FOOD SYSTEMS FOR HEALTHIER DIETS: IMPLICATIONS FOR FOOD AND NUTRITION RESEARCH FOR DEVELOPMENT AGENDA IN NIGERIA

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47th Annual General Meeting & Scientific Conference held between 19th and 22nd of September, 2017 at University of Ibadan, Ibadan
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Food systems

- The full set of processes, activities, infrastructure and environment that encompass the primary production, processing, distribution, waste disposal, preparing and consuming food.
- Multiple actors (producers, food chain actors, consumers) managing
- Multiple agri-food value chains in dynamic and interactive environments
- Multiple impacts (environmental, economic, social equity and nutrition/health)
Food Systems for Healthier Diets

To understand how changes in food systems can lead to healthier diets and to identify and test entry points for improving availability and effective demand for healthier food and to create at scale a supportive policy and market environment for reaching healthier and sustainable diets.
Food system: Emerging situations

- Food serves economic commodity and a viable channel of nutrition (Mwanamwenge and Harris, 2017).

- Sustainable and nutritious food system faces the challenge of
  - Climate change, intense population pressure, and the paucity of available resources (Freibauer et al., 2011).

- One billion people are plagued with an acute lack of sufficient food (FAO, 2013)

- Two billion have micronutrient deficiencies worldwide (WHO, 2000; Black et al. 2008; Shetty, 2011; Myers et al., 2014).
Malnutrition in all its ramifications is evident on one in three people worldwide and about 795 million have a daily problem of hunger (FAO, 2016).

Sub-Saharan Africa has been seriously affected by a gross lack of available and accessible good quality nutritious diets (WHO, 2013).

Nigeria is prominent
Food systems: Emerging situations

• About 42% of children were stunted, 25% underweight, and 9% wasted, 38% of children under-five are stunted, 29% underweight, and 9% wasted (IITA, 2004; NFCNS; NDHS 2003).

  – more than 2.5 million children under-five are severely malnourished
  – About 7 million people in dire need of help in north eastern Nigeria as a result of conflict in the area.

• Therefore an urgent appraisal of the diet, food environment, and supply systems to improve the livelihoods of the teeming population in the country.
• Diet quality is intricately linked with four main aspects: access, diversity, nutrient adequacy, and safety (Trijsburg et al., 2017).

• Each is a function of several factors (Bernal et al, 2003; Styen et al, 2006; Hillbruner and Egan, 2008).

• However, inverse relationships have been found between dietary diversity and chronic non-communicable diseases but a positive relationship with quality nutrition (Azadbakht et al., 2006; Styen et al., 2006).

  – Consequently, the consumption of a large variety of foods both across and within a country is usually encouraged as best practice in dietary guidelines (Jeanene et al., 2006).
Diet quality as an entry point

• Malnutrition and micronutrient deficiencies have continued unabated especially among women of reproductive age, infants, and children, and have constituted serious concerns in Nigeria (NFCNS, 2001).

• Maternal malnutrition with its attendant morbidity and mortality had been reported among African women including Nigeria (Lartey, 2008).

• Inhibited growth in children and the risk of chronic diseases in most African countries (Azadbakht et al., 2006; Styen et al., 2006).

• An Assessment of Dietary Diversity in Six Nigerian States by Ajani (2012) indicated that diet quality has been receiving increased attention because of its relationship with diet-related chronic non-communicable diseases.
Diet quality as an entry point

- Several types of food found to be positively associated with availability of micronutrients in the diet are unpopular and uncommon in most diets,
Food environment

- The food environment constitutes the closeness of an individual to the food location and encompasses the distribution food stores, food services, as well as an entity that guarantees access to food.

- World Health Organization (WHO, 2005) defined the food environment to include all the physical, chemical, and biological circumstances external to a person, and all the related factors influencing access to quality diets.

  - In Nigeria, the Government has launched a strategy to improve the food environment in the country that embodies a set of recommendations on the best way of managing the interface between consumers and food systems to encourage access by the populace to the consumption of higher quality diets.
Food environment

• The strategy – Food and Nutrition Strategy 2016-2025 – necessitates the active participation of the private sector, civil society, and Government for its success in the following:
  – Implementation of economic measures (taxation of unhealthy foods and subsidies for healthy options).
  – Encouragement of the marketing and promotion of high quality diets whilst restricting the advertising and promotion of unhealthy foods.
  – Reformulation, labeling, and processing of foods in ways that increase their nutritional value and safety.
  – Provision of high-quality foods in schools and workplace schemes.
  – Collection of better data on the quality of food environments.
Food environment

• Street foods have become a common phenomenon among semi-urban/urban dwellers (WHO, 2013).
  – According to Mishra (2007), about 82% of all age groups and 61% of students have lunch and dinner from street foods
    • that are loved and celebrated because of their taste and flavor but most importantly due to their low cost and apparent affordability for all and sundry (Bhowmick, 2005),
    • Street foods are foods prepared by vendors at home or at designated centers but offered for sale in open or semi-open conditions near the streets. In spite of the better taste and relative accessibility and affordability associated with street food, their preparation is fraught with unhygienic conditions.
  • Subsequently, street foods have been correlated with public health risks, food poisoning, and other related diseases (WHO, 2013).
Food environment

• With regard to the consumption of processed food, over 80% of Nigerians consume processed foods irrespective of location and income levels across the country.

