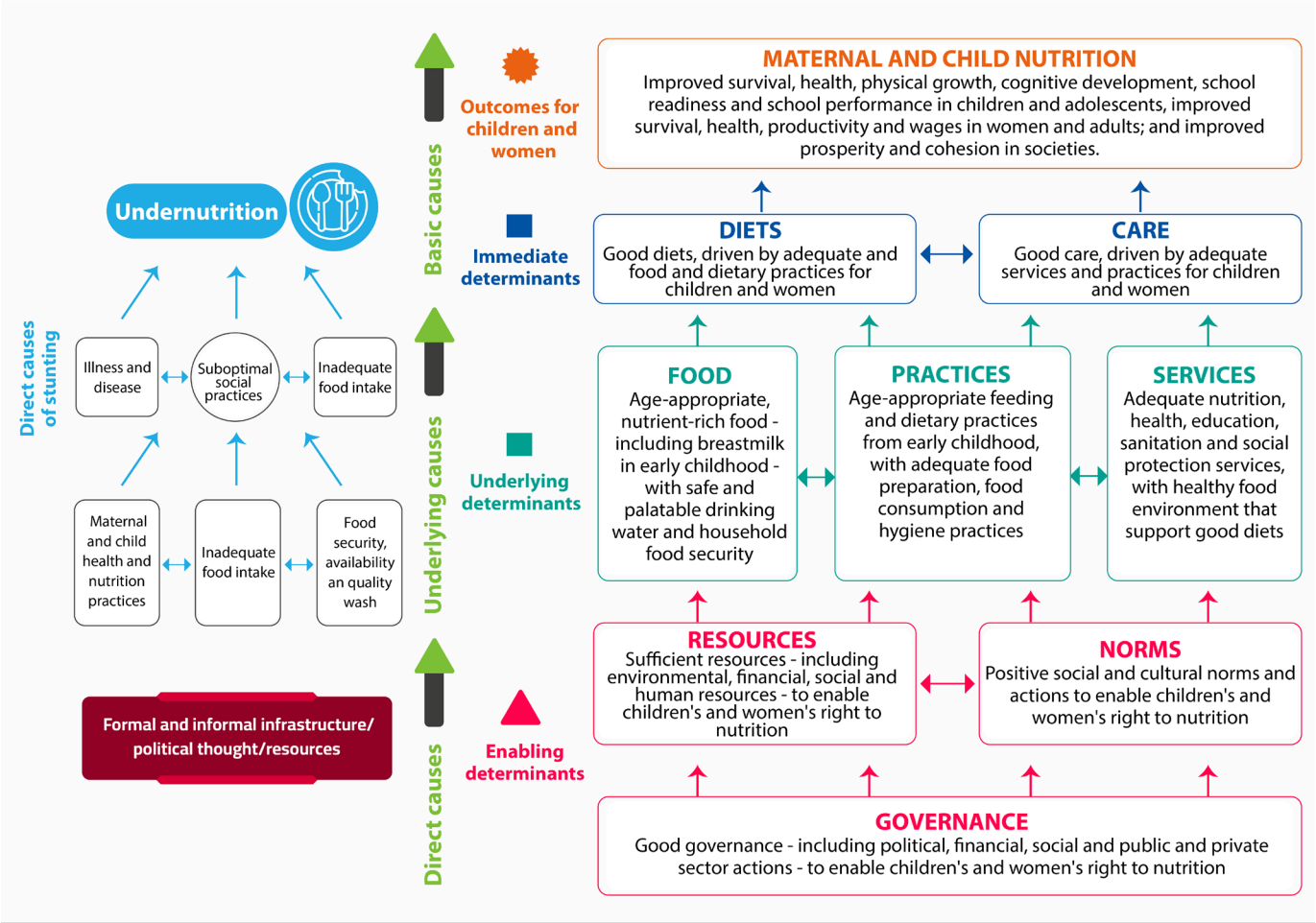
To better understand these complex and long-term challenges and address them, UNICEF has developed the Conceptual Framework on Maternal and Child Undernutrition 2020 on determinants of mother and child nutrition, which builds on UNICEF's 1990 conceptual framework on the causes of malnutrition among children –as immediate determinants of maternal and child nutrition, and acknowledges the increasing triple burden of undernutrition among mothers and children.

It offers new knowledge about the drivers of malnutrition. The determinants of stunting are not only those of health. According to UNICEF's Conceptual Framework for Childhood Undernutrition9, the determinants of stunting include poor food intake, frequent episodes of illness and disease, and poor birth outcomes, such as low birth weight and preterm birth. These, in turn, are caused by complex and multisectoral determinants, including improper IYFC practices; poor WASH services; and household food insecurity (including poor quality and insufficient quantity of food intake)10. The figure below presents a simplified version of the original and improved UNICEF Conceptual Framework, adapted to fit in the situation in Yemen.

The Framework uses a positive narrative about what contributes to good nutrition for children, adolescents and women, and provides conceptual clarity on the enabling, underlying and immediate determinants of adequate nutrition among children and women, as well as the positive outcomes resulting from improved maternal and child nutrition (Fig 7).

[9] UNICEF's 1990 conceptual work on the causes of malnutrition
[10] Black et al. 2013 (The Lancet)

Fig (7): Immediate and underlying factors for malnutrition in Yemen as in UNICEF's Original and Updated Conceptual Framework on Maternal and Child Nutrition



Source: UNICEF. 1991. Conceptual Framework on the Causes of Malnutrition.
United Nations Children's Fund (UNICEF), December 2020. Nutrition for Every Child, UNICEF Nutrition Strategy 2020-2030. UNICEF, New York

It appears from the previous framework that reaching a sustainable reduction in malnutrition rates in Yemen depends on multiple factors. Global evidence has shown the need to expand nutritional interventions to address the immediate determinants of child nutrition, both at the health and nutrition levels. Complementary interventions in nutrition-sensitive social policies to address the underlying determinants of child nutrition are indispensable for achieving optimal reduction in malnutrition. The 2013 Lancet Nutrition[11] Series estimated that scaling up 10 basic nutrition interventions to 90% coverage could achieve a 15% reduction in under-five mortality, a 20% reduction in stunting, and a 61% reduction in severe wasting. Among the ten most effective interventions identified, given that the main underlying determinants of stunting in Yemen include improper IYFC practices and poor WASH services, which calls forspecific high-impact nutritional interventions based on the following evidence: (a) supplementary feeding with iron and folic acid in the perinatal period; (b) encourage exclusive breastfeeding; (c) appropriate supplementary feeding; (d) vitamin A supplementation; and (e) prevention and management of acute malnutrition. At the same time, implement essential nutrition-sensitive social and multi-sectoral policy actions to improve WASH services and strengthen health services.

The conflict remains the key driver of malnutrition in Yemen, which has been exacerbated by the instability of humanitarian assistance. Projections for 2022 indicate a critical increase in malnutrition rates, as a result of the protracted conflict, with access to public services virtually halted resulting in delayed/reduced salaries, poor access to health services, inadequate access to water, and other services such as education, energy, etc[12]. Thus, the primary, underlying and direct causes of malnutrition are complex and multidimensional, including social and economic factors.

[11] Black, RE, CG Victoria, SP Walker, Z.A. Botha, P. Christian, MD Onis, M. Isati, S. Grantham-McGregor, J. Katz, R. Martorell and YR, Maternal and Child Nutrition Study Group. 2013. "Undernutrition and Overweight in Mothers and Children in Low and Middle Income Countries." The Lancet 382: 427-51
[12] IPC, Yemen: Acute Malnutrition Situation January- May 2022 and Projection for June - December 2022. Mar 2022. https://www.ipcinfo.org/ipc-country-analysis/details-map/en/c/1155480/?iso3=YEM

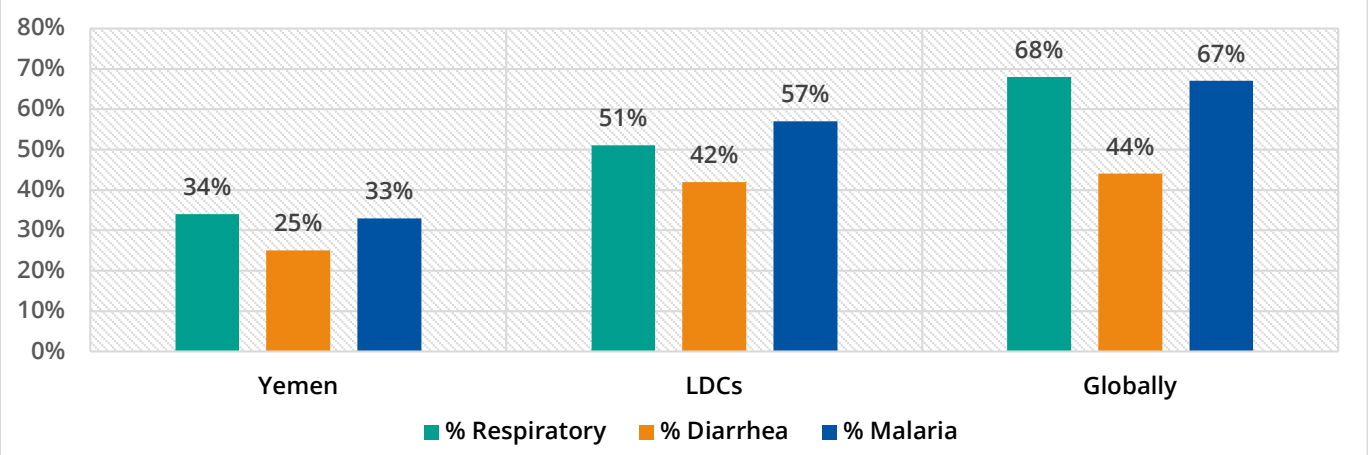
Social Factors Contributing to malnutrition in Yemen

