

Strategies for Food Security and Health Improvement in the Sub-saharan Africa

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Abstract: Health and nutritional geography of sub-Saharan Africa (SSA) demand urgent remedial actions. The sub-continent is ravaged by such pandemics as malaria, African sleeping sickness and HIV/AIDS. Poverty level stands at 47%. There is severe malnutrition. Thirty of the forty-five countries with low or critically low level of food security between 1991 and 1993 are in sub-Saharan Africa. Food availability in the Sub-continent which stood at 2100 kcal/person/day is the poorest in the world. Health indices like infant mortality and life expectancy. Improvement in food production in SSA will boost per capital GDP, raise purchasing power and access to improved therapeutic and prophylactic health management. It will reduce pervasive poverty that translates into nutritional diseases, HIV infection risks and reduced life expectancy. This demands the support of the various states in form of legislation, administration and finance. Women empowerment will improve investment on land and productivity. Research is needed on new technologies that are output-driven, ecologically friendly, acceptable and affordable to the resource poor farmers. Prototypes of farm tools and machines should be mass-produced and made available to well informed local farmers. Research should aim at increased nutrient content and yield of endemic cultivars, disease-control, reduced desertification and sustainable land use, improvement of indigenous innovations on renewable water resources utilization and reduced field and post harvest losses. Good governance and stable polity are essentials enabling environment for food security and health in Sub-Saharan Africa.

Key words: Agricultural development • food security • health improvement • sub-saharan

INTRODUCTION

Health and nutritional conditions in sub-Saharan Africa (SSA) are in deplorable states. Diets are often imbalance leading to nutritional diseases. Infant mortality remains high. Life expectancy is lower compared with any other geographic realm [1] due to ravaging effects of pandemic diseases such as malaria, African sleeping sickness, schistosomiasis and AIDS. AIDS for instance, has reduced life expectancy in some populations to near 20 years [2]. Severe dislocations worsen health condition. SSA has the largest refugee population in the world and its Sahel region is equally the most unstable world ecosystem. Gaining access to adequate calorie is a major problem to some 175 million people [3]. In 1990, agriculture accounted for 68% of employment, however, thirty of the forty-five developing countries with low or critically levels of food security between 1991 and 1993 are in SSA. The existing farm practices cannot keep pace with population growth rate as such poverty levels remain high (47%) especially among the rural agrarian communities. Droughts have increased the vulnerability of the poor

farmers in places like Niger. The present food and health indices demand urgent remedial actions.

The present paper is an appraisal of health condition of people in SSA, attempt have been made to discuss the relationship between food security and health in a largely subsistence agrarian economy. It closes by suggesting ways to achieve food security for health improvement in the sub-continent.

Health condition of people in Sub-Saharan Africa (SSA):

The consensus of opinion among health specialists is that physical, mental and social well-beings are related. As such health can be defined as the quality of life of an individual to meet his responsibilities effectively. According to [4], many factors such as heredity, physical factors (weather, climate, housing, soil, water, air and food supply), social factors and behaviours affect the health of an individual.

About 30 of the forty countries with lowest life expectancy are in Sub-Sahara Africa [5] Malaria leads the diseases that threaten Africans. The parasite (plasmodium) kills as many as 1 million children per

annum. African children who survive childhood are likely to suffer from malaria to some degree [1]. Sleeping sickness is a Pandemic malady transmitted by tsetse-fly. Wild animals constitute the reservoir for the infection in man and livestock. It is endemic in 36 countries of sub-Sahara Africa [5]. It kills countless thousands every year and was known to kill a whooping 550 people every day (200,000 per annum) in Congo. This regional epidemic caused by *Trypanosoma spp* is however limited by the range of the vector. Yellow fever is transmitted by mosquito. It claimed more than 20,000 victims in Senegal in the 1960s. It has the predilection for infants and children and the disease is more in countryside where millions of children are infected. Most of the 200 million people infected with schistosomiasis (Bilharzias) lives in Africa [1]. A recent report [5], showed that 80 percent of total schistosomiasis infection is in Sub-Saharan Africa. The first outbreak of an endemic disease called Ebola fever occurred in southern Sudan and Northern Congo, killing hundreds of people. A recent outbreak in Kitwit (Congo) killed dozens of people with a mortality rate of 90%. A particular parasitic worm transmitted by a small fly causes river blindness. It is endemic to the savannah belt from Senegal all the way to Kenya. A large percentage of adults in an endemic part of Ghana have been infected. The highest burden of meningococcal disease occurs in the hyperendemic region of SSA known as the 'meningitis belt', which stretches from Senegal to East Ethiopia [5].

