

Three decades of fighting against hunger in Africa: Progress, challenges and opportunities

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ABSTRACT

Tackling hunger is a challenge for many African governments because of its endemic nature on the continent. Many African countries have found it difficult to achieve significant reductions in hunger and malnutrition since 1990. In this paper, we review the progress of African countries in the fight against hunger over the past three decades, using the Global Hunger Index (GHI) scores. Ghana had the best GHI improvement (-53.1%) while Zimbabwe and Central African Republic had slightly increased GHI scores (+1.6%). Within this time period, few countries had significant reductions in their GHI scores, while some suffered increases. Furthermore, in assessing the three indicators of GHI: (i) prevalence of undernourishment (percent population), (ii) prevalence of stunting in children (%) and (iii) prevalence of wasting in children (%), we found that no country in Africa was able to achieve all three targets. Six countries (Tunisia, Ghana, South Africa, Morocco, Mauritius and Algeria) were able to achieve targets for two of these while the majority achieved only one. We present country-level evidence of clear links between GHI scores with score for human development, social protection and terrorism. Some challenges that made the zero hunger target a difficult task in Africa are reviewed while opportunities for moving the continent towards the zero-hunger target by 2030 are also explored.

Keywords: Zero Hunger; Food Security; Global Hunger Index; Malnutrition; Africa; Conflict events

INTRODUCTION

Feeding the over 7 billion people in the world has remained a major challenge for all stakeholders and heads of governments of all nations. In 2019, about 690 million or 8.9 percent of the world population suffered from hunger while about 2 billion did not have regular access to safe, nutritious and sufficient food. More than 1 billion are in Asia; 675 million live in Africa while 205 million reside in Latin America (FAO et al. 2020).

Sustainable Development Goal (SDG) 2, called Zero Hunger, was set to tackle the importance of food security and nutrition within the wider development agenda, and encourages all member nations to “*end hunger, achieve food security and improved nutrition, and promote sustainable agriculture*” by 2030. The five principal targets of SDG 2, as highlighted by the UN are, by 2030, to: (i) end hunger and ensure access to safe, nutritious, and sufficient food (ii) end all forms of malnutrition (iii) double the productivity and incomes of small-scale food producers (iv) ensure sustainable food production systems and implementing resilient agricultural practices (v) maintain the genetic diversity of seeds, plants, and animals.

The three main SDG2 implementing mechanisms are to: (i) increase investment through enhanced international cooperation (ii) correct and prevent trade restrictions and distortions in world agricultural markets and (iii) adopt measures to ensure the proper functioning of food commodity markets and their derivatives and facilitate timely access to market information (UN 2017).

Understanding the term “hunger” is defined by FAO as “*an uncomfortable or painful physical sensation caused by insufficient consumption of dietary energy. It becomes chronic when the person does not consume a sufficient number of calories (dietary energy) on a regular basis to lead a normal, active and healthy life*” (FAO et al. 2019). The “Zero Hunger” target focus aims not only to “eradicate hunger”, but also to “ensure access by all people to safe, nutritious and sufficient food all year round” (SDG Target 2.1) and to “eradicate all forms of malnutrition” (SDG Target 2.2) (FAO et al. 2019).

Hunger is endemic in most sub regions of Africa, with prevalence of undernourishment (POU) (measured as the share of the population whose caloric intake is insufficient) as the main indicator for monitoring progress in eradicating hunger globally. The POU in Africa increased from 192.6 million in 2005 to 250.3 million in 2019 and was projected to reach 433.2 million by 2030 as shown in Tables 1a and 1b. East and West Africa witnessed higher increases in the number of undernourished people, from 95 million to 117.9 million and 36.9 million to 117.9 million respectively, between 2005 and 2019 (FAO et al. 2020).

Since the inaugural edition of the Global Hunger Index in 2006, there has been steady and consistent reports tracking progress made towards ending hunger at national, regional and global levels. In this paper, we combine GHI data with other sources to assess the progress made by Africa in the fight against hunger in the last thirty years (1990 to 2019) highlighting the challenges and opportunities.

Genesis of Hunger

How serious are the nations of the world about ending hunger any time soon? According to Kent (2019), there has not been much deliberation on the root cause of hunger in the world. However,

Table 1a Total number of undernourished people in Africa (2005-2019)

	Number of undernourished (millions)							
	2005	2010	2015	2016	2017	2018	2019*	2030**
World	825.6	668.2	653.3	657.6	653.2	678.1	687.8	841.4
Africa	192.6	196.1	216.9	224.9	231.7	236.8	250.3	433.2
Northern Africa	18.3	17.8	13.8	14.4	15.5	15.0	15.6	21.4
Sub-Saharan Africa	174.3	178.3	203.0	210.5	216.3	221.8	234.7	411.8
Eastern Africa	95.0	98.1	104.9	108.4	110.4	112.9	117.9	191.6
Middle Africa	39.7	40.0	43.5	45.8	47.2	49.1	51.9	90.5
Southern Africa	2.9	3.2	4.4	5.1	4.5	5.2	5.6	11.0
Western Africa	36.9	37.0	50.3	51.2	54.2	54.7	59.4	118.8

Source: FAO et al. 2020.

Note: *Projected values, **Projected values up to 2030

Table 1b Prevalence of Undernourishment in Africa (2005-2019)

	Prevalence of undernourishment (%)							
	2005	2010	2015	2016	2017	2018	2019*	2030**
World	12.6	9.6	8.9	8.8	8.7	8.9	8.9	9.8
Africa	21.0	18.9	18.3	18.5	18.6	18.6	19.1	25.7
Northern Africa	9.8	8.8	6.2	6.3	6.6	6.3	6.5	7.4
Sub-Saharan Africa	23.9	21.3	21.2	21.4	21.4	21.4	22.0	29.4
Eastern Africa	32.2	28.9	26.9	27.1	26.8	26.7	27.2	33.6
Middle Africa	35.5	30.4	28.2	28.8	28.7	29.0	29.8	38.0
Southern Africa	4.9	5.4	7.0	8.0	7.0	7.9	8.4	14.6
Western Africa	13.8	12.1	14.3	14.2	14.6	14.3	15.2	23.0

Source: FAO et al. 2020.

Note: *Projected values, **Projected values up to 2030

many people believe that increase in hunger is linked to global food shortages occasioned by spike in population growth. Kent (2019), identified three underlying causes of overly persistent and growing world hunger, summarized as (i) “*Disjunction*”: hunger and poverty like Siamese twins chronically persisted because the people who have the power to solve hunger problems are not suffering from hunger

(ii) “*Compassion*”: people who have the power to assist in tackling hunger seem not to have compassion for the powerless, weak and most vulnerable (iii) “*Material interests*”: the powerful always serve the interests of the powerful and not the powerless, because the powerless do not benefit the powerful and this makes them be at the mercy of the powerful to exploit them (Kent 2019). This can also be referred to as “having the poor feed the rich” (Kent 2016; 2019). There is a widening gap between the rich and the poor in the world and this cannot be separated from the cause of increasing level of hunger in the world especially in Africa (Luhby 2019; Matthews 2019; Roser 2016; Kent 2019).

Types of Hunger

Poverty, undernourishment and micronutrient deficiency are considered the principal causes of hunger. Hunger situation may be grouped into three types and these are common on the African continent. They are acute, chronic and hidden hunger.

Acute hunger is generally regarded as the most extreme form of hunger and refers to a situation of undernourishment over a short period of time (Behera et al. 2019). It is commonly measured by comparing weight with the standard weight for a person's height, called "weight for height." Acute hunger could be triggered by crises like drought, wars and disasters. It may be a second-degree hunger affecting those that are already chronically hungry. In Africa, 5 countries facing acute hunger include DRC, Ethiopia, Nigeria (northern region), South Sudan and Sudan. Other countries aside from Africa are Haiti, Syrian Arab Republic, Venezuela, Afghanistan and Yemen (Behera et al. 2019; FSIN GRFC 2020).

Chronic hunger is a situation where a person does not consume adequate energy in their food to maintain a normal and active life over a longer period of time. In children it is most commonly measured as height for age compared to a standard and in adults as calorie intake compared to standard. It is usually linked to poverty among the poor and most vulnerable groups. This category of people do not possess adequate resources for healthy nutrition, potable water and access to healthcare. In Africa, more than 300 million suffer from chronic hunger while about 235 million are from Sub-Saharan Africa (SSA) (Tumushabe 2018).

