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Topical Review of Hidden Hunger and Poverty Profile in Nigeria: Case Study of Kwara State (Province) and Suggested Agricultural and Economic Solutions

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Abstract- Hidden hunger is the inadequate access to micronutrients that are necessary for a healthy and functional body. This is a form of hunger that is not very visible and much more than an empty stomach. Micronutrients are essential vitamins and minerals that we need in small quantities for effective growth and development of the body. Micronutrient deficiencies are caused by poor diet and inadequate micronutrient supply during certain stages in life. The study considered the micronutrient status of a province of Nigerian, the effects of its deficiency and the agricultural and economic solutions. Being a review research, secondary data were used where necessary. The study showed that Nigerians and the province in particular are very hungry with significant evidences of hidden hunger. Agricultural solutions were recommended through biofortification of crops and external economic interventions to assist the people produce their own foods and access them where necessary.

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Topical Review of Hidden Hunger and Poverty Profile in Nigeria: Case Study of Kwara State (Province) and Suggested Agricultural and Economic Solutions

Uche C. [α] & Familusi L. C [σ]

Abstract- Hidden hunger is the inadequate access to micronutrients that are necessary for a healthy and functional body. This is a form of hunger that is not very visible and much more than an empty stomach. Micronutrients are essential vitamins and minerals that we need in small quantities for effective growth and development of the body. Micronutrient deficiencies are caused by poor diet and inadequate micronutrient supply during certain stages in life. The study considered the micronutrient status of a province of Nigerian, the effects of its deficiency and the agricultural and economic solutions. Being a review research, secondary data were used where necessary. The study showed that Nigerians and the province in particular are very hungry with significant evidences of hidden hunger. Agricultural solutions were recommended through biofortification of crops and external economic interventions to assist the people produce their own foods and access them where necessary.

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I. Introduction

Hunger, as defined by Ogundipe et al (2016) is food deprivation. Nutrient deficiency in the food is called hidden hunger. Somebody may have his or her belly full and yet suffer food deprivation because of nutrient deficiency. Hidden hunger is undernutrition that occurs when the intake and absorption of vitamins and minerals are very low to maintain good health and development. Micronutrient deficiencies are caused by poor diet, inadequate micronutrient supply during certain stages in life, such as pregnancy and lactation etc (Gautam, 2016). Inadequate micronutrient intake, a form of hunger that is not very visible is affecting many people. Hunger is much more than an empty stomach. The Nation (2015) citing Essiet (a blogger) described Hidden hunger as the lack of access to micronutrients that are critical for proper physical and cognitive development.

Micronutrients are essential vitamins and minerals that we need in small quantities for effective growth and development of the body (UNICEF, 2003). Deficiency of micronutrient (hidden hunger) results when essential vitamins and/or minerals are inadequate in the diet. If not checked, micronutrient deficiencies can cause irreversible damages. (Kuku-Shittu et al, 2016). Inadequate intake of vitamins and minerals like vitamin A, iodine and iron are the main causes of hidden hunger and malnutrition in the world today (UNICEF, 2003). Eliminating vitamin and mineral deficiency in our diets will enhancement for Africa's health and help in the quest to achieve the Millennium Development Goal of eliminating, hunger, improving on maternal health, and reducing child deaths by two-thirds(Thomas et al, 2004).

Hidden hunger does not produce the pangs of hunger as we know it. You may not feel it in your belly; however it strikes the very core of your health and poses a widespread and devastating threat to wellness and human dignity especially in developing countries (Gautam, 2016). According to Pinstrup-Anderson (2007) in Gautam (2016), the malnutrition burden facing the world is rising and becoming complex. This is because developing countries are embracing highly processed, energy-dense, micronutrient-poor foods and drinks instead of maintaining their traditional diets that are based on minimal processing. This has resulted to obesity and diet-related chronic diseases. In consequence, many developing countries now face malnutrition (undernourishment, micronutrient deficiencies). Even an obese child can suffer from hidden hunger.

