

The Food Question in Sub-Saharan Africa and the Challenge of Scientific Agriculture¹

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Introduction

The *food question* looms large in Sub-Saharan Africa (SSA) wherein undernourishment prevails at a higher level and increases at a faster rate, than any other part of the world. Of course, the *question* is no more than a mere heuristic expression for interrogating the issues embedded in the universal food problem. Indeed the food crisis in many parts of the world – Africa, Asia and Caribbean - is the product of abject poverty, aberrant policies and frequent socio-economic discontinuities (Ayoola 1988). Work in IFDC reveals that about 87% of population in Africa is food insecure compared to 49% in Latin America and 37% in Asia (Bumb 1995)³.

With particular reference to SSA the traditional belief is that, given the strong tendency of population growth to outstrip food supply, the region is prone, sooner than later, to the theoretic Malthusian debacle; that is, unless the trend is reversed, humanitarian disaster is inevitable, to manifest in terms of large scale starvation, pestilence, squalor and consequently mass death. However all these have happened in SSA in the past and are still happening at present there, albeit not just as a result of production failure or population pressure but also in several places as a result of access and acquisition factors. Thus the general expectation of Malthusian disaster is neither consistent with nor reflective of good understanding of the nature of the *food question* in SSA.

This paper argues that the *food question* centers on the notion of *food security* as a theme of global development governance. Short of providing the answers to the several questions raised, the paper establishes a framework for the proactive engagement of the scientific community in addressing the food crisis in SSA. The question approach helps to examine and interrogate the underlying issues in order to identify and describe the forces acting upon the food system, while also exploring the role of scientists in the transformation of SSA agriculture through new innovative strategies to deal with the endogenous and exogenous factors that threaten the food security of people in the region. Other approaches to analyzing the food problem either left out some critical variables in the solution matrix or the values ascribed to the individual variables were not consistent with their weights in the problem set. Hence the present attempt to pose and illuminate the *food question* in its complex multidimensional nature.

The objective of this paper is to give an overview of the nature and dimensions of the *food question* with the view to identifying the role of scientific agriculture in

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addressing the food problem situation with SSA. The paper is structured into three main parts: first, a background to the *food question* incorporating an initial statement of the food problem itself as well as the highlights of some food security concerns and the dynamics of the food system; second, the SSA perspectives of the food problem incorporating the situation with some countries in the region; last, the challenge of scientific agriculture incorporating some proximate entry points for the natural scientists together with some lessons of experience.

Background to the Food Question

The proper dimensioning of the *food question* (or appropriately, food questions) depends on three aspects of our knowledge base, namely: the statement of the food problem itself that gives context to the *food questions*; the understanding of the concerns about food security as a theme of food policy governance; and, the highlight of the dynamic elements of the food system that make it possible for hunger and malnutrition to exist, sometimes side by side with abundant food supply in SSA. The various dimensions of the problem provide the appropriate platform for raising the issues and the questions, in order to identify the possible entry points for the scientific community in proffering the solutions.

Statement of the food problem

The food problem is perceived in terms of the disparity between what is and what should be about ability of people to feed and feed well at all times. This may be stated in a cause-effect-consequence framework using the hypothetical *food problem tree* (Fig 1). In the framework, we have the *causal roots* that give rise to the *problem stem*, which in turn generates a number of *effect branches* that finally produce several *consequence leaves*.

Accordingly, the root causes of the food problem are three in number: (a) **Poverty** - The people are trapped in a vicious cycle of poverty through the lack of financial and infrastructural capacity to access or acquire normal food entitlements (Sen., 1981); this leads to poor nutrition and hampers their knowledge growth and body physique; further, the poverty of knowledge hampers them to exercise the right choice of food items thereby compounding the health problems; and, the poor physical and health conditions of the people prevent them from performing productive activities, which situation then loops backwards to reinforce their bad income positions; (b) **Policies** - The national and global bodies implement aberrant and conflicting policy actions directly or indirectly affecting the food system; the trade regime is characterized by unfair terms in disfavor of developing countries, namely the implicit heavy subsidy elements in the agricultural production systems of industrialized countries that are harmful to the poor countries in the international food market, as well as the past and subsisting domestic and international policies that fail to put food security at the top of the governance agenda, usually focusing on short-term measures to alleviate the symptoms of the food problem rather than eliminating the causes; etc., and (c) **Socio-economic discontinuities** - The environmental hardships or disasters coupled with incessant conflicts and war represent frequent perturbation of the equilibrium of the food system.