There are several direct social factors that contribute to the prevalence of malnutrition at the individual and household level, including:

High prevalence of communicable diseases: Yemen suffers from high rates of communicable diseases, and limited access to health services by children and families, which is one of the most common causes of acute malnutrition among children. At the national level, 3 out of 5 children (59%) suffer from diarrhea, while 2 out of 5 children (43%) suffer from Malaria.[13]

Meanwhile, the incidence of infectious diseases, especially cholera, and seasonal diseases such as acute respiratory infections in all parts of the country, is among the key and direct factors behind surging malnutrition cases. According to the indicators of the State of the World Child Report 2019 issued by UNICEF, Yemen is one of the most dangerous places in the world for children to grow up, due to poor health care for children. Figure (8) shows that children under five in Yemen who were taken to a health care provider or a medical facility for screening or treatment, out of those who developed symptoms of pneumonia infections, make up 34%, compared to 68% globally, and 51% in the least developed countries. Meanwhile, the proportion of Yemeni children who developed symptoms of diarrhea and taken to a care provider or medical facility for screening or treatment was as low as 25%, compared to 44% and 42% globally and in the LDCs, respectively. Likewise, the proportion of children in Yemen taken to a caregiver or medical facility for screening or treatment after showing symptoms of malaria is only to 33%, compared to 67% and 57% globally and in the LDCs, respectively.

Fig (8): Children under five with symptoms of infection who were taken to a caregiver or health facility for screening or treatment; (%)



Pneumonia: Children showing symptoms of acute respiratory infection: Percentage of children under five with symptoms of pneumonia (coughing, rapid breathing or difficulty breathing due to a chest problem) who were taken to a caregiver or medical facility for screening or treatment.

Diarrhea: Treating diarrhea with oral rehydration salts (ORS): Percentage of children under the age of five who had diarrhea and received ORS (oral rehydration salts sachets or oral rehydration salts sachets).

Malaria: Medicare for Children with Fever: Percentage of children under the age of five who developed a fever and were taken to a caregiver or medical facility for screening or treatment. Drug sellers, businesses, stores and traditional healers are excluded. In some countries, especially where malaria is not endemic, pharmacies are not also considered part of this list UNICEF, 2019.The State of the World's Children 2019, Children, food and nutrition: Growing well in a changing world. TABLE 4. P 207.
https://features.unicef.org/ar/state-of-the-worlds-children-2019-nutrition/index.html#group-km-mnthomt-aghthy-taaml-lmslh-latfl-8Gk6Ff8P76

Poor quality and quantity of food consumption: a major contributing factor to acute malnutrition. Minimum Dietary Diversity is less than 45% nationally[14], indicating low levels of nutrient adequacy in children's food consumption.

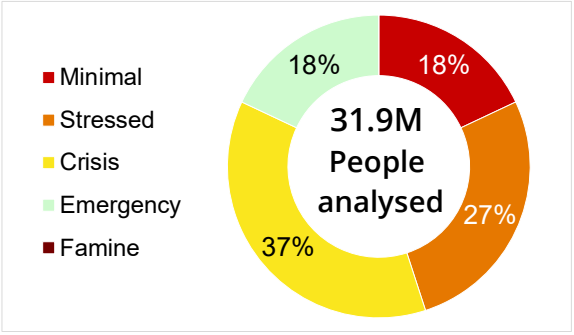
Poor Infant and Young Child Feeding practices: exclusive breastfeeding among infants under 6 months of age shows very low average rates (15%) which still lags behind the WHO global targets 2025 (at least 50%), suggesting causal linkages between sub-optimal breastfeeding practices and high levels of acute and chronic malnutrition .[15]

[13] Excerpts from the Yemen IPC for Food Security and Nutrition, April 13, 2021.
[14] Ibid.
[15] WHO, Yemen: Nutrition Surveillance Feb 2022 http://www.emro.who.int/yemen/priority-areas/nutrition.html

Elevated levels of acute food insecurity: a major contributing factor to acute malnutrition in Yemen. IPC analysis estimates that 54% of Yemen's population will suffer acute food insecurity (IPC Phase 3 and above) in 2022, with 17.4 million people in need of assistance as of now, increasing to 19 million starting June to December 2022.

Of greatest concern is the 31,000 people facing extreme hunger levels (IPC Phase 5 Catastrophe) now, rising to 161,000 by June[16], which will further exacerbate the acute malnutrition situation in Yemen. This indicates a strong correlation between malnutrition and food insecurity.

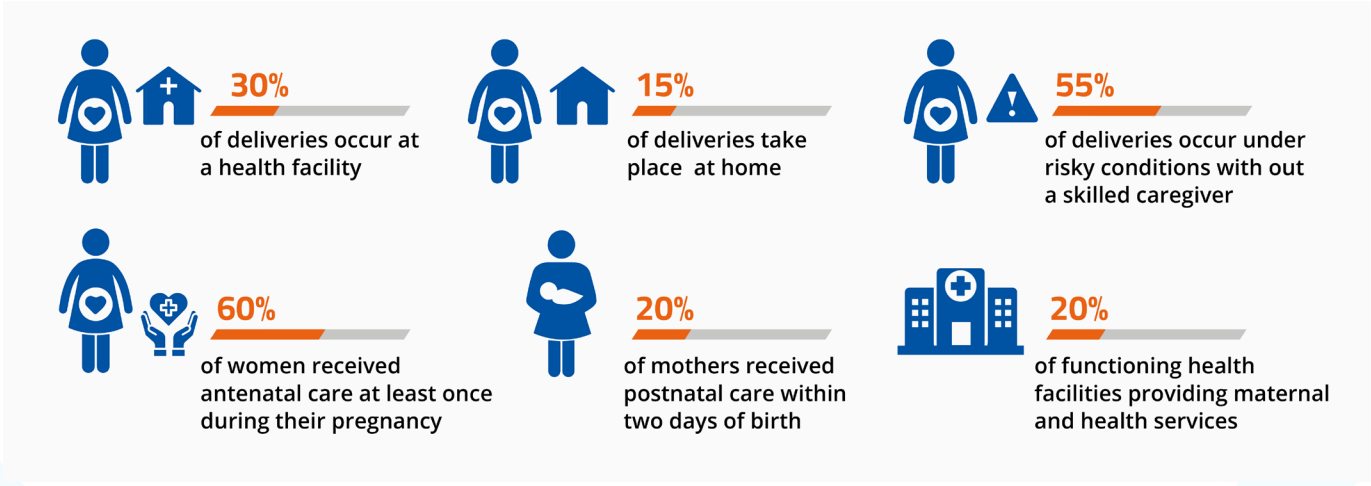
Fig (9): Acute Food Insecurity in Yemen, March 2022



Source: IPC, Yemen: Acute Malnutrition Situation January- May 2022 and Projection for June - December 2022. Mar 2022

Poor access to health, nutrition and WASH: access to healthcare services remains a challenge for a significant proportion of Yemen's population. Only 50% of health facilities are fully functional, while over 80% of the population face major challenges in accessing food and health care services. In addition, the lack of human resources, equipment and supplies stand as a stumbling for providing quality health care services. Moreover, the conflict has exacerbated health challenges and undermined proper health sector management[17]. Hence, children are at higher risk of malnutrition and further deterioration in their nutritional status. It is estimated that 5 million women and girls at the childbearing age, and 1.7 million pregnant and lactating women, have limited or no access to reproductive health services, in addition to high maternal mortality rate (385/100,000 live births), according to 2015 estimates, i.e. the highest in the Arab region.[18]

Fig (10): Maternity services in Yemen



Source: UNFPA.

The COVID-19 pandemic has aggravated the situation, with roughly 15 per cent of the functioning health system re-purposed for COVID-19 patients. Only 20 per cent of functioning health facilities provide maternal and child health services due to lack of essential medicines, supplies and specialized staff. There are only 10 health workers per 10,000 people – less than half the WHO minimum benchmark, and 67 out of the 333 districts in Yemen have no doctors.[19]

Social Factors Contributing to the Prevalence of Malnutrition at the governorate level

Table (2) shows the five factors contributing to malnutrition (inadequate food intake - diseases - Inadequate access to food - inadequate care for children - insufficient health services & unhealthy environment), as indicated in the IPC Report January-December 2021. The factors contributing to malnutrition were classified at the level of governorate, with the primary contributing factor marked in dark blue, while the secondary contributing factor is marked in light blue.