According to Mason & Beda-Andourou et al. (2005) in Kuku-Shittu et al, (2016), being vital components of good food, the deficiency of micronutrients in human diet is responsible for several health problems. A significant number of human population suffers from micronutrient deficiency and a threat in many African countries afflicting one-third of the population south of the Sahara and about 20 percent of children under five years of age suffer vitamin A deficiency in many countries in the region. The report indicated that micronutrient deficiency indices in Nigeria show that 28 percent of children under five suffer from iron deficiency anemia (IDA), 29.5 percent from vitamin A deficiency (VAD), and 29.6 percent from iodine deficiency (Maziya-Dixon et al. 2004 in Kuku-Shittu et al, 2016).

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According to Ogundipe et al (2016) the Global Hunger Index showed that Nigeria was seriously hungry in 2015. This implies serious undernourishment which led to child stunting, child wasting, and child mortality and; the Report of the International Food Policy Research Institute (IFPRI) in 2015 showed that 7 per cent of the Nigerian population is undernourished and wasting and stunting in children below five years of age was 18 per cent and 36.4 per cent respectively. Nigeria has made efforts towards easing hidden hunger especially in children and women, nevertheless millions still are on the brink of survival. Kuku-Shittu et al, (2016) citing NPC/ORC Macro (2004), Maziya-Dixon et al. (2004), NDHS (2008), NPC/ICF Macro (2009), NDHS (2013) stated that many studies showed significant variations in malnutrition across rural, urban, geopolitical zones and agro-ecologies in Nigeria. Data however generally confirmed high child undernutrition pointing to Nigeria been far from the recommended targets; hunger and malnutrition are pervasive in the country. The prevalence of undrnutrition tends to be mainly concentrated in rural areas and among the landless, pastoralists, smallholders, and hired agricultural workers (Southgate et al. 2007; AU/NEPAD 2007 in Kuku-Shittu et al, 2016).

II. The Impact of Hidden Hunger in Kwara State (Province), Nigeria

Micronutrient deficiency is one of the prominent hindrances to human development and survival as noted by the West African Health Organization (WAHO) (Thomas et al, 2004). The Nation (2015) observed that among the many required micronutrients, the human body needs iron to build blood cells; vitamin A to aid body immunity and vision; iodine for thyroid gland function and cognitive development. These micronutrients that the body needs to survive and function optimally are of much significance.

Black et al. (2013) and Black et al (2008) in Gautam (2016) noted that micronutrient deficiency causes an estimate of 1.1 million of 3.1 million child deaths each year as a result of undernutrition. Vitamin A and zinc deficiencies seriously affect the health of children and their survival by weakening the body immunity. Zinc deficiency will impair growth in children. Iodine and iron deficiencies can induce mental developmental retardation in children (Allen, 2001 in Gautam, 2016). Hidden hunger will hinder children from the optimum development of full physical, mental and social abilities. Kuku-Shittu et al (2016) citing FAO (2013) stated that over 14 percent of developing countries were undernourished between 2011 and 2013. This will result in many physical limitations, morbidity, and mortality. Deficiencies in nutrition is sometimes linked to poverty, low levels of educational attainment and limited access to health services and these are associated with developing countries like Nigeria according to the reported.

Kuku-Shittu et al (2014) in a study in Kwara State alone produced the values in the tables below: 77.8% of children were diagnosed to be wasting, 25.4% stunting and 55.6% under weight. Little wonder Nigerians were described as been seriously hungry with the attendant nutritional deficiency. However, the report noted that reasonable variations exist in the rate of child malnutrition across the geopolitical zones, and agro-ecological bands in Nigeria. Malnutrition rates (consequently micronutrient deficiency) are higher in rural households than in urban ones. The team conducted the study to prove that malnutrition (and consequently micronutrient deficiency) in Nigeria is a significant health challenge among the population.