Hidden hunger is a form of acute or chronic hunger occasioned by deficiency of major micronutrients (vitamins and minerals) (Gödecke et al. 2018; Otekunrin et al. 2019a; Behera et al. 2019). It affects a huge number of people; the World Health Organisation (WHO) estimated about 2 million people suffer from hidden hunger (WHO 2013; Ekholuenetale et al. 2020).

Understanding Global Hunger Index (GHI) in Africa in three decades (1990-2019)

From the annual reports of GHI, 2019 marked the third decade of assessing, reporting or tracking prevalence of world hunger.

GHI was first published in 2006 as a tool to measure hunger at global, regional and national levels by researchers from International Food Policy Research Institute (IFPRI) and *Welthungerhilfe* (Weismann 2006). In the 2006 report, GHI was calculated for the years 1981, 1992, 1997 and 2003. The year 2003 reflected the most up-to-date index scores, since more recent data were unavailable at that time. In 2007, *Concern* joined as co-collaborator in publishing the report. IFPRI pulled out as co-publisher of GHI after the 2017 release (von Grebmer et al. 2019). However, there have been some criticisms, especially about the concept and definition of the GHI (Aiga 2014).

In this review, we extracted 1997 data (1998 and 1999 data were unavailable) from 2006 report, 1990 data from 2015 report, 2009 data from 2009 report while 2000, 2010 and 2019 data were extracted from 2019 report.

GHI scores and ranks are calculated and determined annually to identify and assess progress and setbacks in ending hunger by country. It is a tool for comparing hunger severity and persistence among nations, proffering feasible strategies for combating the menace among nations with worst-

hit scenarios (von Grebmer et al. 2019). GHI scores are computed using a three-step procedure that utilises available data from several sources to capture the multidimensional nature of hunger in each nation (von Grebmer et al. 2018; 2019). From the first publication of GHI in 2006 to 2014, the values calculated were based on three weighted fundamental indicators: (i) the proportion of undernourished as percentage of population (ii) the prevalence of underweight in children < 5 years and (iii) the under-five mortality rate (Weismann, 2006). In 2015, “children underweight” was split into two, as “child wasting” and “child stunting” resulting in four indicators which are currently being used (von Grebmer et al. 2019; Otekunrin et al. 2019). The computation process described in von Grebmer et al. (2019) and other previous editions of GHI, results in GHI scores on a 100-point GHI Severity Scale where 0 is the best score (no incidence of hunger) and 100 (the worst), ranked as *low* (< 9.9), *moderate* (10.0-19.9), *serious* (20.0-34.9), *alarming* (35.0-49.9) and *extremely alarming* (≥ 50).

The prevalence of hunger in Africa witnessed some reductions (1990-2019) in some sub regions especially in North Africa, while a larger percentage of the continent still face major challenges in reducing hunger. Table 2 presents a compilation of GHI scores of African countries from 1990 to 1997, (no data for 1998-1999), 2000 to 2009, (2nd decade) and from 2010 to 2019.

Table 2: Global Hunger Index (GHI) Scores of Africa in three Decades (1990-2019)

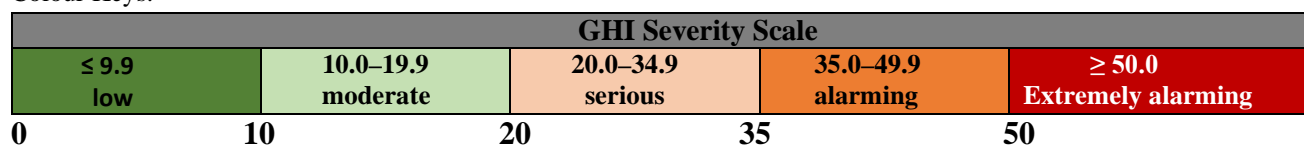
		GLOBAL HUNGER INDEX (AFRICA)							
		1 st Decade		2 nd Decade		3 rd Decade		2019 Global Rank	2019 Africa Rank
S/N	Country	1990	1999*	2000	2009	2010	2019		
1	Algeria	17.1	7.6	15.6	<5	10.6	10.3	47	4
2	Angola	67.3	38.2	65.1	25.3	38.6	29.8	100	31
3	Benin	46.1	21.0	36.7	17.2	28.3	24.0	82	17
4	Burkina Faso	53.0	22.9	46.3	20.4	36.8	25.8	88	22
5	Botswana	31.3	16.4	33.4	12.1	28.1	23.6	80	15
6	Burundi	-	39.7	-	38.7	-	-	-	-
7	Cameroon	39.8	21.2	39.7	17.9	26.2	22.6	76	12
8	Cabo Verde	-	-	-	-	-	-	-	-
9	Chad	65.0	35.9	51.5	31.3	50.9	44.2	115	42
10	Central African Republic	51.9	30.5	50.7	28.1	42.0	53.6	117	43
11	Comoros	-	29.6	-	26.9	-	-	-	-
12	Congo, Rep	38.9	-	37.3	39.1	32.0	31.0	106	36
13	Dem. Rep. Congo	-	35.1	-	15.4	-	-	-	-
14	Cote d'Ivoire	33.8	17.4	33.8	14.5	30.9	24.9	84	19
15	Djibouti	56.1	24.5	46.9	22.9	36.6	30.9	105	35
16	Egypt	20.5	7.0	16.3	<5	16.3	14.6	61	7
17	Eritrea	-	41.1	-	36.5	-	-	-	-
18	Equatorial Guinea	-	-	-	-	-	-	-	-

19	Ethiopia	71.7	41.7	55.9	30.8	37.4	28.9	97	28
20	Gabon	23.2	10.8	20.8	6.9	16.4	15.8	64	8
21	Gambia, The	36.4	22.0	27.5	18.9	22.5	21.8	75	11
22	Ghana	45.7	18.7	28.7	11.5	18.3	14.0	59	5
23	Guinea	47.8	24.6	43.6	18.2	30.7	27.4	91	24
24	Guinea Bissau	46.1	25.4	42.1	23.1	31.0	29.6	99	30
25	Kenya	34.8	23.0	36.9	20.2	27.6	25.2	86	21
26	Lesotho	25.8	14.6	33.1	12.0	26.2	23.2	79	14
27	Liberia	54.4	30.7	48.6	24.6	36.0	34.9	112	39
28	Libya	-	2.4	-	-	-	-	-	-
29	Madagascar	44.8	31.9	43.2	28.3	36.2	41.5	114	41
30	Malawi	58.9	30.5	44.5	18.5	31.1	23.0	78	13
31	Mali	51.9	32.0	44.2	19.5	27.4	24.1	83	18
32	Mauritania	40.0	17.4	33.4	15.0	24.9	26.7	90	23
33	Mauritius	18.2	7.7	15.3	6.7	12.2	9.6	43	3
34	Morocco	18.7	7.4	15.8	5.8	10.0	9.4	42	2
35	Mozambique	64.5	35.0	49.9	25.3	35.3	28.8	96	27
36	Namibia	35.8	22.3	30.7	14.4	30.6	24.9	84	19
37	Niger	64.7	41.2	52.1	28.8	36.6	30.2	101	32
38	Nigeria	47.7	20.9	40.8	18.4	29.9	27.9	93	25
49	Rwanda	53.9	32.1	56.6	25.4	32.4	29.1	98	29
40	Sao Tome and Principe	-	-	-	-	-	-	-	-
41	Senegal	36.8	19.9	36.3	17.3	23.6	17.9	67	9
42	Sierra Leone	58.8	33.7	53.6	33.8	40.8	30.4	103	33
43	Somalia	-	-	-	-	-	-	-	-
44	South Africa	18.7	7.3	19.2	7.0	16.6	14.0	59	5
45	South Sudan	-	-	-	-	-	-	-	-
46	Sudan	-	22.8	-	-	-	32.8	107	37
47	Swaziland (Eswatini)	22.8	14.0	29.6	11.1	26.5	20.9	74	10
48	Seychelles	-	-	-	-	-	-	-	-
49	Tanzania	42.2	31.6	42.2	21.1	34.1	28.6	95	26
50	Togo	42.5	21.2	39.3	23.1	27.3	23.9	81	16
51	Tunisia	11.5	4.4	10.7	<5	7.9	6.2	23	1
52	Uganda	39.8	21.7	38.9	14.8	30.8	30.6	104	34
53	Zambia	47.0	30.6	52.3	25.7	42.8	38.1	113	40
54	Zimbabwe	33.3	23.5	39.1	21.0	35.8	34.4	109	38

Source: Authors' compilation from 2006, 2009, 2015 and 2019 GHI Scores

Note: *The GHI scores in 1999 were based on data from GHI scores in 1997 due to unavailable data in 1998 and 1999.