• On the other hand, 94% of urban households purchase some non-perishable highly processed foods such as fruit juices, oils, coffee, and tea.
Food situation in Nigeria

- Nigeria’s situation on food security is highly dangerous as a great share of her population is left in poverty.

- Haruna, a member of the House of Representatives, in an emotion-laden speech in 2005 said, —”People are dying and the hunger is simply unbearable. We need to tell ourselves the truth; there is hunger in the Land. Many go to bed with empty stomachs.” (TELL: August 22, 2005:23).

- Nigeria in the present circumstances is simply food insecure.
  - The situation is particularly further aggravated by rapid urbanization.

- According to NBS (2015) the prevalence of stunting and underweight has been decreasing in Nigeria.
  - However, the improvement is not sufficient to meet the Millennium Development Goal 1 (MDG 1).
Food situation in Nigeria

• The prevalence of stunting is high in the northern part especially the north-west and north-east where nearly 50% of children are stunted.

• The National Bureau of Statistics (2016) further asserts that Acute Malnutrition were also more prevalent in the north-west than in any other region in the country.

  – The knowledge and use of breastfeeding are high in the country with the highest percentage in the south-west (98%).

  – Moreover, the consumption of iron-rich food was also found to be lowest in the north-west where Vitamin A deficiency was found to be widespread. The highest level of supplementation was in the south-west.
Food situation in Nigeria

• Malnutrition was also found to be highest among women in the north-east and lowest in the south-east with teenagers between the ages of 15 and 19 years found to be at a higher risk compared with older women.

• With respect to reproductive health, about 42% of women received the attention of skilful health practitioners during pregnancy and birth.

• The highest percentage was found in the south-east. Only about 20% of married women are currently married women in Nigeria.
Food situation in Nigeria

• States in the north-east and north-west have the lowest rates of immunization compared with States in the south-east and south-west.

• To address a myriad problems affecting the food situation in the country, UNICEF (2011) identified the following as the policy thrusts:
  – Reducing malnutrition has more impact than any other intervention and focuses on the three high-impact actions, vitamin A supplementation, deworming, and supplementary feeding.
  – Attempt must be made to reducing micronutrient deficiencies

• Huge yearly loss has been traced to micronutrient deficiencies in the neighbourhood of over $1 billion
Consumer behavior and purchasing power

• Consumer behavior defines when, why, how, what, and where consumers buy or do not buy products (Soethoudt et al., 2013).

• It defines people’s beliefs, actions, values, and norms which are normally passed from one generation to another (Kotler, 2002).

  – In each social world, people belong to other sub-units of family, education, work, peer groups, friendships, among others.
Consumer behavior and purchasing power

• The size of Nigeria epitomizes the myriad of cultures that call for different approaches to markets and the market-oriented buying behavior of consumers.

• It denotes knowledge, beliefs, arts, morals, laws, customs, and any other capabilities and habits acquired by man as a member of society (Tylor, 1871; Onu, 2000; Forsyth, 2009).

• Producers, marketers, and traders put culture into consideration in an attempt to attract patronage.
  – For effectiveness and success in business circles, there are cultural limitations to be watched for
Consumer behavior and purchasing power

• Nigeria has the largest population of any African nation with over 170 million people and 374 ethnic groups (Ekerete, 2001; NBS, 2016).

• Each group has a different language..

• Christian religion dominates the southern parts and Islam in the north. The worship of deities, spirits, and the ancestors is spread throughout the country.

• The availability of infrastructural facilities and basic amenities is a major challenge across the length and breadth of the country.
Consumer behavior and purchasing power

- Culture influences the behavior of people to buy in Nigeria in eight fundamental ways, summarized as follows:

- (i) individualism and collectivism, (ii) social fabric, (c) family, (d) language, (e) religion, (f) stratification, (g) marriage, child bearing, and death, (h) globalization and cultural dilution
Food supply systems

• The food supply comprises four connected subsystems:
  – agricultural production
  – storage, transport and trade,
  – food transformation,
  – food retail and distribution.
Drivers of food system change

Agricultural production

Food supply systems

Food storage, transport and trade

Food environment

Consumer

Diet quality

Food retail & provisioning

Food transformation
Agricultural production

• The food supply systems of Nigeria are a function of some fundamental factors including
  – available human and material resources, level of technology, government policy, ecological potential, and the skills of the agricultural producers.
Nigeria is blessed with abundant land resources in a unique diversity of ecosystems (Blein et al., 2008; Soulé et al., 2010; AFD, CIRAD, IFAD, 2010).