Table 1: Anthropometric Status of Children Aged 0 to 59 months, by Age Groups (by Kuku-Shittu et al, 2016) → statistics of wasting children in Kwara State

Variables	0-11 months n (percent)	12-23 months n (percent)	24-35 months n (percent)	36-47 months n (percent)	48-59 months n (percent)	Total n (percent)
WHZ (Wasting)	72 (72.0)	102 (77.3)	79 (73.8)	62 (83.8)	46 (90.2)	361 (77.8)
Mild	9 (9.0)	13 (9.8)	17 (15.9)	9 (12.2)	2 (3.9)	50 (10.8)
Moderate	6 (6.0)	10 (7.6)	3 (2.8)	3 (4.0)	3 (5.9)	25 (5.4)
Severe	13 (13.0)	7 (5.3)	8 (7.5)	0 (0.0)	0 (0.0)	28 (6.0)
Total	100 (100.0)	132 (100.0)	107 (100.0)	74 (100.0)	51 (100.0)	464 (100.0)

Source: Kuku-Shittu et al (2016)

Table 2: Anthropometric Status of Children Aged 0 to 59 months, by Age Groups (by Kuku-Shittu et al, 2016) → statistics of children with stunted growth in Kwara State

Variables	0–11 months n (percent)	12–23 months n (percent)	24–35 months n (percent)	36–47 months n (percent)	48–59 months n (percent)	Total n (percent)
HAZ (Stunting)	37 (35.6)	36 (27.3)	25 (22.1)	13 (17.1)	10 (19.6)	121 (25.4)
Mild	14 (13.5)	25 (18.9)	21 (18.6)	16 (21.0)	10 (19.6)	86 (18.1)
Moderate	17 (16.3)	23 (17.4)	31 (27.4)	13 (17.1)	11 (21.6)	95 (20.0)
Severe	36 (34.6)	48 (36.4)	36 (31.9)	34 (44.7)	20 (39.2)	174 (36.5)
Total	104 (100.0)	132 (100.0)	113 (100.0)	76 (100.0)	51 (100.0)	476 (100.0)

Source: Kuku-Shittu et al (2016)

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Table 3: Anthropometric Status of Children Aged 0 to 59 months, by Age Groups (by Kuku-Shittu et al, 2016) →statistics of underweight children in Kwara State

Variables	0–11 months n (percent)	12–23 months n (percent)	24–35 months n (percent)	36–47 months n (percent)	48–59 months n (percent)	Total n (percent)
WAZ (Underweight)	58 (54.7)	75 (56.8)	61 (54.0)	40 (52.6)	32 (62.7)	266 (55.6)
Mild	24 (22.6)	30 (22.7)	26 (23.0)	17 (22.4)	14 (27.4)	111 (23.2)
Moderate	10 (9.4)	6 (4.5)	15 (13.3)	14 (18.4)	3 (5.9)	48 (10.0)
Severe	14 (13.2)	21 (15.9)	11 (9.7)	5 (6.6)	2(3.9)	53 (11.1)
Total	106 (100.0)	132 (100.0)	113 (100.0)	76 (100.0)	51 (100.0)	478 (100.0)

Source: Kuku-Shittu et al (2016)

Kuku-Shittu et al (2016) making reference to Maziya-Dixon et al. (2004) noted that available data from 2001-2003 Food Consumption and Nutrition study showed that 42 percent of Nigerian children under five years had stunted growth, 25 percent were underweight, and 9 percent wasted. The data suggests inadequate micronutrient intake: contemporary realities suggest the figures have not changed, may even be worse. The same study also reported that data from the 2013 Nigeria Demographic Health Survey (NDHS) supported the previous findings of the Nigeria Food Consumption and Nutrition Survey (NFCNS) of 2001-2003, but however noted that no change occurred in the anthropometric measures of children under 5years over a period of ten years. This statistics has not significantly changed even today.

III. The Agricultural Solution to Hidden Hunger

While the farmers are addressing hunger in terms of quantity of food, nutritionists and the farmers have noted that not much have been done in using agriculture as a means to address micronutrient deficiency in food quality (The nation, 2015). Food fortification may be seen as an option especially for urban dwellers that may be privileged to buy many commercially fortified foods, such a consideration may not be very feasible for rural dwellers who may not have adequate access to commercially fortified foods (Saltzman and Birol, 2014).