Colour Keys:



In 1990, Ethiopia had the highest GHI score (71.7) while Tunisia had the lowest (11.5). At the end of the first decade, the following countries experienced substantial reductions in their GHI scores: Ethiopia (71.7-41.7), Angola (67.3-38.2), Chad (65.0-35.9), and Djibouti (56.1-24.5), while no country experienced an increased score. In 2000, Angola had the highest GHI score (65.1) while Tunisia had the lowest (10.7). During the second decade, some countries had some reductions in their GHI scores: Angola (65.1-25.3), Rwanda (56.6-25.4), Ethiopia (55.9-30.8) and Niger (52.1-28.8) while only Republic of Congo had a slight increase in GHI score (37.3-39.1). In 2010, Chad had the highest GHI score (50.9) while Tunisia had the lowest (7.9). During the third decade, three countries recorded increased GHI scores: CAR (42.0-53.6), Madagascar (36.2-41.5) and Mauritania (24.9-26.7).

Comparing the GHI scores of countries from 1990-2019, two countries, Central African Republic (CAR) and Zimbabwe experienced positive increases (+1.7 and +1.1 respectively) in their GHI scores. Countries with large reductions in GHI scores are Ethiopia (-42.8), Angola (-37.5), Malawi (-35.9), Mozambique (-35.7) and Niger (-34.5). All the North African countries except Libya recorded a reduction in their GHI score though the region had the lowest prevalence of hunger within the period. Central African countries had the highest GHI scores; with CAR having the highest GHI score in 2019 and ranked lowest in Africa and globally.

The overall change in the proportion of undernourished (that is, those whose calorie intake was insufficient) in African countries with available data from 1990 to 2019 is shown in Figure 1. Some countries were not captured in this three-decade assessment mainly due to lack of sufficient data occasioned by many challenges like wars and conflict events: Cabo Verde, Burundi, Comoros, Democratic Republic of Congo, Equatorial Guinea, Eritrea, Sao Tome and Principe, Somalia, Libya, South Sudan, Seychelles and Sudan (was only captured in 2019).

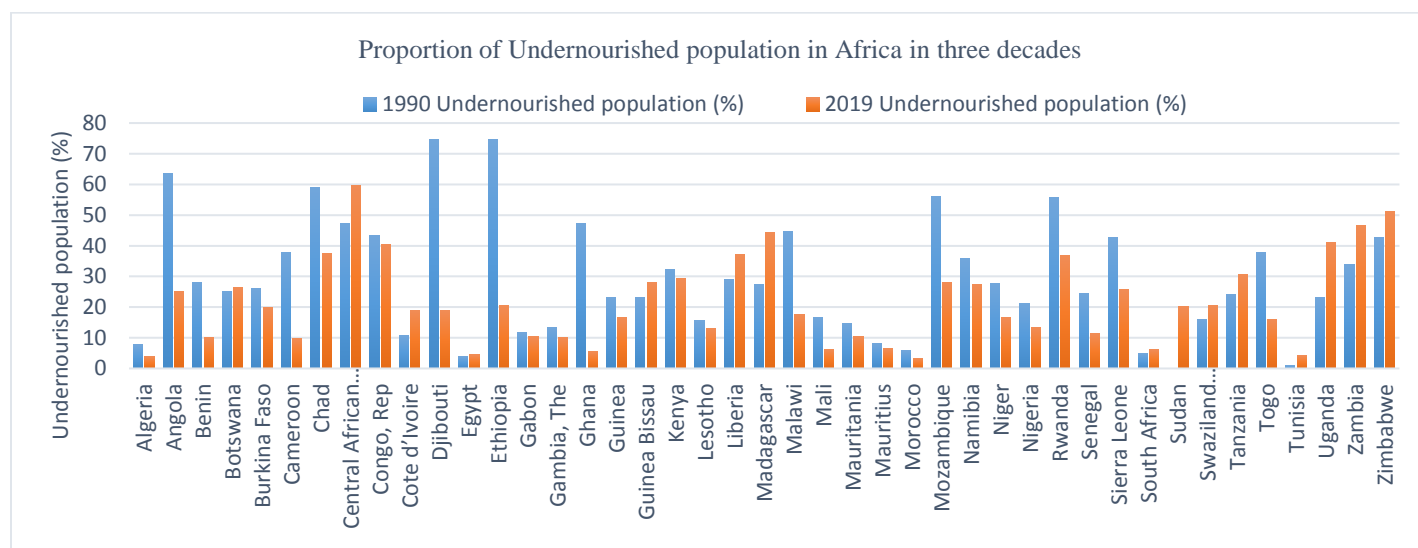


Figure 1: Proportion of Undernourished population in Africa in 1990 and 2019

Source: Authors' graph using data underlying the calculation of 1990 and 2019 GHI Scores in Africa (von Grebmer et al. 2015; 2019).

Note: Based on data from the 1990 GHI and from 2016-2018 (2019 GHI). (von Grebmer et al. 2015; 2019).

Sub-Regional Assessment of hunger in Africa in three Decades

Tables 3a-3e show the prevalence and severity of hunger in African sub-regions based on changes in the GHI scores from 1990-2019. In North Africa, Morocco had greatest reduction (-33.1%) while Egypt had the largest increase (-16.8%). In East Africa, Ethiopia had the highest reduction (-42.5%) while Uganda had the largest increase (-13.1%). In Central Africa, Chad had the highest reduction with -19.1% while CAR had its GHI score increased by +1.6%. In Southern Africa, Malawi had the highest reduction (-43.8%) while Zimbabwe experienced a +1.6% increase. West Africa had the highest reduction in scores among the five African sub-regions. Ghana had -53.1% reduction while Cote d'Ivoire had the largest increase (-15.2%).

Table 3a Northern Africa GHI Scores (1990-2019)

Country	1990	1999*	2000	2009	2010	2019	Change since 1990 (% change)	Top mover since 1990	Bottom mover since 1990
Algeria	17.1	7.6	15.6	<5	10.6	10.3	-6.8 (-24.8)		
Egypt	20.5	7.0	16.3	<5	16.3	14.6	-5.9 (-16.8)		-16.8%
Libya	-	2.4	-	-	-	-	-		
Mauritania	40.0	17.4	33.4	15.0	24.9	26.7	-30.4 (-19.9)		
Morocco	18.7	7.4	15.8	5.8	10.0	9.4	-9.3 (-33.1)	-33.1%	
Tunisia	11.5	4.4	10.7	<5	7.9	6.2	-5.3 (-29.4)		

Source: Authors' compilation from 2006, 2009, 2015 and 2019 GHI Reports

Note: *denote the GHI scores in 1999 was actually data from GHI scores in 1997 due to unavailable data in 1998 and 1999.

Table 3b Central Africa GHI Scores (1990-2019)

Country	1990	1999*	2000	2009	2010	2019	Change since 1990 (% change)	Top mover since 1990	Bottom mover since 1990
Cameroon	39.8	21.2	39.7	17.9	26.2	22.6	-17.2 (-27.6)		
Central African Republic	51.9	30.5	50.7	28.1	42.0	53.6	+1.7 (+1.6)		+1.6%
Chad	65.0	35.9	51.5	31.3	50.9	44.2	-20.8 (-19.1)	-19.1%	
Congo, Rep.	38.9	-	37.3	39.1	32.0	31.0	-7.9 (-11.3)		
Dem. Rep. Congo	-	35.1	-	15.4	-	-	-		
Equatorial Guinea	-	-	-	-	-	-	-		
Gabon	23.2	10.8	20.8	6.9	16.4	15.8	-7.4 (-19.0)		
Madagascar	44.8	31.9	43.2	28.3	36.2	41.5	-3.3 (-3.8)		

Source: Authors' compilation from 2006, 2009, 2015 and 2019 GHI Reports

Note: *denote the GHI scores in 1999 was actually data from GHI scores in 1997 due to unavailable data in 1998 and 1999.