[16] IPC, Yemen: Acute Malnutrition Situation January- May 2022 and Projection for June - December 2022. Mar 2022. https://www.ipcinfo.org/ipc-country-analysis/details-map/en/c/1155480/?iso3=YEM
[17] World Bank, Health Sector in Yemen - Policy Note. https://www.albankaldawli.org/ar/country/yemen/publication/health-sector-in-yemen-policy-note
[18] UNFAP, Sexual and Reproductive Health. https://yemen.unfpa.org/en/node/22535
[19] Ibid

Table (2): Factors contributing to malnutrition by governorate (Jan 2020-March 2021)

	Inadequate food intake	Diseases	Inadequate access to food	Inadequate care for children	Insufficient health services
Ta'iz					
Socotra					
Shabwa					
Mareb					
Lahj					
Hadhramout					
Mahara					
Jawf					
Hodieda					
Dhalea'a					
Al Baidha'a					
Aden					
Abyan					
Raymah					
Ibb					
Sana'a					
Sa'ada					
Ma'rib					
Dhamar					
Amran					
Mahweet					

Key contributing factor | secondary contributing factor

Source: IPC Analysis January 2020 – March 2021, February 2021.

Analysis of the boxes above and the distribution of contributing factors at the governorate level found that:

- In most governorates of the Republic, the main factor cited was (inadequate food intake - diseases - Inadequate access to food - inadequate care for children), while Socotra, Hadhramout, Mahra, Sa'ada and Amran saw these contributing factors as secondary drivers.
- In (Shabwa - Ma'rib - Lahj) the main contributing factors were (inadequate food intake - inadequate access to food - inadequate care for children), while the secondary contributing factors was (insufficient health services & unhealthy environment).
- It was observed that in most governorates of the Republic, the secondary contributing factor to malnutrition was (insufficient health services & unhealthy environment), except for Shabwa, Dhale'a, Sana'a, Sa'ada and Hajjah.
- Diseases are considered as the main factor in most governorates, except for Socotra and Mahara.

IV: Dimensions and Economic Factors Contributing to Malnutrition

Malnutrition poses a serious impediment to global economic development, with economic factors being among the most important key drivers of this phenomenon, especially in developing or low-income countries, including Yemen.

High rates of poverty contribute to the exacerbation of malnutrition:

Poverty exacerbates malnutrition by impairing the quality of food intake. Poverty begets financial constraints, which means people turn to less expensive staple foods[20]. Scientific research and reporting always point to extreme poverty as a major factor for the prevalence of acute malnutrition. In the case of Yemen, the State of the World's

[20] DEREK D. HEADEY AND MARIE T. RUEL, Economic shocks and child wasting. IFPRI DISCUSSION PAPER , 2020. https://www.ifpri.org/publication/economic-shocks-and-child-wasting

Children Report 2019, shows that malnutrition rates (stunting index) among children of the poorest quintile in Yemen (the poorest 20% of the population) stands at 59%. This is a significantly higher level compared to 26% among children in the richest quintile (the richest 20% of the population), as shown in Table (3). This means the difference in malnutrition prevalence rates between the poor and the rich quintiles is 33 percentage points. On the other hand, the prevalence of malnutrition among children of poorest quintile (the poorest 20% of population) in Yemen is 14 percentage points higher than the global level, and 45 percentage points[21] up compared to the LDCs. Malnutrition is deep-rooted among poor children of Yemen. This means that extreme poverty in Yemen could be justifiable given the very low income levels.

Table (3): stunting index among pre-school age children (0-4 years) by wealth quintiles; (%)

	All children	Poorest 20%	Richest 20%
Yemen	%46	%59	%26
Least Developed Countries	%32	%45	%22
Globally	%22	%45	%20

Source: UNICEF, 2019, State of the World's Children 2019, Children, Food and Nutrition. New York. Table 8. Nutrition: preschool and school age children, women and households. p. 223.

Future forcastes by the United Nations Development Program study "Assessing the Impact of the War in Yemen on Achieving the Sustainable Development Goals," predict that if the war continues in Yemen through 2022, Yemen will be classified as the poorest country in the world. The report predicted that by 2022, Yemen would suffer the largest poverty gap in the world[22]. In addition, drivers behind the accelerated and growing poverty in Yemen are chronic structural factors and further intensified by the continued war and conflict, with its repercussions including soaring exchange rate, and deteriorating purchasing value at the national level, which reached 478% end of 2021 as compared to 2014[23]. Meanwhile, shrinking economic activity pushes more households into the poverty cycle, together with damages brought by climate change induced disasters. These shocks have detrimental effects on generational malnutrition rates. This is true for the ongoing conflict and war in Yemen, where poverty is causing an increase in malnutrition rates among young children.

Shrinking GDP per capita exacerbates child malnutrition rates in Yemen

Several reference studies indicate that decreased GDP per capita is synonymous to high child wasting rates. Meanwhile, severe negative economic shocks always lead to a significant rise in poverty and food insecurity levels. One study has found that a 10 annual decrease in GNI per capita pushes moderate or severe wasting rates among U-5 children by 14-22%, due to related losses in per capita GNI[24]. The nutritional impacts of economic shocks thus increase the risk of malnutrition and reduce the dietary diversity for children. This is further clarified by UNICEF's Conceptual Framework on Malnutrition. People preoccupied with development and poverty issues tend to focus on evaluating the impact of economic growth on financial poverty levels, which is measured by the size of individual spending vis-a-vis the national poverty line, including child malnutrition indicators. As a matter of fact, the relationship between the growth of average per capita income and child malnutrition is not unclear. It is perceived that shrinking per capita income in Yemen erodes the people's ability to purchase their food needs necessary for proper nutrition. The contraction in GDP per capita (-8.5%, on average) between 2010 and 2021, pushed malnutrition rates among children further up by about 13%.

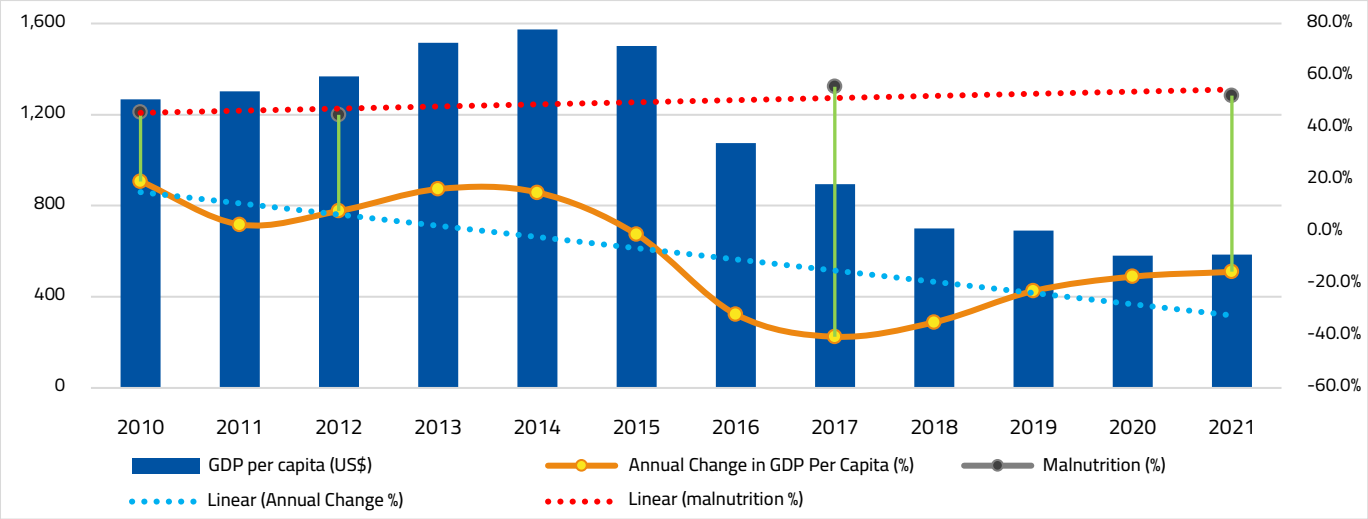
[21] UNICEF, 2019, State of the World's Children Report 2019, Children, food and nutrition. New York. Table 8. Nutrition: preschool and school age children, women and households. p. 223

[22] https://www.ye.undp.org/content/yemen/ar/home/library/assesing-the-impact-of--war-on-development-in-yemen-SDGs.html

[23] Food and Agriculture Organization of the United Nations, January, 2022. https://app.powerbi.com/view?r=eyJrIjoiMmMwYzE0OWEtMDFkYS00ZGM4LTgwYmItMjBjN2M5OWM5ZDAzIiwidCI6IjE2M2FjNDY4LWFiYjgtNDRkMC04MWZkLWO5ZGIxNWUzYWY5NiIsImMiOjh9&pageName=ReportSectionc5e63b280e6b753062d2

[24] DEREK D. HEADEY AND MARIE T. RUEL, Economic shocks and child wasting. IFPRI DISCUSSION PAPER , 2020. https://www.ifpri.org/publication/economic-shocks-and-child-wasting

Fig (11): GDP Per Capita in Yemen (US $)



Source: IMF, World Economic Outlook Database, Oct 2021. Report for Selected Countries and Subjects (imf.org)

Worsened livelihoods and increased proportion of households suffering from multi-dimensional poverty in Yemen

Livelihoods constitute[25] the first line of defense for households to protect themselves during conflicts and wars. The cost incurred by the society as a result of conflicts is not confined to lives and property alone, but also greatly threatens livelihoods and the future of living. It also increases the economic and social vulnerability for a large portion of families in the short term, and reduced ability to withstand to future shocks.