Gautam (2016), citing Bouis (2000) and, Kennedy and Bouis (1993) stated that researches over the years focused on increasing the productivity of crops to reduce malnutrition. However, the study posited that the production of high yielding crops may have otherwise impacted nutrition. The increase in the output of high carbohydrate crops reduced the prices of these less nutritious foods relative to the prices of more micronutrient-dense ones like the vegetables and pulses. While high carbohydrate foods became cheap, the prices of non-starchy nutrient rich ones rose. This made micronutrient rich foods less appealing to the poor. Diets that are not rich in nutrients were in their study reported to be a common source of hidden hunger. Diets that are based on crops like maize, wheat, rice, and cassava that provide a significant share of energy are low in essential vitamins and minerals; this frequently results in hidden hunger.

To benefit urban and rural dwellers alike, biofortification of all food crops seem to be a good option. According to Qaim (2007), Bouis et al. (2011) and Saltzman et al.(2013) in Kuku-Shittu et al (2016), a veritable solution to micronutrient deficiency in foods is biofortification. This is the breeding of staple food crops that contain high amounts of micronutrient. The researchers opined that it is a cost-effective and sustainable strategy in the quest to reducing micronutrient deficiency in developing countries where a majority of the diets of many low income earners consist of staple (carbohydrate) foods and who cannot access food supplements and marketed fortified foods. Biofortification uses the crops to deliver more micronutrients into foods. This is accomplished through plant breeders. More than one million farmers presently are growing biofortified crops such as vitamin A orange, sweet potato, vitamin A maize, vitamin A cassava, iron beans, iron pearl millet, zinc rice, and zinc wheat in many developing countries of Africa, Asia, Latin America and, the Caribbeans (Saltzman and Birol, 2014). Though biofortified foods may not contain a high level of minerals and vitamins when compared to fortified foods, they are important in efforts to close the gap of micronutrient deficiencies in the food menu. Gautam (2016) agrees with this opinion and states that it is the best response to clinical deficiencies.

IV. The Economic Effects and Solutions to Hidden Hunger

Micronutrient deficiency is a health problem in many developing countries which has negative impacts on income growth, however, the economic cost varies (Stein and Qaim, 2007). What people eat depends on the economy, the relative prices of food, cultural preferences, peer pressure, geographical, environmental, and seasonal factors among others. Those under the pangs of hidden hunger in developing countries may not be able to afford or access the various varieties of nutrient dense foods such as animal-source foods, fruits, or vegetables for economic reasons (Gautam, 2016). Sadly then, economic factors are to blame to some extent in issues of hidden hunger and perhaps the most offensive in third world nations. Now

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that Nigeria is experiencing economic recession, something urgent must be done to save Nigerians from exacerbated micronutrient deficiency and its consequences.

When there are inadequacies in nutritional needs, the effects can be remarkable on the development of a child, the health and learning abilities. Improving on the nutritional status of adults on the other hand also has some benefits. Studies have shown a connection between productivity and earnings of adult workers and nutritional status. Sick or weakened workers are less likely to be employed than healthy ones. Good nutrition also has significant effect on labour productivity than the level of formal education. Good nutrition and basic education jointly are important for labour productivity. Improved productivity expands the economy, increases incomes and raises consumption, positively impacting the economy (Morris, 2004). Thomas et al (2004) also viewed nutrient inadequacies as a major cause of child and infant mortality in Africa while older children struggle with minds that are weakened by inadequacies in these vital essential nutrients thus, limiting productivity and economic development.

Stein and Quaim (2007) reported that attempts have been made in the past to value the human and economic costs of hidden hunger and, by World Bank estimate, the combined economic costs of deficiencies in iron, iodine and vitamin A in developing countries could amount to as much as 5% of gross domestic product (GDP). They posited that the global burden of disease caused by Iron, iodine and vitamin A deficiencies amounted to about 2.4% of the disease burden of developing countries. Sadly, the same study informed that the estimate of World Health Organization (WHO) was even four times higher (9% to 10%) and informed that the Micronutrient Initiative on National Damage Assessment Reports stated that in 80 countries where micronutrient deficiencies were noted, an average estimate of 1% of the GDP was lost to iron, iodine, vitamin A and folate deficiencies with a median loss across the countries put at 0.8%. Ignorantly, hidden hunger is taking a huge toll on the Nigerian economy since the country has been described as seriously hungry.