Table 3c Southern Africa GHI Scores (1990-2019)

Country	1990	1999*	2000	2009	2010	2019	Change since 1990 (% change)	Top mover since 1990	Bottom mover since 1990
Angola	67.3	38.2	65.1	25.3	38.6	29.8	-37.5 (-38.6)		
Botswana	31.3	16.4	33.4	12.1	28.1	23.6	-7.7 (-14.0)		
Lesotho	25.8	14.6	33.1	12.0	26.2	23.2	-2.6 (-5.3)		
Malawi	58.9	30.5	44.5	18.5	31.1	23.0	-35.9 (-43.8)	-43.8%	
Mauritius	18.2	7.7	15.3	6.7	12.2	9.6	-8.6 (-30.9)		
Mozambique	64.5	35.0	49.9	25.3	35.3	28.8	-35.7 (-38.3)		
Namibia	35.8	22.3	30.7	14.4	30.6	24.9	-10.9 (-18.0)		
Sao Tome and Principe	-	-	-	-	-	-	-		
South Africa	18.7	7.3	19.2	7.0	16.6	14.0	-4.7 (-14.4)		
Swaziland (Eswatini)	22.8	14.0	29.6	11.1	26.5	20.9	-1.9 (-4.3)		
Zambia	47.0	30.6	52.3	25.7	42.8	38.1	-8.9 (-10.5)		
Zimbabwe	33.3	23.5	39.1	21.0	35.8	34.4	+1.1 (+1.6)		+1.6%

Source: Authors' compilation from 2006, 2009, 2015 and 2019 GHI Reports

Note: *denote the GHI scores in 1999 was actually data from GHI scores in 1997 due to unavailable data in 1998 and 1999.

Table 3d Western Africa GHI Scores (1990-2019)

Country	1990	1999*	2000	2009	2010	2019	Change since 1990 (% change)	Top mover since 1990	Bottom mover since 1990
Benin	46.1	21.0	36.7	17.2	28.3	24.0	-22.1 (-31.5)		
Burkina Faso	53.0	22.9	46.3	20.4	36.8	25.8	-27.2 (-34.5)		
Cabo Verde	-	-	-	-	-	-	-		
Cote d'Ivoire	33.8	17.4	33.8	14.5	30.9	24.9	-8.9 (-15.2)		-15.2%
Gambia, The	36.4	22.0	27.5	18.9	22.5	21.8	-14.6 (-25.1)		
Ghana	45.7	18.7	28.7	11.5	18.3	14.0	-31.7 (-53.1)	-53.1%	
Guinea	47.8	24.6	43.6	18.2	30.7	27.4	-20.4 (-27.1)		
Guinea Bissau	46.1	25.4	42.1	23.1	31.0	29.6	-16.5 (-21.8)		
Liberia	54.4	30.7	48.6	24.6	36.0	34.9	-19.5 (-21.8)		
Mali	51.9	32.0	44.2	19.5	27.4	24.1	-27.8 (-36.3)		
Niger	64.7	41.2	52.1	28.8	36.6	30.2	-34.5 (-36.4)		
Nigeria	47.7	20.9	40.8	18.4	29.9	27.9	-19.8 (-26.2)		
Senegal	36.8	19.9	36.3	17.3	23.6	17.9	-18.9 (-34.6)		
Sierra Leone	58.8	33.7	53.6	33.8	40.8	30.4	-28.4 (-31.8)		
Togo	42.5	21.2	39.3	23.1	27.3	23.9	-18.6 (-28.0)		

Source: Authors' compilation from 2006, 2009, 2015 and 2019 GHI Reports

Note: *denote the GHI scores in 1999 was actually data from GHI scores in 1997 due to unavailable data in 1998 and 1999.

Table 3e Eastern Africa GHI Scores (1990-2019)

Country	1990	1999*	2000	2009	2010	2019	Change since 1990 (% change)	Top mover since 1990	Bottom mover since 1990
Burundi	-	39.7	-	38.7	-	-	-		
Comoros	-	29.6	-	26.9	-	-	-		
Djibouti	56.1	24.5	46.9	22.9	36.6	30.9	-25.2 (-29.0)		
Eritrea	-	41.1	-	36.5	-	-	-		
Ethiopia	71.7	41.7	55.9	30.8	37.4	28.9	-42.8 (-42.5)	-42.5%	
Kenya	34.8	23.0	36.9	20.2	27.6	25.2	-9.6 (-16.0)		
Rwanda	53.9	32.1	56.6	25.4	32.4	29.1	-24.8 (-29.9)		
Seychelles	-	-	-	-	-	-	-		
Somalia	-	-	-	-	-	-	-		
Sudan	-	22.8	-	-	-	32.8	-		
South Sudan	-	-	-	-	-	-	-		
Tanzania	42.2	31.6	42.2	21.1	34.1	28.6	-13.6 (-19.2)		
Uganda	39.8	21.7	38.9	14.8	30.8	30.6	-9.2 (-13.1)		-13.1%

Source: Authors' compilation from 2006, 2009, 2015 and 2019 GHI Reports

Note: *denote the GHI scores in 1999 was actually data from GHI scores in 1997 due to unavailable data in 1998 and 1999.

Prevalence and Severity of Hunger in Africa in three decades

Hunger has many faces and it is insufficient to capture food availability alone (Weismann 2006). The four indicators of the GHI, mentioned previously, are easy and simple ways of assessing hunger prevalence and severity globally. Figure 1 shows the prevalence of undernourished population (%) from 1990 to 2019. Some countries including Djibouti (-55.9%), Ethiopia (-54.2%), Angola (-38.5%) and Cameroon (-27.9%) made some progress while Uganda (+17.8%), Madagascar (+17.1%), Zambia (+12.9%) and CAR (+12.3%) were further plunged into hunger in terms of percentage population that were undernourished within this period.

Out of 43 African countries, 42 had complete data (1990 and 2019) on the prevalence of wasting in children under five years over the three decades while Sudan had just 2019 data. 31 countries had some levels of reduction in child wasting while 11 countries witnessed some increase with Djibouti having the highest increase (+5.9%) (Figure 2).

Figure 3 shows the prevalence of stunting in children under five years. CAR and Djibouti experienced slight increase (+5.2% and +0.9% respectively) while Ethiopia (-28.5%), Burkina Faso (-27.5%), Mauritania (-26.9) are among countries that experienced large reductions.

From Figure 4, all the 42 countries had some levels of decrease in their under-five mortality rate within the period. This is the only indicator where all the countries with available data experienced some form of achievement. But this was not enough to bring down the number of hungry people in the continent.

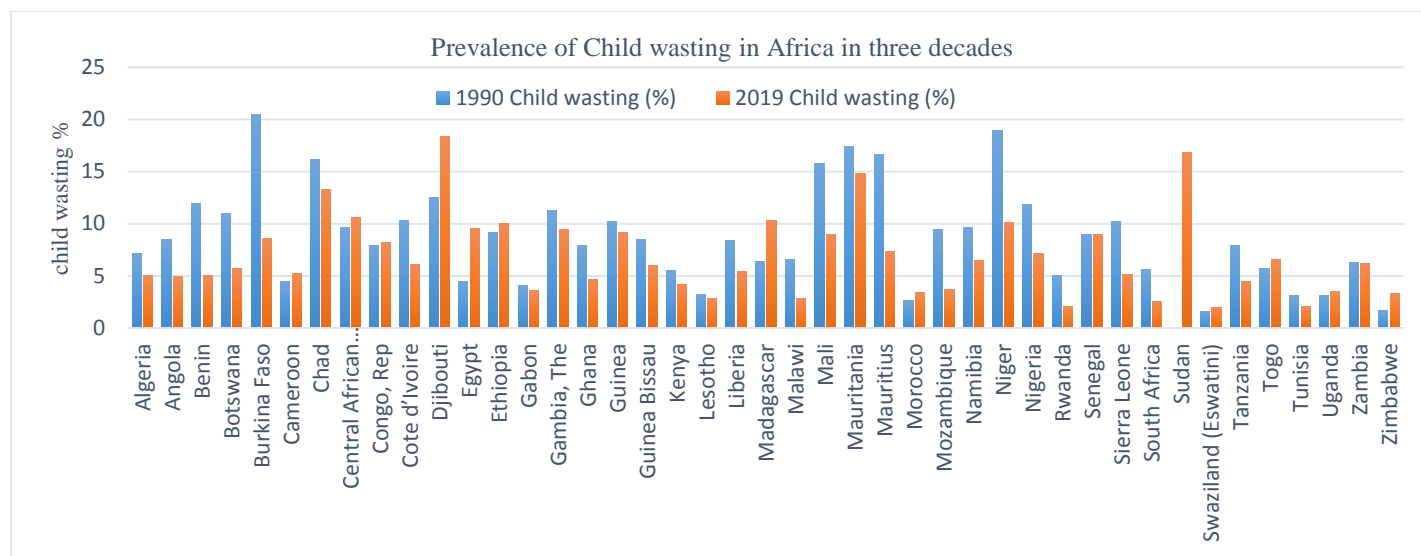


Figure 2: Prevalence of wasting in children under five in Africa in 1990 compared to 2019
 Source: Authors' graph using data underlying the calculation of 1990 and 2019 GHI Scores in Africa (von Grebmer et al. 2015; 2019).
 Note: Prevalence of child wasting (%) used data from 1988-1992 (1990 GHI) and from 2014-2018 (2019 GHI).