The humanitarian and economic conditions have become quite alarming. The proportion of Yemeni families suffering multi-dimensional poverty has chronically increased from 23.9% in 2014 to 46.3% in 2018; reaching more than half of the population (51.4%) in 2021[26]. Livelihoods and income sources in the private and public sectors have been greatly affected by the ongoing war, with most families have exhausted their savings and are facing mammoth difficulties accessing food and basic social services. This, in turn, forced a growing number of households to resort to negative coping mechanisms such as reducing food intake and selling their homes, land, productive assets, livestock and furniture. This is due mainly to the ongoing war and related crises, notably the severe economic downturn, skyrocketing prices, collapsing basic services, fluctuations in the exchange rate, and fuel shortage crisis.

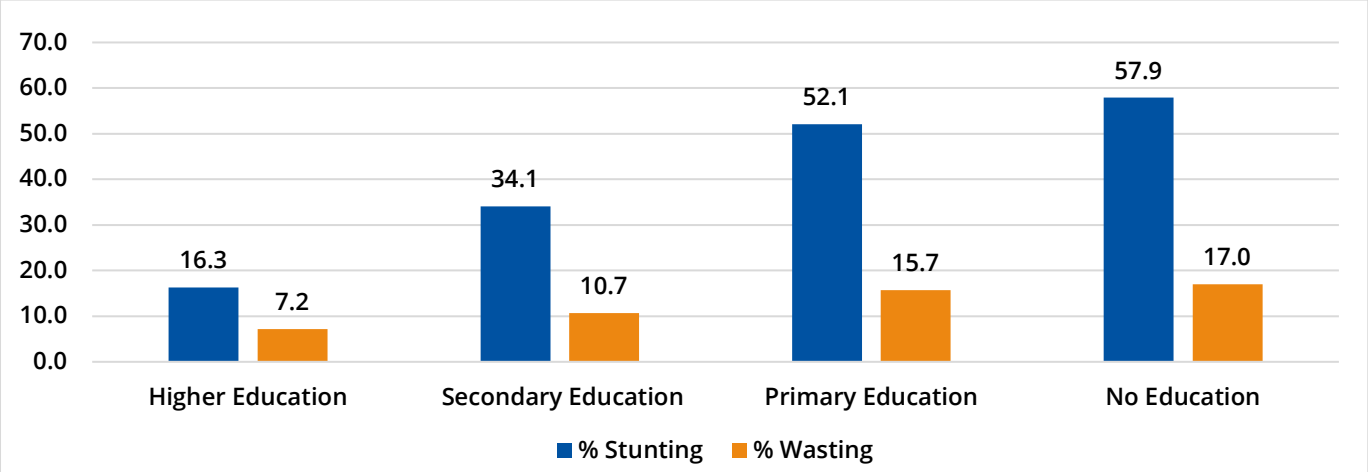
The loss of livelihoods has led millions of Yemenis to rely on humanitarian aid, or negative coping strategies. The existing coping strategies to access food and livelihoods in response to stress factors, lead to prolonged asset depletion, and more vulnerable populations engaged in a host of interrelated response mechanisms to address food inaccessibility and rising food prices. The usual reaction is to change the quantity and quality of food consumed. Over half of the respondents (55%) reported that they are having less food than in the past, and 39% reported they buy less expensive food. Moreover, direct and indirect schooling costs pose a growing constraint amid declining household purchasing power. Children leave school either to assist their families in productive activities, or to join the fray of income-generating work, an evidence that high food prices trigger higher school dropout.[27]

Poor mother education and its relation to child malnutrition

Malnutrition (stunting) rates among children of illiterate mothers are over three times higher than mothers with higher education and twice as high for mothers with secondary education. Over 50% of children for illiterate mothers suffer from stunting (57.9%). The higher the educational ladder of the mother, the less stunting rates we get, to reach 16.3% among children for mothers with higher education. On the other hand, wasting rate among children for illiterate mothers is two times higher than for mothers with higher education, recording 17% and 7.2%, respectively.

[25] Livelihoods are defined as "the capabilities, assets, and strategies people use to meet their basic needs and survive. See: Livelihoods Development in Syria, Omran Center for Strategic Studies, December 2015. P 4.
[26] UNDP, The 2021 Global Multidimensional Poverty Index (MPI). http://hdr.undp.org/en/2021-MPI
[27] Yemen - State of Food Insecurity in Yemen based on the Emergency Food Security and Nutrition Assessment (EFSNA), April 2017 http://reliefweb.int/sites/reliefweb.int/files/resources/wfp291809_0.pdf

Fig (12): Mother education and the prevalence of child malnutrition (stunting, wasting) (% of U-5 children) in Yemen; (%)



Source: UNICEF/WHO/World Bank Joint Child Malnutrition Estimates Expanded Database: Wasting (Survey Estimates), April 2021, New York.

On the other hand, literate and more empowered mothers have better nourished children. Recent analyses in Bangladesh reaffirm evidence that when women are involved in household decisions and have control over earnings, their children are better nourished. It was also found that a woman's experience of abuse and acceptance of domestic violence had a significant negative impact on her nutritional status, affecting her ability to produce a healthy baby.[28]

V: Impacts of malnutrition on social and economic development in Yemen (economic cost)

Acute malnutrition impedes the ability to persons reaching their full potential, reduces future employment opportunities, while it declines business and contribution to the local economy.

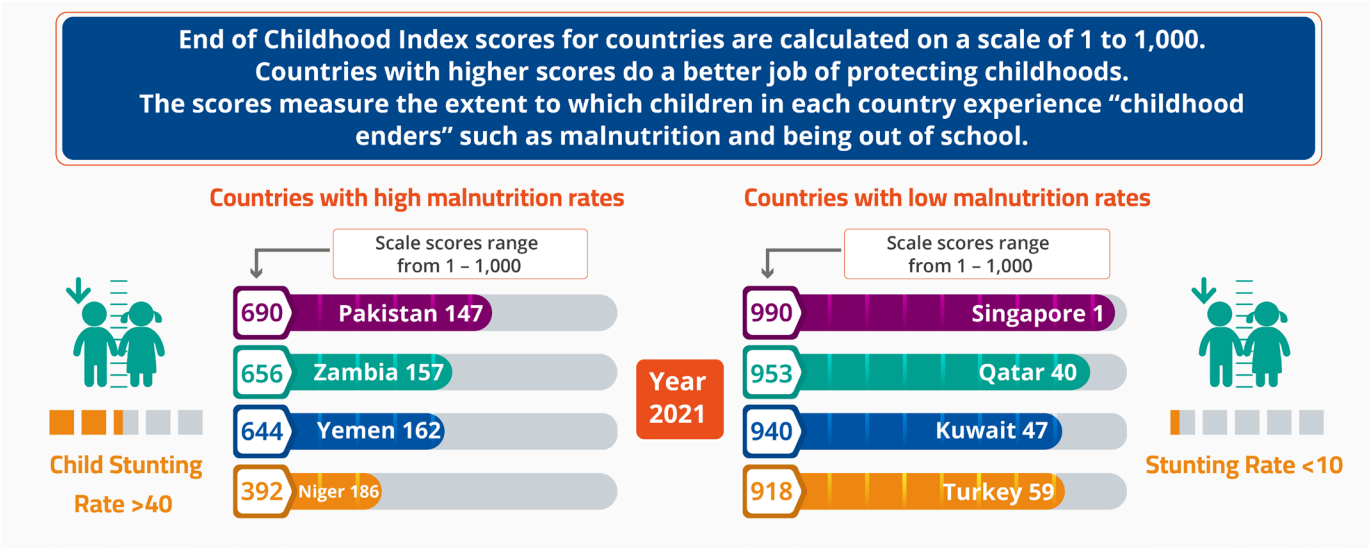
Effects on education, productivity and poverty:

Studies indicate that chronically malnourished children showed significant deficits in selective attention, visual and auditory working memory and executive function compared to adequately nourished groups, who showed statistically significant differences on tasks involving executive function, selective attention and visuospatial working memory. Hence, the difference in functioning is thought to be due to underdeveloped pre-frontal cortex among stunted children, causing functionality impairment to them. This leads to poorer performance in school and the likelihood of repetition being not ready to move on to the next level, stop education or poor school performance.[29]

Stunting triggered by malnutrition destroys the future of many children even before they are born. Malnourished children are more likely to fail school and drop out early than their better-nourished peers, limiting their prospects for future earnings and increasing their likelihood of living in poor families[30]. The End of Childhood Index 2021 ranked Yemen 162 out of 186 countries listed. This low rank means that childhood in all of Yemen has ended very soon. The major reasons include malnutrition, ill health with low levels of educational attainment[31], which reveals where greater investments are needed to save children in Yemen from the effects of malnutrition prevalence.