The most recent pandemic which has begun to suppress population growth rate in some SSA countries is HIV/AIDS. About 9.7 million have died of the disease. UN statistics in 1997 showed that 20.8 millions of the 30.6 millions infected people are in SSA. Adult HIV/AIDS prevalence worldwide is put at 1.2% of the population ages 15-49 with SSA being the region most severely affected at 9.0% [6]. World Health Organization estimated that 5 million of the 40 million infected worldwide are in South Africa. The province of Kwa Zulu-Natal leads in South Africa with two-thirds of an earlier estimated 1.8 million cases [7]. Botswana has the highest prevalence world-wide where 38% of adults are thought to be infected [6]. Of the 80,000 daily AIDS casualties, 6,000 are from SSA with many orphan children themselves hanging on the slenderest of life thread that is capable of cutting anytime. [8] estimated that the disease would create 500,000 orphans by the turn of 2000. [9] reported the likelihood of increased orphanage in Zimbabwe. Although HIV incidence has become stable and AIDS cases declined in many industrialized countries, the epidemic is spreading rapidly in many parts of SSA [10]. A study

conducted in Mwanza region of rural Tanzania showed that 35% overall death and 53% in those aged 20-29 years were attributable to HIV infection. The submissions from numerous contemporary studies [7, 9, 11, 12] and that of [13] showed that HIV/AIDS is more common among young adult males and females, with increased number of heterosexual partners, among migrant workers and among poor rural folks. A study conducted on rural cohort in Uganda [14] showed that the rates of all-cause mortality are much higher and the progression times to death shorter than in developed countries.

Malnutrition, especially protein-energy malnutrition appears to be the greatest and most subtle cause of ill-health in SSA. Other causes are chronic energy deficiency, iron and iodine and vitamin deficiencies. According to [15] many diseases have a nutritional component and lack of an adequate diet directly causes disease or contributes to an individual susceptibility to diseases especially among women and children less than 5 years. Malnutrition reduces resistance to diseases, delays recovery and increase liability to relapses. Most of the estimated 175 million African reported to lack access to adequate calories [3] lives in SSA. Records on infants with low birth weights, infant mortality, under 5 years mortality, maternal mortality and life expectancy are poorest in Sub-Saharan African states. A recent report [16] recognized as much as 18 SSA countries where child mortality have remained the same or worsened between 1990 and 2002. Daily calorie supply also remains lowest (Table 1). According to UNICEF [17], Avitaminosis A causes a third of a million people to go blind every year with differences in children mortality of up to 30 percent. Malnutrition also influences the morbidity and mortality ratio of various infections such as measles, tropical ulcer, whooping cough and diarrhea [18]. One out of 3 African children under 5 years has stunted growth due to inadequate feeding and poor health. Anthropometric studies have shown that children with protein-energy malnutrition ultimately suffer retardation of both mental and physical dimensions [19]. [20] found mortality from measles in young children to parallel with nutritional status. One-third of babies in developing countries are born with weight less than 2.5 kg [17] such children are approximately twice as likely to die as others.

Relationship between food security and health in agrarian economies: There is an age long understanding of the link between food security and health. It was Gorge Herbert in 1660 who once said "*whatever was the father of a disease, an ill diet was the mother?*" Early Egyptians

Table 1: Indicators of population growth, nutrition, general health and welfare for selected regions and countries