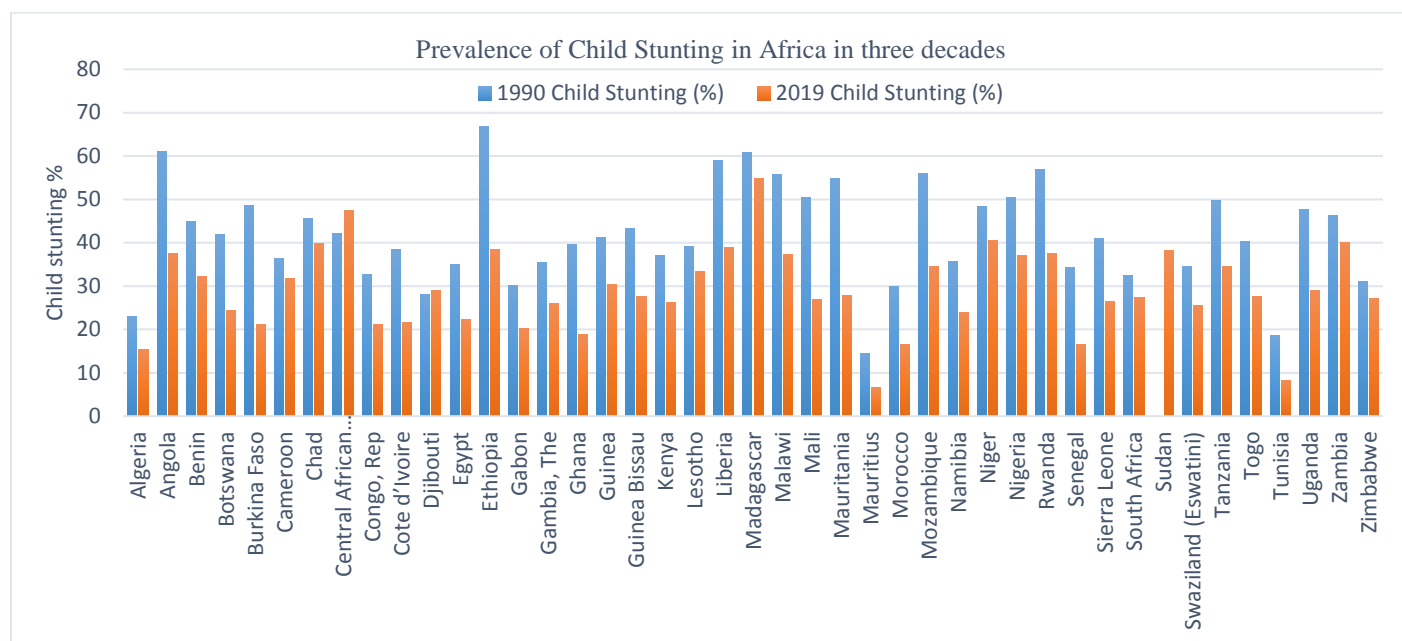


Figure 3: Prevalence of child stunting in Africa (1990-2019)
 Source: Authors' graph using data underlying the calculation of 1990 and 2019 GHI Scores in Africa (von Grebmer et al. 2015; 2019).
 Note: Prevalence of child stunting (%) used data from 1988-1992 (1990 GHI) and from 2014-2018 (2019 GHI)

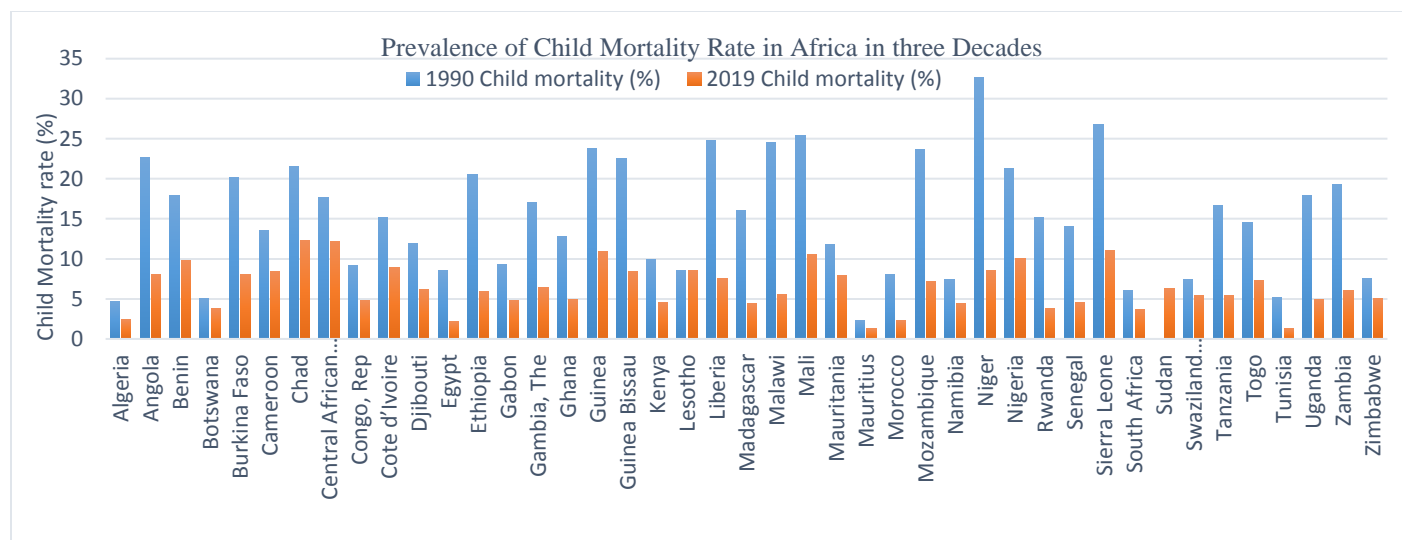


Figure 4: Prevalence of child mortality rate in Africa (1990-2019)

Source: Authors’ graph using data underlying the calculation of 1990 and 2019 GHI Scores in Africa (von Grebmer et al. 2015; 2019).

Note: Prevalence of child mortality rate (%) used data from 1990 (1990 GHI) and from 2017 (2019 GHI)

The prevalence of undernourishment in Africa in the three decades under review has shown some level of reduction while most of the countries still face some challenges in line with the SDG indicator 2.1.1 which is “to monitor progress on ending hunger and ensuring access to food for all”. Many people in Africa, especially in SSA (Africa south of the Sahara), are still food insecure either moderately or severely. SDG indicator 2.1.2 focused on the prevalence of moderate or severe food insecurity in the population based on the Food Insecurity Experience Scale (FIES). This was launched in the 2019 edition of “The State of Food Security and Nutrition in the World” (FAO et al. 2019), reporting on SDG2 Indicator 2.1.2.

The report stated that the prevalence of severe food insecurity is expected to approximate the POU, explaining that both indicators revealed the gravity of food unavailability. The second indicator (FIES) reflected range of food-insecurity severity that incorporated moderate levels. This is in furtherance to the quest of monitoring progress in line with lofty target of guaranteeing unhindered access to safe, nutritious and sufficient food by all people–SDG Target 2.1 (FAO et al. 2019). Table 4 reveals the number of people experiencing moderate to severe food insecurity, in Africa (measured with FIES) in 2014-2018.

According to the report, the total number of both moderate and severe food-insecure population is higher in Africa region than any other part of the world. In 2019, 135 million people in 55 countries of the world suffered from acute food crises, with 73 million of them coming from 36 countries in Africa (FAO et al. 2019; FSIN GRFC 2020).