[28] WORLD BANK, Helping India Combat Persistently High Rates of Malnutrition. May 13, 2013. https://www.worldbank.org/en/news/feature/2013/05/13/helping-india-combat-persistently-high-rates-of-malnutrition
[29] Morgan KE. The cognitive effects of chronic malnutrition and environment on working memory and executive function in children. Indep Study Proj Collect. 2015;2053 https://digitalcollections.sit.edu/isp_collection/2053
[30] Stunting: The Face of Poverty, SRI MULYANI INDRAWATI JUNE 06, 2013. https://blogs.worldbank.org/voices/stunting-face-poverty
[31] Save the Children, GLOBAL CHILDHOOD REPORT 2021, https://www.savethechildren.org/content/dam/usa/reports/advocacy/2021-global-childhood-report.pdf

Fig (13): Malnutrition and the End of Childhood Index 2021



Save the Children, GLOBAL CHILDHOOD REPORT 2021, https://www.savethechildren.org/content/dam/usa/reports/advocacy/2021-global-childhood-report.pdf

Malnutrition has a severely negative effects on human productivity. Most malnourished children show low levels of education, which affect their ability and chances for good jobs, and reduce their earning capacity. This cause a drop in the number and strength of the workforce. The loss in productivity costs Yemen an equivalent of 3.4% of its GDP, according to the End of Childhood Index 2017.[32]

As conflict and war continues, Yemen faces the long-term consequences of malnutrition, reduced productivity, and incurred costs, which have deepened poverty in the country.

Effects on health

Malnutrition is a major global health burden[33]. It mainly affects the U-5 segment of the population because adequate nutrition is vital for them to grow and develop properly[34].

In Yemen, malnutrition not only increases the risk of child death, but also increase mobility impairment. Children suffer from various conditions and diseases caused by deficiencies of specific nutrients, such as blindness and neural tube defects caused by deficiency of vitamin A and folic acid, respectively. Observations from many countries indicate that managing and treating children with malnutrition and related diseases is a recurring cost to the health system. Treating a severely underweight child is more expensive than preventing undernutrition, and the burden is doubled with the presence of comorbidities. These costs always shoot up at each particular stage of the condition, especially if families lack access to health services or absence of health workers[35]. In the case of Yemen, malnutrition has a significant impact on child disability, illness and morbidity. Data show that a malnourished child is more likely to die and contract childhood disease such as measles, malaria and respiratory infections.

The health conditions often deteriorate due to high levels of child malnutrition, low immunization coverage rates, and the incidence of communicable diseases. Maternal and child health in particular is affected by the worsening situation. In addition, the conflict that has directly affected the people's health, coupled with unprecedented challenges such as the COVID-19 pandemic, has undermined the future stability of health services in Yemen. This has made the health system in Yemen more vulnerable to severe risks[36].

Economic costs

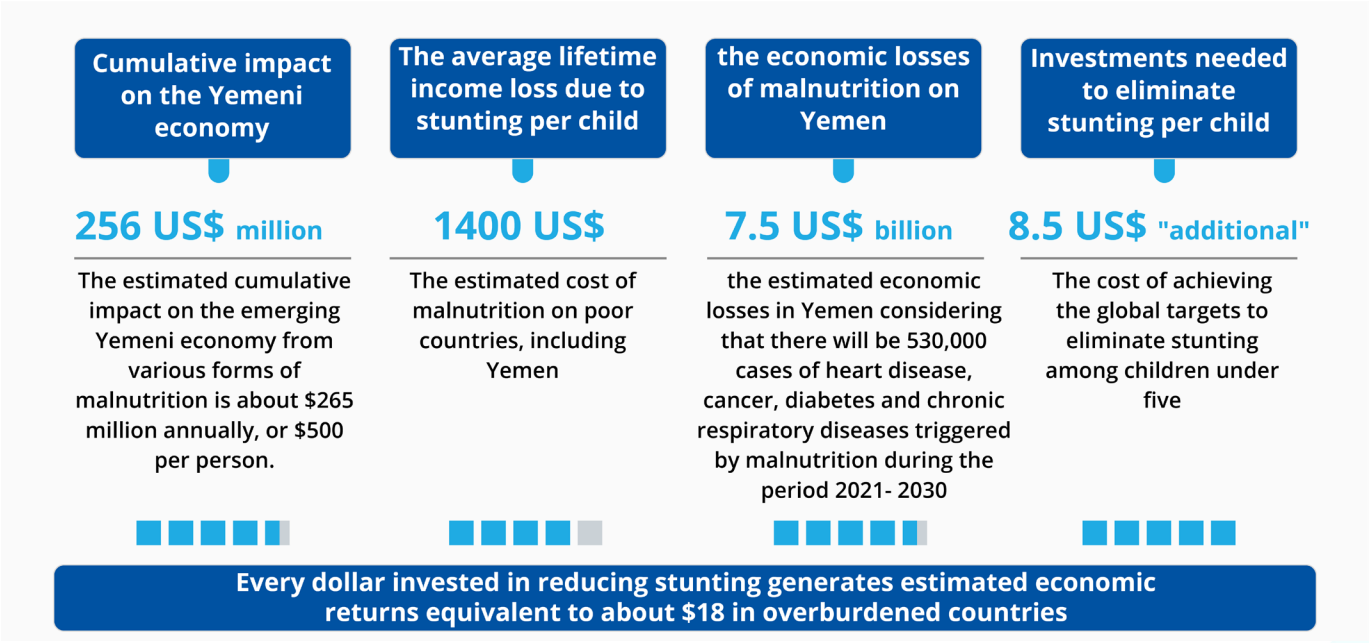
Collectively, the loss of potential and productivity has huge implications for the broader socio-economic development of societies and nations. It undermines countries' ability to develop '**Human Capital**', or the overall levels of education, training, skills, and health in a population. And the loss is significant.

[32] Global End of Childhood Index, Report 2017. p. 9
[33] WHO, Malnutrition, 9 June 2021. https://www.who.int/news-room/fact-sheets/detail/malnutrition
[34] Unicef , Malnutrition. April 2021. https://data.unicef.org/topic/nutrition/malnutrition/
[35] Yusuff Adebayo Adebisi. Prevalence and Socio-economic Impacts of Malnutrition among Children in Uganda, 2019. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6878600/
[36] World Bank, Health Sector in Yemen - Policy Note 09/14/20 https://www.albankaldawli.org/ar/country/yemen/publication/health-sector-in-yemen-policy-note

UNICEF's report, "The Changing Face of Malnutrition: The State of the World Children 2019" indicates that the average lifetime income loss associated with stunting was $1,400 per child, but could exceed $30,000 in the wealthiest countries. The economic losses in low- and middle-income countries from diseases related to overweight and obesity, will exceed $7 trillion during the period 2011–2025. The estimated cumulative impact on the global economy from various forms of malnutrition is about $3.5 trillion annually, or $500 per person. The report stresses that there is a strong case for investing in addressing malnutrition. The cost of achieving the global targets to eliminate stunting among children under five is an additional $8.50 per child per year. Every dollar invested in reducing stunting generates estimated economic returns equivalent to about $18 in overburdened countries.

This methodology enables us to estimate the economic losses of malnutrition on Yemen, as shown in figure (14). The estimated cost of malnutrition on Yemen as an average for poor countries, is $1,400. The average lifetime income loss due to stunting per child, the estimated economic losses in Yemen considering that there will be 530,000 cases of heart disease, cancer, diabetes and chronic respiratory diseases triggered by malnutrition during the period 2021 2030, is estimated to be about $7.5 billion. The estimated cumulative impact on the Yemeni economy arising from the various forms of malnutrition amounts to $265 million annually, or $500/person.