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	1992	2000	1991	1989-1990	1990	1990-1995	**2007	1991	1980-1990	1990-1995	**2007
Sub-Saharan Africa	561.0	713.0	350	93	16	102	-	180	600	51	-
Nigeria	115.7	147.7	340	93	16	96	95.52	212	800	53	47.44
Uganda	18.7	23.4	170	93	-	104	67.22	188	300	42	51.75
East Asia and the Pacific	1725.0	1930.0	715	112	11	35	-	42	160	69	-
China	1180.0	1309.7	370	112	9	27	22.12	27	95	71	72.88
Laos	4.5	5.6	220	111	18	97	81.44	148	-	52	55.89
Latin American and the Caribbean	458.0	520.0	2410	114	11	47	-	57	180	68	-
Brazil	154.1	172.8	2940	114	11	57	27.62	67	200	66	72.24
Haiti	6.8	8.0	370	89	15	86	63.83	137	340	57	57.03
Middle East and North Africa	317.0	384.0	1910	126	10	55	-	83	181	65	-
Egypt	54.8	64.8	610	132	10	57	29.50	85	320	62	71.57
Yemen	12.5	16.4	540	-	19	106	57.88	182	-	53	62.52
Industrial countries	1203.0	1290.0	21,530	133	6	12	-	17	15	75	-
USA	255.2	275.3	22,240	138	7	8	6.37	11	8	76	78.0
Sweden	8.7	9.0	25,110	111	5	6	2.76	5	5	78	80.63
World	5479.0	6220.0	-	-	-	62	33.30	82	266	65	68.4

1: Population (millions), 2: Per capital GNP (\$), 3: Daily calorie supply (% requirements), 4: % infant with low birth weight, 5: Infant mortality per 1000 live births, 6: Under 5 years mortality, 7: Maternal mortality/100,000, 8: Life expectancy, Culled from: Bread for the world institute on hunger and development [21]. ** from CIA Health Statistics [5]

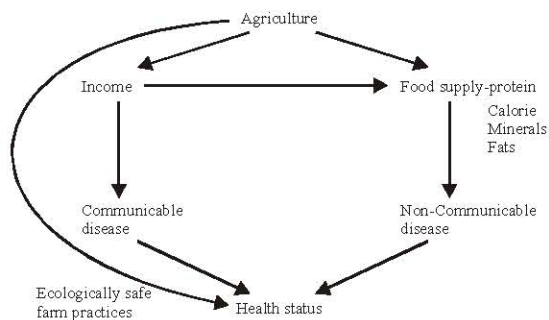


Fig. 1: Relationship between agriculture and health status

also linked food, improper or inadequate in amount with diseases. A common proverb in western Nigeria says *'Eru inu lafi n gbe tita'* meaning 'the quality and quantity of ingested food determines the strength of a man for physical responsibilities'.

Food supply is the mainstay of health as differences in nutritional intake always translate to differences in health status. Agricultural development therefore remains pivotal to bring about improvement in health status of people in SSA where agriculture remains the greatest employer of labour and the main stay of rural economies. Diseases such as Kwashiorkor, marasmus, nutritional anaemia, osteomalacia and scurvy are just a few of

diseases caused by insufficient intake of essential food nutrients (Fig. 1). Undernourished children may suffer associated infections and/or infestations which are capable of adversely affecting the ability of the sufferer to sustain attention, concentrate, learn and mobilize general motivation (Professor Ogbeinde cited in 19). Panacea to nutritional diseases is sustainable food supply. It is certain that sicknesses will reduce greatly and mental development improves if our children feed well. Health can be sustained greatly by supplying the body with the right kind of food in the right proportion and combining them with other useful health determinants [22].

Improve feeding will improve the management of many non-nutritional diseases. It is essential for instance to maximize the calorific intake of HIV patients while waiting for antiretroviral drugs to become more widely available [23].

[15] observed that differences in wealth are reflected in measures of food intake as well as in health status. Per capita GNP for SSA in 1991 was \$350, while that of industrialized countries was \$21,530. Intake of necessary calorie was only 93% in SSA against 113% for industrialized nations. Mali a SSA state has the highest infant mortality in the world (Table 1). Any measure that can improve productivity and farmers income will not only

translate into improved nutritional status, it will also improve farmers' access to improved medical services and health (Fig. 1).

Many of the direct causes of horizontal HIV infections are related to poverty of the predominantly agrarian communities. A study [24] to describe the demographic characteristics and HIV related risk behaviour of adolescents frequenting Truck stops along the Trans-African highway in Kenya showed that many respondents (52 percent girls, 30 percent boys) have ever had sexually transmitted disease, 46% of girls reported usually having sex with truck drivers. 79% of girls and 59% of boys exchange gifts or money for sex. Their family average income was US\$25 per month and most of the adolescents felt that their families provide inadequate access to food (72%), clothing (70%) and pocket money (87%). Improvement in farm income through increased productivity could therefore help to reduce poverty and sexually transmitted diseases like HIV/AIDS and cervical Chlamydia disease in SSA.