The country boasts abundant natural resources including those of arable land surface and subsurface water.

- It possesses about 70 million ha of farmable land with only 40% currently under cultivation.

- Nigeria has about 2,333,000 ha of potentially irrigable land with about 25% currently irrigated (FAOSTATIC, 2014).

- Agriculture is one of the largest sectors of the Nigerian economy.

The potential of agriculture in Nigeria connotes great opportunities upon which sustainable and vibrant food systems for healthier diets could leverage.
Arrays of constraints to agricultural development militating against the sustainability of agricultural development are (Francis, 2005; Innocent, 2008; Yisa, 2009; Phillip et al., 2009)

- the poor agricultural pricing policy,
- policy incapacity, instability, and implementation inefficiency
- low fertilizer use, limited access to land occasioned by tenure systems in Nigeria
- poor market development
Storage, transport and trade

• The storage, transport, and trade system provides the interface between production and consumption.

• The underlying activities of this system are about getting the right product to the right place at the right time.

• Transportation represents the most serious constraint among other factors to agricultural production and development. Road transportation accounts for about 90% of both freight Nigeria,

• agricultural produce constitutes a major share of goods transported by road.
Food transformation

• Combination of activities that transform agricultural products into more marketable and easily accessible, more storable food products for ease of consumer consumption

• Food processing currently dominates Nigeria’s (relatively small) industrial manufacturing sector – making up 60% of its value added,
  – Almost 1 million people are estimated to be employed in food processing enterprises in the country (around 2% of the economically active population) (Minten et al., 2016).
  – Herein, the milling, baking, and sugar refining industries are especially important and the top products of food processing are wheat flour (314 kilotons in 2010), sugar (283 kilotons), and biscuits (193 kilotons) (Soethoudt et al., 2013).

• Agro food industry holds great potential for economic development of Nigeria but currently constitutes about 10% of the country’s GDP (Okolo, 2004; Egbuna et al., 2013)
• However, the current relatively poor processing methods need to be improved.
  – African countries including Nigeria could have 64% of their exports, such as agro-products – nuts, fruits, and cereals – annually valued at about $674 million in trade rejected in international markets owing to mycotoxin contamination and other fungus related issues. (World Bank, 2014).

• Therefore, for the effective leverage of sustainable food and diet system, it is imperative to engender correct certification and engagement of modern technologies as well as enlistment into the global market for the country’s food processing subsector.
• The emphasis in the food retailing and provisioning subsystem is on channels of distribution, otherwise known as marketing channels.
  – It entails all independent organizations that facilitate the art of making a product or service available for consumption (Blanco, 2000; Boone and Kurtz, 2004; Kotler and Armstrong, 2006)

• Several marketing channels exist along in food industry in Nigeria

• Major determinants of the price at various nodes of the marketing channels are the speculative tendencies of the marketing agents
  – Moreover, the extent to which a buying agent could haggle or bargain is also a determinant factor in the eventual price payable for the purchase of an agricultural product in Nigeria especially in the rural areas. (Akinola et al., 2014).
Food retail and provisioning

• With this myriad of marketing channels, an important research question is which channels can be most effectively and efficiently leveraged upon for an increased access to nutritious and safe foods.

• It should be noted that the channels to leverage upon would be greatly influenced by the types of products, nature of consumers, geographical location, and transport facilities available.

• The prospects for recycling food waste as a resource are just evolving and need timely and full exploration ((Tadesse et al., 2008)).
Drivers of food system change

• Urbanization and alarming population growth
• Increased modernization
• Increased education
• Increased infrastructure: Before now, Nigeria’s core infrastructure stock was extremely low (about 20-25% of GDP).
• Increased food development efforts and programs: Increased food-related programs are anticipated.
• Environmental influence: The Nigerian population has been estimated to be above 170 million.
  – The interactions among these people are expected to have great effects on the landscape. The influence includes those of urbanization, deforestation, desertification, overpopulation, and all kinds of pollution.
Identified gaps

• Three main research areas identified are in these categories:
  – Characterization of dietary patterns and model trends in dietary patterns, their transformations (or lack thereof), their drivers, their implications in terms of diet quality, food systems
  – Testing demand-, market- and supply-side interventions/innovations that focus on non-staples for their impact on whole dietary patterns, potential tradeoffs with economic, social, and environmental outcomes, and interactions between food system actors
  – Institutional and policy research and explores enabling factors and private or public policy anchors that can take food systems approaches for healthier diets to a regional or national scale—an anchoring and scaling
Conclusion

• There should be reorientation, formulation, and execution of Government policies towards the achievement of sustainable food systems to achieve better nutrition for all.

• The initiatives should be all-inclusive to cover all areas and activities of food production, processing, transportation, as well as all postharvest handling and marketing of food/products.

• Attempts at ameliorating various limitations currently experienced could be the leveraging points for evolving vibrant, sustainable, and healthier food in Nigeria.
Thank you