Fig (14): Estimated Economic Costs Due to Malnutrition in Yemen



https://features.unicef.org/ar/state-of-the-worlds-children-2019-nutrition/index.html#group-km-mnthomt-aghthy-taaml-lmslh-latfl-8Gk6Ff8P76
FAO, Understanding the Real Cost of Malnutrition, 2014 .https://www.fao.org/zhc/detail-events/ar/c/238396/

VI: Social Policies and by Other Sectors to Address Malnutrition

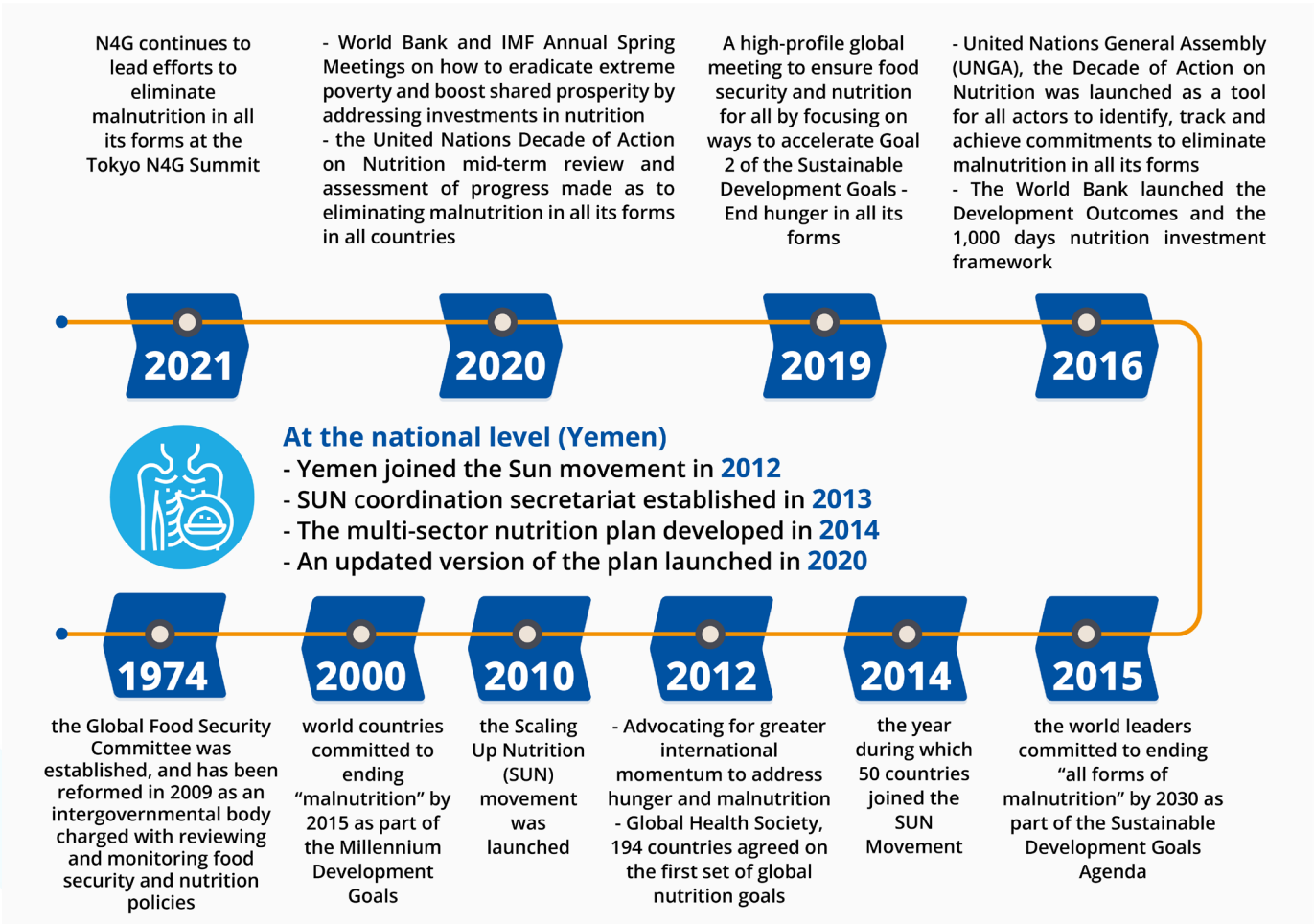
Ending all forms of malnutrition is one of the most pressing and pervasive development challenges. Most countries are burdened with several forms of malnutrition. And that the situation of people suffering from hunger and malnutrition, exacerbated by a series of crises affecting the global economy, is among the major obstacles that stand in the way of the completion of the progress of the developing countries and all the peoples concerned, which urged the United Nations reach a commitment and an agreement on a charter to be adopted as as effective tool to reduce malnutrition. With the support of the United Nations, governments, donors, civil society and the private sector, the result has been a growing global momentum to prioritize nutrition and unprecedented, coordinated and impactful commitments to improve the nutritional status globally.[37]

[37] Commitments to action on nutrition, corresponding to policy development processes, implementation mechanisms or financial investments. They can be financial or non-financial and should reflect national priorities and respond to the current nutritional status, health and food systems of a country. WHO, countries pledge to address malnutrition through rigorous policies and actions https://apps.who.int/mediacentre/news/releases/2014/icn2-nutrition/en/index.html

Universal Pledge to End Malnutrition

Universal Declaration on the Eradication of Hunger and Malnutrition 1974: the Universal Declaration on the Eradication of Hunger and Malnutrition, which was endorsed by General Assembly resolution 3348 (29-d) of 17 December 1974, marks the jump-start of the international commitment to the elimination of hunger and malnutrition, included as one of the objectives in the United Nations Declaration on Social Progress and Development, and the elimination of the causes that determine this situation are the common objectives of all nations. Since, for various reasons, many developing countries are not yet always able to meet their own food needs, urgent and effective international action should be taken to assist them, free of political pressures. It proclaims, therefore, that every man, woman and child has the inalienable right to be free from hunger and malnutrition in order to develop fully and maintain their physical and mental faculties. Accordingly, the eradication of hunger is a common objective of all the countries of the international community, especially of the developed countries and others in a position to help[38]

Fig (15): Nutrition Commitments by the International Community to Eradicate Hunger and Malnutrition in all its forms



Source : - World Bank, Nutrition 2021 https://www.albankaldawli.org/ar/topic/nutrition/overview#4
- Nutrition for Development https://nutritionforgrowth.org/about/
- World Bank, An Investment Framework for Nutrition: Reaching the Global Targets for Stunting, Anemia, Breastfeeding and Wasting. 2017.
- https://www.worldbank.org/en/topic/nutrition/publication/an-investment-framework-for-nutrition-reaching-the-global-targets-for-stunting-anemia-breastfeeding-wasting
- YEMEN MULTISECTORAL NUTRITION ACTION PLAN (2020-2023), March2020.

UN Decade of Action on Nutrition for 2016-2025: The Decade is an unprecedented opportunity for addressing all forms of malnutrition (undernutrition, micronutrient deficiencies, overweight, obesity), and diet-related noncommunicable diseases for all age groups. The Decade is an unprecedented opportunity for addressing all forms of malnutrition. It sets a concrete timeline for implementation of the commitments made at the Second International Conference on Nutrition (ICN2) convened in October 2014, and the Agenda for

[38] Universal Declaration on the Eradication of Hunger and Malnutrition . https://www.ohchr.org/AR/ProfessionalInterest/Pages/EradicationOfHungerAndMalnutrition.aspx

Sustainable Development by 2030 endorsed in 2015. The main objective of the Nutrition Decade is to increase investments dedicated to nutrition and to implement policies and programs aimed at improving food security and nutrition within the framework agreed at the ICN2. The United Nations Decade of Action on Nutrition represents a commitment by Member States to undertake ten years of continuous and coherent implementation of policies and programmes, in accordance with the recommendations and commitments of the ICN2 Framework of Action, and the 2030 Agenda for Sustainable Development. The Decade clarifies nutrition-related actions at the highest level, and ensures coordination and multisectoral collaboration, create synergies, and measure progress towards sustainable food diets and food security and nutrition for all. Although the United Nations Decade on Nutrition recognizes the need to end hunger and prevent all forms of malnutrition around the world, it nevertheless, provides an umbrella mechanism for Action for a wide range of actors to work together to address these and other pressing nutrition issues in order to achieve the goals set out in the 2030 Agenda. In addition, the United Nations General Assembly called on the World Health Organization and the Food and Agriculture Organization to lead the implementation of the United Nations Decade of Action on Nutrition, in cooperation with the World Food Program, the International Fund for Agricultural Development and the United Nations Children's Fund, and to define and develop a program of action , using the coordination mechanisms UNSCN of the Standing Committee on Nutrition of the United Nations System.[39]

The Second International Conference on Nutrition (Rome Declaration on Nutrition 2014):

The Rome Declaration on Nutrition recognized that malnutrition, in all its forms, including undernutrition, micronutrient deficiencies, overweight and obesity, is detrimental to the health and well-being of people by negatively affecting human physical and mental development, undermines the immune system and increases human susceptibility to communicable and non-communicable diseases. It limits the ability of human beings to reach to their full potential and productivity. It incurs high negative social and economic costs and impacts, as well as other burdens on individuals, families, societies and countries. Countries have committed themselves to confronting the many challenges associated with malnutrition in all its forms and to identifying opportunities to address them in the coming decades (See box 1).