Strategies for achieving food security for health improvement in the sub-Saharan Africa: Some 2.5 million people in and around 300 villages are at risk of food shortage last year (2005) in Niger. Severe child malnutrition and the numbers child-support feeding centers have increased. Vulnerable households' need of food supply and agricultural inputs is being alleviated by Nigeria and a member of the European Union. In another recent report, a poor woman with 14 children in the Niger delta of Nigeria could no longer forbear watching her hungry children. She fed them with a hurriedly prepared meal of cassava root. Hours later her children started dropping dead to what may likely be due to cyanide poisoning. These stories paint the pictures of both food and health statistics in SSA (Table 1). Agricultural development is critical to food security and health in SSA. Increased productivity of farmers will raise their purchasing power and reduce pervasive poverty. It will drive industrial development, provide rural poor with alternative sources of income, reduce pressure on land, reduce food insecurity [25] and improve health status.

Agricultural development on the scale and at the pace needed to provide enough food; improved health and better standard of living for the rapidly expanding population of people in SSA require much support from governments of the various states in form of legislation, administrative actions and finance. According to [26], the development and sustainable use of natural and technical

resources depends on policy issues like land ownership, farm income, taxation and support, trade and access to technology and market. The adoption of new technologies (considering the low capital base of the farmers) will require a depoliticised supply of credits, more relaxed land tenure system, agricultural education extension, irrigation as well as subsidy on farm inputs, marketing and storage. A comprehensive package of policies based on clear understanding of interrelationships, complementariness and conflicts among different policy issues are needed. Most government policies are gender blind. There is therefore the need for gender mainstreaming. A survey carried out in western Kenya between 1991 and 1992 showed that 75% of farmers interviewed were women. Although 98% of women in Kenya work full-time in the agrarian sector, only 5% of them have ownership titles [27]. Women supply 30 to 50% of farm labour and own 70% of small ruminants and poultry in Gambia, however, socio-economic factors prevent them from acquiring new inputs [28]. Women generally are limited in the types of crops they grow, the task they implement and on major decisions on land [29]. A report from Burkina Faso [30] showed an increased investment on land and improved yield when previously marginalized women were given permanent land rights. [31] submitted that support and incentives to small-scale farmers, particularly women, is essential for ensuring food security.

The need for technological change cannot be underscored. New technology does not necessarily imply imported technology, which the low foreign reserves and expertise base of rural poor farmer cannot sustain. Improved funding with specific time-bound mandate will assist the specialized institutions like National Centre for Agricultural Mechanization (NCAM) in Nigeria to produce affordable, ecologically friendly, medium technology farm tools and implements. New technologies should complement existing ones, they should be acceptable, output-driven and beneficial to resource poor farmers especially those in marginalized areas. There is more scope for raising production per man by introducing improved ox-drawn implements, small single axle-powered tillers and a variety of small machines such as stumping jacks, threshers, sprayers and pumps [32]. More than technological inventions are the need to mass-produce the existing prototypes of farm implements and a stronger extension system to take them to the farmers. There is the need to give greater priority to technical and vocational training in agriculture as against the present largely theoretical training.

Increasing the nutrient content and yield of crops, storability of local grains and pulses, matching of crops to suitable ecology, reducing the rate of desertification and sustainable land and water use (especially in fragile Sahel ecosystem), should be vigorously pursued by researchers. National Research Council report in 1991 on the success of the winged-bean in Cote D'voire underscores the significance of matching crops with environments. Research is needed in improving dry season management of peasant livestock and in the control of diseases like Newcastle, which kills at least 50 percent of poultry produced annually under subsistence agriculture. Strategies are needed to reduce both field and post harvest losses which stands at about 50 percent of total production.

Declining soil fertility is an ecological factor affecting productivity in SSA. Its humid tropics are converted into agricultural land far more rapidly than Latin American or Asian rainforest through methods primarily propelled by small holder subsistence agriculture [33]. Soil fertility depletion has become a biological limiting factor responsible for declining per capital food production in SSA [34]. Desertification breeds poverty. It results into soil displacement, deforestation and deterioration of soil physico-chemical properties. There are inadequate technological infrastructures and institutional framework to help the 300 million people (from Senegal to Sudan) faced with the problem of desertification. The development of appropriate soil management techniques will enhance sustainable agriculture by helping to optimize profits, reduce risks in global warming and water pollution and prevent soil degradation.