2019 GHI indicators contained in SDG2 indicators

SDG 2 is one of the 17 Sustainable Development Goals with the target of eradicating poverty, hunger and malnutrition from the world map and engineer powerful social inclusion by 2030 (UN 2017a; UN 2017b; Behera et al. 2019). Many Africa countries are not getting their priorities

Table 4. Number of People Experiencing Moderate or Severe Food Insecurity, and Severe Food Insecurity only in Africa (measured with FIES) 2014–2018

Number of severely food-insecure people (millions)						Number of moderately or severely food-insecure people (millions)				
	2014	2015	2016	2017	2018	2014	2015	2016	2017	2018
Africa	210.7	226.7	268.2	287.5	277.0	554.1	577.1	644.1	682.0	676.1
North Africa	19.1	16.3	21.2	23.6	19.0	59.8	51.6	63.8	82.1	70.2
SSA	191.6	210.4	246.9	263.9	258.0	494.3	525.5	580.3	599.9	605.2
Eastern Africa	93.0	100.2	114.3	121.3	112.5	226.1	238.4	266.0	276.3	271.7
Southern Africa	13.4	13.1	19.8	20.1	20.2	28.3	29.1	34.4	34.9	35.3
Western Africa	44.4	50.9	59.6	66.0	67.2	149.9	159.7	171.1	177.6	182.8

Source: Authors' compilation from FAO et al. 2019

right especially in the pursuit of achieving the SDG 2. Africa is far from achieving zero hunger (SDG Center for Africa and Sustainable Development Solutions Network 2019). In this review, we assess three out of six (prevalence of obesity, cereal yield and fertilizer consumption were not captured in GHI reports) important indicators of SDG 2 namely: Prevalence of Undernourished population (%), prevalence of wasting in under-five children (%) and prevalence of stunting in under-five children (%) which are also part of the four GHI indicators. We used both Global and Africa SDG thresholds (rating) to identify African countries that have achieved each of these indicators at the end of 2019. The Africa SDG index rating shows a country's position between the worst (0) and best (100) outcomes. It is a comprehensive rating based on all the 17 SDGs.

Table 5 shows that no African country was able to achieve green rating (SDG2 achievement threshold) for all the three indicators of SDG2 contained in 2019 GHI scores indicators. Meanwhile, only 6 countries (Algeria, Ghana, Mauritius, Morocco, South Africa and Tunisia) were able to attain the green threshold for two indicators in the SDG2 dashboard while 14 countries were able to attain green threshold for just one of the SDG2 indicator. Three countries (Chad, Djibouti and Sudan) are facing grave challenges (red threshold) on their paths of achieving SDG2 for the three indicators. Most of the SSA countries are in the red threshold, signalling major challenges in their quest of achieving zero hunger by 2030. Among 52 African countries, Tunisia was ranked 1st (66.01) in Africa, closely followed by Mauritius (65.95) and Algeria (65.55) while the lowest ranked was South Sudan (29.18) (SDG Centre for Africa and Sustainable Development Solution Network 2019; Otekunrin et al. 2019c).

In addition to the GHI reports that revealed some of the SDG 2 indicators, reports from FAO, United Nations Children's Fund (UNICEF), Global Nutrition Reports and many other empirical studies also have reported on the current state of global burdens of malnutrition (Shrimpton and Rokx 2012; Fanzo 2019; Emdadul et al. 2019; Willett et al. 2019; FAO et al. 2020; UNICEF et al. 2020; Global Nutrition Report 2020; Sunuwar et al. 2020).

Stunting has shown some downward trend globally, with the overall prevalence decreasing from 32.4.6% (199.5 million) in 2000 to 21.3% (144.0 million) in 2019. More than half (54%) of all stunted children under five lived in Asia while two out of every five (40%) lived in Africa in 2019.

Table 5. SDG 2 Africa Progress Scorecard

2019 GHI indicators contained in Africa SDG 2 Dashboard			
Country	Undernourished (%)	Wasted (%)	Stunted (%)
Algeria	3.9	5.0	15.3
Angola	25.0	4.9	37.6
Benin	10.1	5.0	32.2
Botswana	26.4	5.7	24.3
Burkina Faso	20.0	8.6	21.1
Cameroon	9.9	5.2	31.7
Chad	37.5	13.3	39.8
Central African Republic	59.6	10.6	47.4
Congo, Rep	40.3	8.2	21.2
Cote d'Ivoire	19.0	6.1	21.6
Djibouti	18.9	18.4	28.9
Egypt	4.5	9.5	22.3
Ethiopia	20.6	10.0	38.4
Gabon	10.5	3.6	20.2
Gambia, The	10.2	9.4	26.0
Ghana	5.5	4.7	18.8
Guinea	16.5	9.2	30.3
Guinea Bissau	28.0	6.0	27.6
Kenya	29.4	4.2	26.2
Lesotho	13.1	2.8	33.4
Liberia	37.2	5.4	39.0
Madagascar	44.4	10.3	54.8
Malawi	17.5	2.8	37.4
Mali	6.3	9.0	26.9
Mauritania	10.4	14.8	27.9
Mauritius	6.5	7.3	6.7
Morocco	3.4	3.4	16.6
Mozambique	27.9	3.7	34.5
Namibia	27.3	6.5	23.9
Niger	16.5	10.1	40.6
Nigeria	13.4	7.1	37.0
Rwanda	36.8	2.1	37.6
Senegal	11.3	9.0	16.5
Sierra Leone	25.6	5.1	26.4
South Africa	6.2	2.5	27.4
Sudan	20.1	16.8	38.2
Swaziland (Eswatini)	20.6	2.0	25.5
Tanzania	30.7	4.5	34.5
Togo	16.1	6.6	27.6
Tunisia	4.3	2.1	8.3

Uganda	41.0	3.5	28.9
Zambia	46.7	6.2	40.0
Zimbabwe	51.3	3.3	27.1

Source: Authors' compilation from von Grebmer 2019.

Note: Green: SDG2 indicator Achieved; Orange: Increasing distance from SDG2 indicator achievement (signifies significant challenges in achieving SDG2 by 2030); Red: Highlights major challenges in achieving SDG2 indicator by 2030. The global SDG2 indicator threshold for prevalence of undernourished population (%): Green threshold = 0%-7.5%; Orange threshold (Africa) = 7.6%-17.9%; Red threshold (Africa) = ≥ 18.0 .

The global SDG2 indicator threshold for prevalence of wasting in under-five children (%): Green threshold = 0%-5.0%; Orange threshold (Africa) = 5.1%-12.0%; Red threshold (Africa) = ≥ 12.0 .

The global SDG2 indicator threshold for prevalence of stunting in under-five children (%): Green threshold = 0%-7.5%; Orange threshold (Africa) = 7.6%-21.9%; Red threshold (Africa) = ≥ 22.0 (SDG Centre for Africa and Sustainable Development Solution Network 2019).

Sub-Saharan Africa (SSA) is the only sub-region with a rising number of stunted children (UNICEF et al. 2020; FAO et al. 2020). Wasting (low weight for height) affected 47.0 million (6.9%) children under 5 years of age globally in 2019. Sixty-nine percent of these children were found in Asia while more than one quarter (27%) lived in Africa. Globally, the number of overweight children under 5 increased steadily from estimated 4.9% (30.3 million) in 2000 to 5.6% (38.3 million) in 2019, with 45% from Asia and 24% from Africa (UNICEF et al. 2018; 2020; Global Nutrition Report 2020).

In 2016, among adults, male underweight reduced from 11.1 percent in 2000 to 8.6 percent while female underweight dropped from 11.5 percent to 9.4 percent. In comparison, overweight rose from 31.7 percent (609.8 million) to 39.2 percent (1.02 billion) in women, and in men from 29.7 percent (560.0 million) to 38.5 percent (984.6 million). Also, obesity in men rose from 6.7% (124.7 million) to 11.1% (284.1 million) while it increased from 10.6% (201.8 million) to 15.1% (393.5 million) in women (Global Nutrition Report 2020).

Challenges of Zero Hunger in Africa

Major causes of hunger in Africa are poverty, severe pre- and post-harvest losses occasioned by pests and diseases, population increase, unemployment, social exclusion, extreme weather conditions, corruption, conflicts, wars and insurgencies (Otekunrin et al. 2019; Behera et al. 2019; Otekunrin et al. 2020a; Otekunrin et al. 2020b). Previous studies have established associations between corruption, extreme poverty, under-development, and conflicts with hunger and undernutrition (Heady 2013; Barrett and Lentz 2016; Smith and Haddad 2015; Otekunrin et al. 2019a; von Grebmer et al. 2019).