Box (1): Commitments Pledged during the Rome Declaration on Nutrition, Second International Conference on Nutrition, Rome 19-21 November 2014

- "End hunger and all forms of malnutrition globally, particularly the elimination of malnutrition, stunting, wasting, underweight and overweight among U-5 children, and anemia in women and children.
- Increase investments for effective interventions and actions to improve food systems, including in emergencies.
- Promote sustainable food systems by developing coherent public policies.
- Underline the importance of nutrition within strategies and policies. Improving nutrition by strengthen human and institutional capacities to address malnutrition in all its forms.
- Devise policies and initiatives to ensure life-time food systems.

Source: Conference Outcome Document: Rome Declaration on Nutrition, World Health Organization, FAO, 2014

Role of Social Protection Policy in Addressing Malnutrition and Rebuilding Human Capital

A study [40] by the High-Level Panel of Experts on Food Security and Nutrition submitted to the Global Food Security and Nutrition Task Force had emphasized that Social Protection is gaining attraction as a means to mitigate malnutrition and to tackle food insecurity. Comprising a range of potential measures to reduce poverty and strengthen human resources to address malnutrition risks. Inadequate access to food can be addressed directly, through cash transfers (conditional or unconditional) or transfers of food (school feeding, supplementary feeding). While social protection is associated mainly with social transfers, yet it offers a much larger menu of options. The Table below shows social protection instruments contributing to addressing malnutrition.

Table (4): Social protection responses and policies to address malnutrition through transfers

Social protection instruments	Food security objectives
Unconditional cash transfers	1) Reduce hunger and 2) enhance food consumption
Conditional cash transfers	1) Reduce hunger and 2) promote children to access to education and healthcare
Supplementary feeding	Reduce hunger or poverty
School feeding	1) Reduce hunger and 2) promote access to education

Source: High-level Panel of Experts on Food Security and Nutrition, Committee on World Food Security, Social Protection for Symptoms of Food Security, Rome, June 2012 p. 25.

[39] United Nations, UN Decade of Action on Nutrition 2016 .2025 https://www.unscn.org/en/topics/un-decade-of-action-on-nutrition
[40] High-level Panel of Experts on Food Security and Nutrition, Committee on World Food Security, Social Protection for Symptoms of Food Security, Rome, June 2012. p. 25.

The study confirmed that social assistance and social insurance schemes can also stimulate local economic activity. Evidence from Latin America, Asia and Africa confirms that investment in social protection is an investment in growth. Social protection policies have extended the limits of social protection by incorporating development policy areas, and adding the Social Protection Floor Initiative[41]

From this perspective, social protection is seen as a primarily as a set of tools for achieving poverty reduction and economic growth. Building on minimum standards for social security established by the ILO, the 'social protection floor' has two main components: one is the social transfers component (cash or in-kind, to ensure the minimum level of income) , and second access to 'essential services including (e.g. water, education, health and hygiene, including sanitation services).[42]

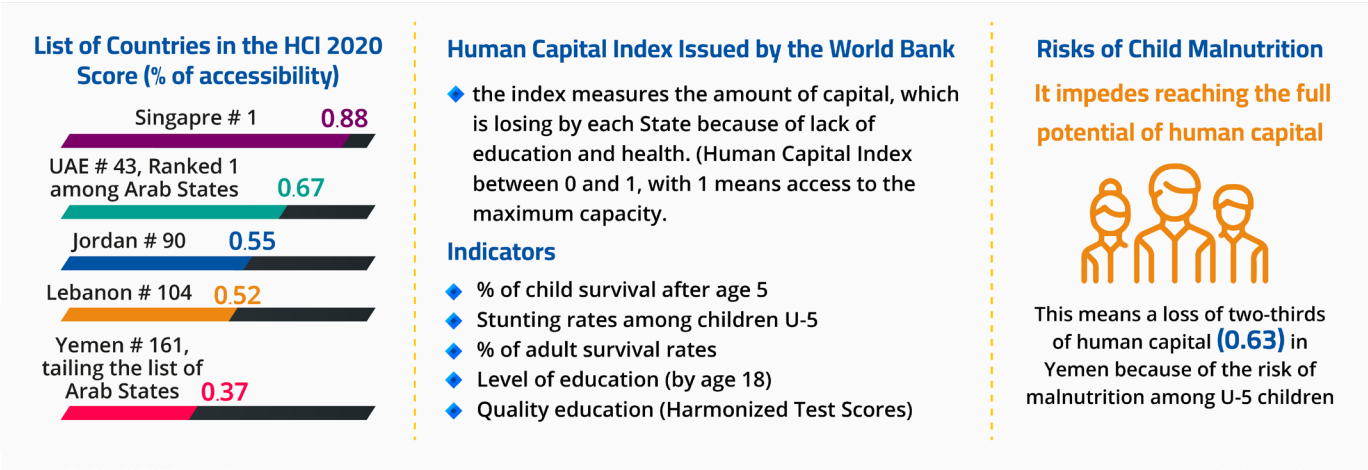
Malnutrition is very much related to poverty. Poverty is often at the heart of malnutrition, and poor children are more likely to be underfed and malnourished, get sick, not complete school and fall back into poverty in the aftermath of drought, disease or economic instability.[43]

Perhaps the most direct way to demonstrate the way in which malnutrition affects the individual's economic prospects is its association with reduced earnings – in effect, the impact of malnutrition on productivity. Available research indicated that the average lifetime lost earnings associated with stunting is US$1,400 per child.[44]

Social Policy and its Important Role in Rebuilding Human Capital

Human capital, i.e. knowledge, skills and health that people develop over the course of their lives, is one of the key drivers of sustainable growth. The increase in the human capital of the next generation has much to do with the situation of the child born today vis-a-vis the risks of malnutrition (stunting rates among children under five years). According to the Human Capital Index 2020 issued by the World Bank measures the amount of lost capital in any country, due to poor education and health,(The Human Capital Index score ranges between 0 and 1, with 1 meaning reaching the full potential), and Yemen ranked 161 out of 173 countries included in the Index, scoring (0.37). This means two-thirds of human capital (0.63) in Yemen is lost due to malnutrition risks among children under five years. Hence, taking action to protect childhood in Yemen is urgently needed, especially for the poor and vulnerable. Relevant interventions shall be designed and implemented to fully mobilize the human capital for the next generation, and the need to invest in developing better human capital measurements important step now than ever before.[45]

Fig (16): Effects of Malnutrition on Human Capital for Next Generation in Yemen



Source: World Bank, Human Capital Project. © 2022 The World Bank Group, All Rights Reserved.
https://www.albankaldawli.org/ar/publication/human-capital#firstLink21648

[41] The Social Protection Floor: It is an initiative led by the United Nations, meaning that it is the first systematic attempt to activate a rights-based approach to social protection. The social protection floor is a set of rights and transfers that enable and pave the way for all members of society to obtain a minimum set of goods and services. For more details see:
High-level Panel of Experts on Food Security and Nutrition, Committee on World Food Security, Social Protection for Symptoms of Food Security, Rome, June 2012. p 34.
ILO and WHO. (2009). Social Protection Floor Initiative: Manual and strategic framework for joint UN country operations. Geneva: International Labour Office and World Health Organisation. P1.

[42] High-level Panel of Experts on Food Security and Nutrition, Committee on World Food Security, Social Protection for Symptoms of Food Security, Rome, June 2012. p. 25.
ILO and WHO. (2009). Social Protection Floor Initiative: Manual and strategic framework for joint UN country operations. Geneva: International Labour Office and World Health Organisation. P1.

[43] UNICEF, State of the World's Children Report, 2019, p. 51.

[44] UNICEF, State of the World's Children Report, 2019, p. 60.

[45] World Bank, Human Capital Project. © 2022 The World Bank Group, All Rights Reserved. https://www.albankaldawli.org/ar/publication/human-capital#firstLink21648

The most obvious manifestation on relationship between nutrition and the economic development in a given country is the impact it has on human capital. In 2018, the World Bank launched the Human Capital Index (HCI)[46] which includes an international metric to benchmark the key components of human capital across countries. HCI measures the amount of human capital that a child born today can expect to attain by age 18, given the risks of malnutrition, poor health and poor education that prevail in the country where he/she lives.

This indicator demonstrates that malnutrition is directly responsible for the human capital losses, according to Human Capital Index (2020) and Components: Regional Benchmarks, table (5) shows the averages of the 5 components of the Human Capital Index and the average of the overall Human Capital Index 2020). Comparing Yemen in terms of the impact of malnutrition risks on human capital shows that it has significant negative effects on the productivity of the next generation in the country, i.e. around 37% of human capital distribution.