Most of the renewable water resources in SSA (estimated to be about 4,000 km³ per annum) are not

accessed or put into beneficial use before it evaporates or flow into saline sinks [35]. This is because it is very poorly distributed in both spatial and temporal terms. In most semi-arid tropics the total raining hours is just 100 hours out of 8,760 hours of the year. There is need for effective water resources planning in SSA where over 90% of agriculture production is rainfed. In addition to surface irrigation, there is the need for upgrading rain-fed agriculture through other methods of improved water use effectiveness [35].

Floods and droughts are among the major constraints to agricultural development in SSA. Southern Africa suffered flood in 2000 and droughts in 2002. 38 and 33% of disasters within the last 100 years in Tanzania were caused by floods and drought, respectively. A survey of local farmers in semi-arid areas of Tanzania, Kenya and Uganda revealed a significant level of water management innovations. These can be further developed and applied over wider areas. The *Mashamba ya Mbugani* (fields located at the bottom of landscape) in Tanzania is a demonstration of how indigenous innovation can improve rural livelihood and reduce enterprise risks caused by climate variability.

Importation of GM crops should not be used for political romance with friendly industrialized nations. There is the need to weigh the inherent opportunity costs. How will it affect the peasant farmers who see the local cultivars as both food and seed reserves? Will GM seeds get to the interland at sustainable and affordable prices, especially in these days of deregulated economy and unfavourable exchange rates? Biosafety issues must not be waved with the hands in view of our level of preparedness. The biotechnology we need should be demand-driven and packaged with the interests and

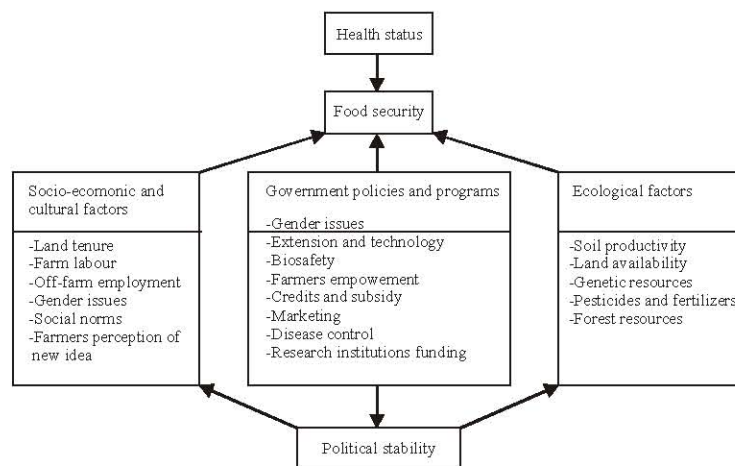


Fig. 2: Schematics of factors contributing to food security and health

inputs of the farmers themselves. An African success story involving the utilization of endemic species is a new rice variety produced through multi-institutional cooperation of scientific and technical communities from cultivars of African and Asian origin. The new rice variety had benefited 20 million farmers and caused a reduction in imports by US\$80 million.

Political will and stability are essential for an enduring food security (Fig. 2) wealth and well-being in SSA. Most religious and ethnic disturbances in SSA are antithesis to government mismanagement and failure of leadership. Food security should be rated as part of national security. Agricultural programmes like credits and subsidies on farm inputs must no longer be politicized. *'Res non verba!'* (Deeds not words!). Politician need to douse tensions by translating their words to action. Let peace descend like a river and the weapons of war beaten into plough-shears that our battle-fields may turn beautiful with greens and our armoury to packed-full granary for future generations.

CONCLUSION

Agricultural development remains critical to food security and health in SSA. If agriculture remains stagnant industries cannot grow, wealth cannot be created, nutritional and health status will continue to decline. There is therefore the need for

Strategic support from the states in SSA by way of legislation, administration and finance. Policies and programmes must promote gender mainstreaming. There is need for a technological change that is sensitive to the cultural, economic and ecological realities in a stable polity.

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