The statistics rolled out above may be objects of debate. However, the modus operandi of the study seem convincing enough. Stein and Qaim (2007) convincingly posted that the approaches used in accessing the economic cost of micronutrient deficiencies were cost-of-illness (Col), a method that captured the economic costs of loss in labour productivity and calculations on disability-adjusted life years (DALYs) that captured the losses in welfare and on the human costs in terms of the burden of disease. Stein (2013), Stein et al (2007) and Darnton-Hill et al (2005) in Gautam (2016) panoramically captured the grim effects of micronutrient deficiencies. The study/ research reported that vitamin and mineral deficiencies inflicts significantly a heavy burden on the affected individuals or society both in health costs, losses in human capital and reduction in economic productivity, stating that hidden hunger limits physical growth, learning, productivity and perpetuates poverty and the affected individuals or society may never realize their economic potential because of constrained socioeconomic development. From the poverty profile of Nigeria in the table below as relayed by the Central bank of Nigeria and released by the National bureau of Statistics covering 2004, 2010 and 2011 absolute poverty of 61.9% in 2011 is worrisome. The picture may not have improved in this recession. This poverty status may not guarantee easy access to good nutrition by the concerned individuals.

Table 4: Nigeria's Poverty Profile

Variables	2004	2010	2011
Estimated Population (Million)	126.3	163	168
Relative Poverty (%)	54.4	69	71.5
Absolute Poverty (%)	54.7	60.9	61.9
Dollar Per Day (%)	62.8	61.2	62.8

Source: NBS Nigeria Poverty Profile 2010 Report; 2011 figures are estimates (as reported by CBN, 2011)

Hidden hunger also has many other hidden economic effects that may not be very apparent at a glance. It saps the energy of the labour force with billions of dollars as losses in productivity in developing countries (Thomas et al, 2004). There are however viable economic solutions to this scenario. Cunningham (2016) stated that the developing countries where food insecurity and nutritional inadequacies are prevalent can be assisted with incentives by wealthy ones or organizations to raise food production themselves. This she opined the World Bank can do by providing grants to poor countries to upgrade their agriculture and food supplies, a gesture wealthy countries have also keyed into by providing food and monetary aids to poor ones through debt relief and other measures so that they can produce their own food. Poverty is an inhibitor to social and economic progress. Its reduction coupled with viable government policies will boost agriculture especially in developing countries.

In different parts of the country enough food to go round and mitigate nutritional deficiencies seems to be produced. However, poor distribution network have

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hindered progress. All the geopolitical zones of Nigeria have at least a major crop (cereals, pulses, fruits and vegetables) it produces with a comparative advantage. According to Olaniyi (2011) there is enough food for everybody, the problem is distribution. He noted that if food is distributed according to human nutritional needs, food supply could support up to 120 per cent of the world's present population. In the third world countries, massive infrastructural development is a must in this perspective to ease the challenges caused by poor infrastructure.

Uche (2016) citing EARRNET (2006), stated that rural infrastructure such as roads, markets, water supply, health and other ancillary facilities are basic to quality life and also critical in agricultural development strategy. Rural roads are fundamental for agricultural development. El-Wahab (2005) reporting on the state of some rural roads in Nigeria stated that distribution of agricultural produce is disadvantaged by rudimentary rural roads system that are mostly unpaved, making access to the farms difficult for time sensitive products that are perishable. The transport system in most rural areas is inadequate and existing road networks are in poor state of repairs requiring substantial rehabilitation. These distribution inadequacies must be resolved.

Inadequate living wage must be addressed as the need arises. The amount a household earns will affect its food security and intake of micronutrients since it is a determinant of the amount of food accessed by reason of its effects on purchases. The poorer a family is, the more difficult it is to access nutritive foods as they comparatively are costlier for them to purchase.

V. Conclusion

It may not be easy eliminating hidden hunger, serious challenges lie ahead. All that may be needed is the injection of enough resources into the production of nutrient dense foods and the right government policies to support it. Also, the economic features of Nigerians need to be upgraded through viable government policies to help them access the nutrient-rich foods they need to combat poor health and reach their development potentials. Finally, the agricultural sector needs to embrace biofortification to make nutrient dense foods available and accessible to both the rich and the poor equally.

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