Cases of high incidences of pests and diseases in Africa contributed to dwindling crop harvests, spike in food prices and sudden death of livestock. Cassava (*Manihot esculenta*) are attacked by Cassava mosaic and brown streak virus disease taking a huge toll on the main food crop, in the Great Lakes region of East and South Africa while the Fall Armyworm (*Spodoptera frugiperda*) is a main pest of maize (*Zea mays*) and sorghum (*Sorghum bicolor*) in South Sudan (FAO 2018). Avian Influenza (Bird flu) resulted in colossal economic losses for poultry businesses in many African countries during the 2006–2008 and 2015–2017 outbreaks (Otekunrin 2007; Ntsefong et al. 2017; Fasanmi et al. 2018; Otekunrin et al. 2018).

Other factors that exacerbate hunger challenges in Africa include low Human Development index (HDI), terrorism and the low percentage of the population benefiting from social protection measures. Table 6 reveals the association between hunger and some influencers of hunger and food insecurity in Africa.

The hardest hit countries are in Central and Eastern Africa. These include Central African Republic (CAR), Democratic Republic of Congo, Chad, Somalia and South Sudan with higher numbers of undernourished people and under-five mortality rates when compared to the other regions of Africa (FAO 2017a; UN IGME 2017; FAO GIEWS 2017; UNHCR 2018a; FEWS NET 2017b; FEWS NET 2018b; USAID 2017a; Otekunrin et al. 2019a; 2019b; Behera et al. 2019a; World Data Lab 2019).

GHI and HDI in Africa

Many African countries, persistently have very low Human Development Index. In 2019 HDI scores, the best in Africa were the Seychelles, ranked (62nd), Mauritius (66th), Algeria (82nd), Tunisia (91st), and South Africa (113th) among 189 countries captured in 2019 ranking (UNDP 2019). Table 6 reveals 2019 GHI scores of African countries and their corresponding HDI ranks while Figure 5 shows the scatter plot with trend line between the two variables. The Correlation Coefficient $r = 0.68$ shows that there is positive association between the two variables, suggesting that hunger and HDI are strongly related in Africa. For example, Chad with GHI score of 44.2 was ranked 187 while Mauritius with a lower GHI score of 9.6 was ranked 66th among 189 countries.

GHI and percent population covered by social protection in Africa

Only about 21% of the African countries' population (43 with available data) were covered by Social Protection (SP) (World Bank 2018). Botswana was highest with 91.6%, with Togo lowest with 0%. Table 6 shows the 2019 GHI scores of African countries and the percent population covered by social protection scheme while Figure 6 shows a scatter plot with trend line between the two variables.

The Correlation Coefficient $r = -0.45$ reveals that there is negative association between the two variables, indicating that social protection programmes and prevalence of hunger are negatively related in Africa. African countries with high 2019 GHI scores (high level of hunger) tend to have lower percentage of their population covered by social protection and vice versa. For example, South Africa, had GHI 14.0, with 86.6% population covered; Ghana had GHI 14.0, with 64% population covered while Gabon had GHI 15.8 and 54.9% population covered. At the other end of the spectrum, Liberia, had GHI 34.9, with 7.2% population covered; Zambia had GHI 38.1, with 1.2% covered and Chad had GHI 44.2, with 0.7% population covered.

GHI and Global Terrorism Index (GTI) 2019 in Africa

The Institute for Economics & Peace (IEP), the organisation that publishes annual Global Terrorism index (GTI) revealed that conflict is still the major driver of terrorism globally. In 2018, 95 percent of deaths from terrorism occurred in countries already in conflicts. It has been reiterated that violent conflicts (also terrorism), wars, extreme climatic events, and economic slowdowns drive hunger in many parts of the world especially in the Middle East and SSA (FAO et al. 2019; IEP 2019; FSIN 2019; 2020).

Table 6. 2019 GHI scores for African countries with percent covered by Social Protection, HDI ranks and GTI scores

S/N	Country	2019 GHI score	% pop covered by social protection 2019	2019 HDI Rank	2019 GTI Score
1	Algeria	10.3	-	82	3.409
2	Angola	29.8	-	149	3.784
3	Benin	24.0	3.6	163	0
4	Burkina Faso	25.8	1.8	182	5.418
5	Botswana	23.6	91.6	94	0
6	Cameroon	22.6	1.1	150	6.62
7	Chad	44.2	0.7	187	4.762
8	Central African Republic	53.6	-	188	6.622
9	Congo, Rep	31.0	4.9	138	2.687
10	Cote d'Ivoire	24.9	39.5	165	2.598
11	Djibouti	30.9	35.7	171	0.32
12	Egypt	14.6	60.3	116	6.794
13	Ethiopia	28.9	16.2	173	5.345
14	Gabon	15.8	54.9	115	0.551
15	Gambia, The	21.8	6.1	174	0
16	Ghana	14.0	64.0	142	1.559
17	Guinea	27.4	2.0	174	0
18	Guinea Bissau	29.6	-	178	0
19	Kenya	25.2	34.7	147	5.756
20	Lesotho	23.2	7.7	164	0.095
21	Liberia	34.9	7.2	176	0.105
22	Madagascar	41.5	1.0	162	1.957
23	Malawi	23.0	42.5	172	0.663
24	Mali	24.1	0.6	184	6.653
25	Mauritania	26.7	47.5	161	0
26	Mauritius	9.6	54.8	66	0
27	Morocco	9.4	52.5	121	1.215
28	Mozambique	28.8	8.2	180	5.542
29	Namibia	24.9	26.5	130	0
30	Niger	30.2	15.5	189	5.596
31	Nigeria	27.9	5.2	158	8.597
32	Rwanda	29.1	35.3	157	2.948
33	Senegal	17.9	9.3	166	1.186
34	Sierra Leone	30.4	34.6	181	0.458
35	South Africa	14.0	86.6	113	4.511
36	Sudan	32.8	13.1	168	5.807
37	Swaziland (Eswatini)	20.9	70.9	138	0

38	Tanzania	28.6	9.0	159	3.272
39	Togo	23.9	0.0	167	0
40	Tunisia	6.2	19.8	91	3.938
41	Uganda	30.6	75.7	159	3.957
42	Zambia	38.1	1.2	143	0.305
43	Zimbabwe	34.4	37.5	150	2.834

Source: Authors' compilation from von Grebmer et al. (2019); World Bank (2018); UNDP (2019); and Institute for Economics & Peace (2019)

Note: 2019 Global Hunger Index (GHI) from von Grebmer et al. (2019); Percent covered by Social Protection from World Bank (2018); Human Development Index (HDI) from UNDP (2019) and Global Terrorism Index (GTI) 2019 from Institute for Economics & Peace (2019).

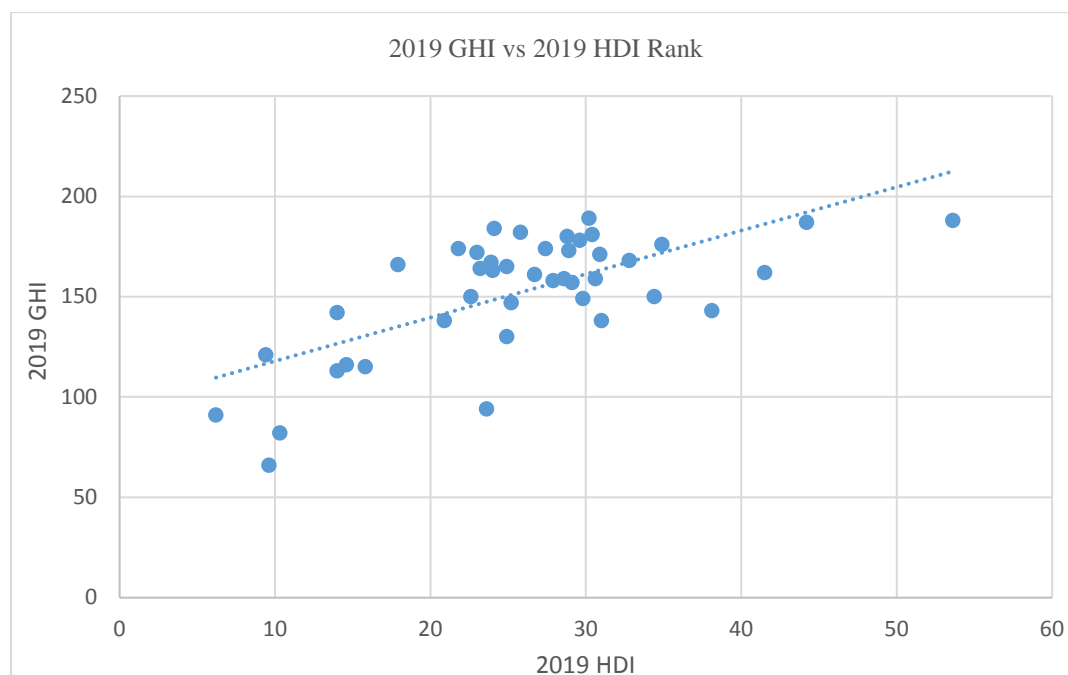


Figure 5. Scatter plot with trend line showing the relationship between 2019 GHI and 2019 HDI ranks of African countries.