Table (5): Human Capital Index (2020) and Components: Regional Benchmarks

Indicator	Yemen	East Asia Pacific &	& Europe Central Asia	Middle East North & Africa	North America	South Asia
HCI Component 1: Survival						
Probability of Survival to Age 5	0.945	0.978	0.993	0.984	0.994	0.962
HCI Component 2: School						
Expected Years of School	8.1	11.9	13.1	11.6	13.3	10.8
Harmonized Test Scores	321	432	479	407	523	374
HCI Component 3: Health						
Survival Rate from Age 15 to 60	0.804	0.864	0.904	0.912	0.915	0.841
Fraction of Children Under 5 Not Stunted	0.536	0.759	0.903	0.823		0.692
Human Capital Index (HCI) 2020	0.37	0.59	0.69	0.57	0.75	0.48

Source: World Bank Database, HCI, September 2020.

Key interventions by the social protection policy and other sectors to address malnutrition and build human capital in Yemen

Investments in nutrition are central to develop human capital, because nutrition is key to child growth, cognitive development, school performance, and future productivity. There is a considerable young workforce emerging in Yemen - with great creativity and productivity potentials. Although, the risks of malnutrition limit the demographic dividend, yet the returns on investment in nutrition are high. Services included in social protection policies and other sectors intend to address malnutrition and food insecurity, by establishing linkages among relevant sectors such as health, education, food and agriculture, and WASH, to ensure decent work and social welfare, and to build human capital.

The focus in this context is on those main interventions to confront malnutrition in Yemen, with view to key interventions in the area of social protection policies, and other sectors, that are funded and implemented by many international organizations, particularly the World Bank, UNICEF, and the World Health Organization, in addition to the Ministry of Public Health and Population, the national partner in implementing all these interventions, without addressing the assessment and the effects - for which a separate number may be allocated during this year – so we can shed light on the responses to confronting malnutrition amid the conditions unfolding in the country, considering the interlinkages between malnutrition and key sectors. Table (6) shows the main nutritional interventions designed to reduce malnutrition, and it highlights nutrition-sensitive interventions that directly and indirectly address the intermediate and underlying causes of malnutrition, thereby help to improve access to nutritious food, clean water and sanitation, education, employment and health care services.

Table (6): Key Interventions in the Area of Social Protection and other Sectors to Address Malnutrition

Intervention/Project	Activities and Objectives
Cash Transfer Programs and Projects	
Unconditional Cash Transfers	The emergency cash transfer project, implemented by UNICEF since August 2017, provided unconditional transfers to 1.5 beneficiary cases registered with the Fund Welfare, reaching a total of 9 million people
Conditional Cash Transfers	"Cash for Nutrition" Program in Yemen, Social Fund for Development initiative "Cash for Nutrition"

[46] For more information about HCI: www.worldbank.org/humancapitalproject

Intervention/Project	Activities and Objectives
Strengthening Social Protection and Response to COVID-19 in Yemen Project (SPECRP)	- Provide nutrition-sensitive cash transfers and temporary employment - Facilitate access to basic services and economic opportunities for malnourished and food insecure segments of the population - Strengthen and building capacity of national service delivery institutions
Social Policy /Social Inclusion Program	The social policy program focuses on: (1) Addressing the multidimensional child poverty and inequalities among children (2) Maintaining and strengthening national social protection systems (3) Building resilience to external shocks and strengthening humanitarian response activities.
Food Security, Agriculture and Nutrition	
Regular monthly emergency food assistance through in-kind, cash and voucher assistance as well as livelihoods support	This assistance seeks to: (i) increase access to food for the most vulnerable families in all regions of Yemen, (ii) raise the income of rural families and rehabilitate food security assets in areas with high food insecurity rates
Nutrition programs and projects	These programs and projects focus on: 1) reducing the prevalence of acute malnutrition among U-5 children and pregnant and lactating women; 2) Enhancing preventive nutrition services for vulnerable population groups.
Health	
Multi-sector programs targeting integrated life-saving nutrition	Improve access to primary, secondary and specialized health care, including health facilities. Ensure access to integrated social services, including health, nutrition, birth registration, education, and health education. The integrated model of social and economic assistance and empowerment.
Yemen Emergency Health and Nutrition Project	Promote the provision of basic health services and essential nutrition services. WASH supplies
Community management of acute malnutrition (CMAM)	Management of moderate acute malnutrition through patient-centered supplementary feeding programs. Management of severe acute malnutrition with and without complications, through TFC programs. Newborn and young child feeding and counseling services. Preventive services such as micronutrient interventions, including micronutrient supplementation services. Training health workers to .manage severe acute malnutrition cases
WASH	Providing emergency and life-saving WASH assistance for the most vulnerable groups to reduce high rates of morbidity and mortality. Rapid response and provision of water purification materials Hygiene awareness and quick-impact interventions to curb infection.
Education	Helping maintain basic education services, especially in areas where schools have been damaged. Providing school snacks for students. Hygiene, education and school rehabilitation activitie

Source: For more details, please visit:
Yemen Emergency Health and Nutrition Project, World Bank https://www.albankaldawli.org/ar/news/factsheet/2019/05/14/yemen-emergency-health-and-nutrition-project
Strengthening Social Protection and Response to COVID-19 in Yemen Project (SPECRP), December 2020- December 2022 https://www.ye.undp.org/content/yemen/ar/home/projects/SPECRP.html
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VII: Recommendations and Priority Actions

First: Adopting a multi-sector, systems-based approach to nutrition, involving various stakeholders at all levels

Addressing the problem of malnutrition requires a multi-sector, systems-based approach to nutrition, involving various stakeholders at all levels, as well as nutrition actors in Yemen. By establishing strong links between sectors such as social policies, health, education, food and agriculture and WASH, to ensure decent work and social welfare. :Key recommendations in this regard include the following

1. Supporting all efforts aimed at economic recovery, restoring growth and building peace in Yemen, and ensuring security and political stability are restored.
2. Investing in the country's human capital, and preventing child malnutrition in all its forms, must be placed a top priority within the national development agenda.
3. Applying a multi-track approach to social protection programs, to ensure integrated support for vulnerable groups and improve the deliverables of such programs.
4. Scaling up support to the social welfare system based on a "double-track" strategy to enhance the impact on resilience and food and nutrition security, through: 1) providing basic assistance in the short term, while protecting or building productive assets and infrastructure to support livelihoods and human development in the long run, 2) Enhancing integrated programs that directly support the livelihoods and agricultural productivity of the poor.
5. Supporting ambitious programs to advance the development of livelihoods for vulnerable groups, particularly for agrarian and fishery households.
6. Strengthening efforts to integrate temporary assistance programs with long-term social welfare programs
7. Prioritizing social protection during the critical "first 1,000 days" after birth up to two years of age, including policy development and interventions to ensure access to integrated social services, including health, nutrition, education and health education.
8. Turning focus to the WASH system, as it plays a critical role in preventing all forms of malnutrition by ensuring access to free, safe and acceptable drinking water, proper and safe sanitation services.
9. Supporting investments that promote women's access to productive resources, time and labor-saving technologies; income generating activities; as well as the role of women in economy.
10. Supporting and leveraging research and providing data and information generated by recent malnutrition studies in terms of precise identification of factors and drivers, and thus developing effective future interventions.

Second: Rebuilding the human capital in Yemen by supporting and encouraging investments in the area of child nutrition

Nutrition is at the heart of the 2030 Agenda for Sustainable Development. The second sustainable development goal sets out the ambitious goal of "Zero hunger, ensuring food security and improved nutrition. Recognizing nutrition as a key entry point in achieving each of the sustainable development goals. Therefore, investing in child nutrition is crucial for Yemen to achieve SDGs by 2030, and formation of human capital, because nutrition is an essential component of child's growth, cognitive development, school performance, and future productivity, through nutrition-sensitive investments in the impact pathways through which donor-funded projects contribute to improving nutrition. Analysis of malnutrition issues, the economic cost and impact of malnutrition on human capital in Yemen for the next generation, the table below presents a set of policies and recommendations to enhance the social policy response in rebuilding human capital:

Table (7): Social policy proposals for rebuilding human capital

Area	Interventions
Early Childhood Development (ECD)	- Support the delivery of services to infants and young children across the food, health, water, hygiene and sanitation, and social protection systems, especially during the first 1,000 days of the child's life. - Prevent severe deprivations through: acute malnutrition, harmful stress, ensuring continuity of access to basic health care, supplemented by cash transfers and support to parents and guardians/caregivers.

Area	Interventions
	- Introduce a multi-sector approach to ECD by focusing on: early childhood development with child-focused conditional cash transfers and well-coordinated complementary services.
Healthcare	- Basic health services that take into account the conditions of the poor through: immunization/child feeding; maternal/reproductive health; control of non-communicable diseases, etc. - Improving financial protection through: Reducing/abolishing fees collected from service beneficiaries.
Education	- Support further learning. - Well planned school reopening. - Pro-poor measures to facilitate re-enrolment/retention in school. - Enrolment/Retention in Education campaigns with a focus on girls/students at risk and the IDPs.
Employment, job creation and promoting equitable livelihoods	- Mitigate the damage and negative impact through temporary employment support and cash-for-work schemes. - .Expand childcare service delivery - Take measures that allow students retain in school for longer and scale up social assistance to families of low-income workers and livelihood programmes.

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