Source: Authors' graph from von Grebmer et al. (2019) and UNDP (2019).

Table 6 shows the 2019 GHI scores of African countries and their corresponding 2019 GTI scores in Africa. GTI scores range from 10 (very high impact) to 0 (no impact)). Figure 7 shows the scatter plot with trend line between the two variables. The Correlation Coefficient $r = 0.23$ reveals that there is weak association between the two variables indicating that terrorism and prevalence of hunger are positively related in Africa. The r may be weak because data are often lacking from the most affected countries. Most of the other countries in Africa are either having very low or no impact of terrorism. We capture only those with impact starting from 3. Most of the countries in Africa do not experience severe acts of terrorism but there are 9 African countries in the top 20 with very high impact of terrorism. Nigeria was ranked 3rd (8.597) globally and 1st in Africa in 2018.

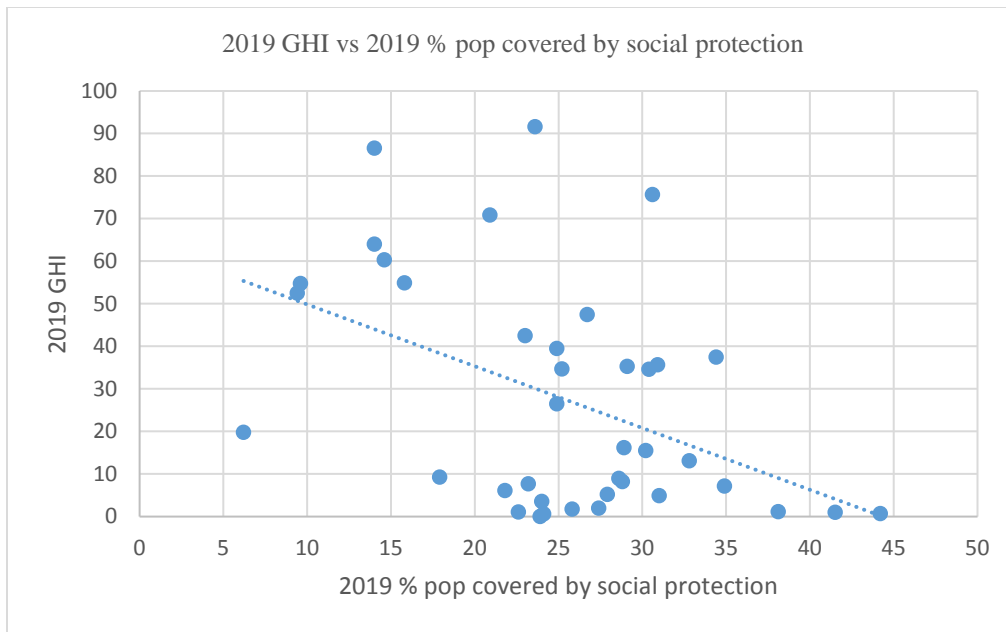


Figure 6. Scatter plot with trend line showing the relationship between 2019 GHI and 2018 percentage population covered by Social Protection of African countries.

Source: Authors' graph from von Grebmer et al. (2019) and World Bank (2018).

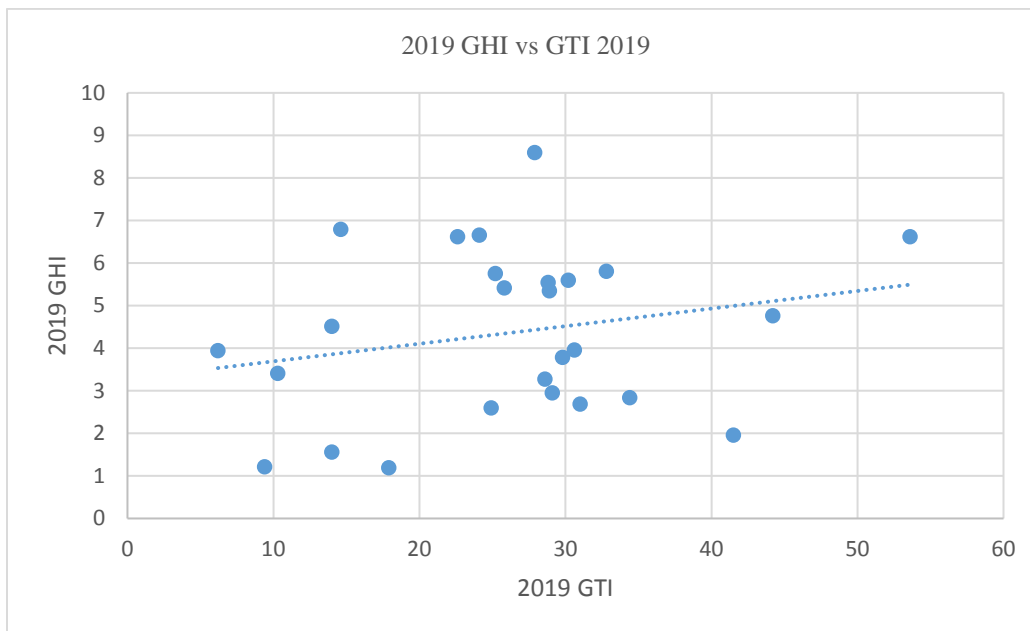


Figure 7. Scatter plot with trend line showing the relationship between 2019 GHI and GTI 2019 scores of African countries.

Source: Authors' graph from von Grebmer et al. (2019) and Institute for Economics & Peace (2019).

Most countries with high impact of terrorism tend to have high prevalence of hunger. For example, CAR with GTI of 6.622 has a GHI score of 53.6, and Niger with a GTI score of 5.596 has GHI score of 30.2 (FAO et al. 2019; FSIN 2019; 2020; IEP 2019).

Opportunities to explore in the fight against hunger and malnutrition across Africa

There is no doubt that Africa can feed itself if there is political will on the part of heads of governments to intensify efforts in the fight against hunger and all forms of malnutrition. The Malabo Montpellier Panel in 2017 provides a roadmap for African governments for intensifying efforts towards the implementation of the nutrition targets rolled out by the Malabo Declaration and SDGs (Malabo Montpellier Report 2017). Selected practices that can help include:

- Heads of governments in Africa need to raise food and nutrition security to a topmost policy priority.
- Policy makers need to work in collaboration with other key stakeholders (national, private and development partners) to deliver nutrition-sensitive outcomes.
- African governments need to incorporate nutrition into agricultural policy, rural development plans, social protection, and education to guarantee nutrition-sensitive contents as part of the new policies and key interventions/programmes.
- African governments are encouraged to embrace Climate-Smart Agriculture (CSA) to achieve sustainable food security through crop diversity. Adoption of climate resilient crop varieties should be embraced, based on a Cost-Benefit (B/C) analysis.
- Fervently tackling the issue of conflicts, wars and acts of terrorism which are currently driving hunger and malnutrition in some regions of Africa.
- Scaling up resilient food systems across Africa to combat the effect of extreme weather conditions and variability that tend to hamper the progress on nutrition and other nutrition-related intervention.
- Provision of current and relevant data for more effective and efficient interventions across Africa.
- African governments should do more in empowering women's groups. Women should be involved in decision making with opportunities to own or control resources, especially those related to food, nutrition and healthcare.
- Investing in agricultural and nutrition research to improve productivity in nutrient-rich foods.

CONCLUSION AND RECOMMENDATIONS

The high prevalence of hunger and food insecurity in Africa has been a source of concern for the continent and the global community especially in the last three decades. Some African countries (especially from North Africa) have made remarkable progress in reducing their levels of hunger and malnutrition within this period. Many other countries (especially in Sub-Saharan Africa) have either stagnated or off the track of SDG2 attainment. Indeed, no African country has achieved the SDG2 (zero hunger) target.

Threats to zero hunger attainment in Africa include poverty, corruption, low human capital development, conflicts and extreme weather conditions. The present report provides country-level evidence of clear links between GHI scores with score for human development, social protection and terrorism. African governments are enjoined to keep hunger and food insecurity on both domestic and international agenda. Member countries should work together to end hunger on the continent.

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