As further illustrated in Figure 1, the stem represents the main axis of the food problem, consisting in the inadequate availability of food coupled with inability or incapability of the people to access food that is available so they cannot feed and feed well at all times, a situation that is different from the wish and aspiration of society that its people consume foodstuff in sufficient quantity and quality to ensure normal and functional life. This problem produces a number of related effects, including poor health, poor body physique, poor knowledge situation, which render

human life useless and wasted. These produce the symptoms of the food problem that we see – starvation, pestilence, squalor and a host of others together with their several diverse derivatives.

The different segments of the food problem analysis give rise to the first set of the food questions as follows:

- *The root questions:* What is the true character of poverty in SSA and how can SSA people escape from the vicious cycle of poverty and its contributions to the food problem? Why is the policy environment of SSA perpetually wrong and how can it be got right for the benefit of the food system? What is the formula to diffuse tension in several parts of SSA to prevent the occurrence of conflicts and wars in the region and how can the harsh natural environment be mitigated effectively so more food can be produced?
- *The shoot questions:* What are the proximate determinants of inadequate food availability and access in SSA and how do they interact or interrelate to make food problem persist? What is the nature of nexus of the food problem on the one hand, with the health and knowledge conditions of the people on the other hand and how best can this be resolved? What factors govern the manifestation and of the consequences of the food problem in terms of starvation, pestilence and squalor and how can we minimize their frequency and intensity in SSA?

Food Security Concerns

The defining elements of food security of a country or a region consist in sustained *availability* of food and *access* of the people to calories and nutrients sufficient for them to live a functional and productive life. Food security governance entails the binding commitment of national, regional or global authorities to ensure food security of the people in their spheres of influence or authority. The concomitant food security and related governance issues and questions are as follows.

- The food surplus countries and regional entities are usually quick to supply food as emergency relief to SSA when disasters strike or when famine intensifies but are less keen to support long-term food security; why is this so?
- Food security governance encompasses more than the economies of production, consumption, distribution and marketing but it also encompasses the linkage of physical environment and socio-economic and political aspects of society; what is the explanatory power of each of these activities in the food equation of SSA? .
- The attainment of food self sufficiency is neither a necessary nor sufficient condition for food security; how does it get established in SSA countries that international and regional division of labor makes sense so their individual food self-sufficiency objective does not supersede the global or regional food security objective? What are the mechanisms for resolving the inherent conflicts and trade-offs between food import dependence and farm input import dependence among the SSA countries?
- The governance of food security is premised on the activities of multiple stakeholders, inclusive participation, democracy etc.; how do we resolve the self interest of the actors and address the food question more properly?

Dynamics of the food system

The nature of the food problem is ever changing, implying a compelling need for the problem analysis to specify the dynamic variables involved. One such variable is the continuous **urbanization** of the society that automatically translates into urbanization of food consumption by the people. A key aspect of this is increasing emergence of supermarkets in food retailing, which their demand for specific quantities and qualities of food items and at particular times of delivery do not fit into the scheme of the small scale farmers that are preponderant in developing countries. Another variable of change in the food system is what may be termed “**multinationalization**” of supply, which extends the food chains beyond country borders through the activities of supermarkets to source food items globally. Yet another variable is the **diversification** that integrates the food industry with many other sectors such as packaging, transport, distribution and manufacturing. This has important implication for the distribution of the workforce in the food industry, implying that though the overall population in agriculture generally may have increased the proportion retained on farms has actually fallen significantly.

The combination of these changes leads to nutritional changes, hence the observed changes in the nature of nutrition diseases from mere under-nutrition, more and more towards the other more pathological food related diseases such as obesity, heart diseases and diabetics.

The dynamic variables lead to a different set of food security issues and questions, which sometimes warrants new institutional approaches, as follows:

- *Efficiency and equity issues*: The scope of the policy options that exist to manage the dynamic character of the food system is large, but the choice of option should be consistent with efficiency objectives of the economy. What are the opportunities to explore for this purpose and what fears nurtured by the people in managing the change process? Who are the gainers and losers of the change process and the institutional mechanisms for managing it? Who are the intended and unintended beneficiaries of the change process?
- *Safety issues*: Managing the changes in the food system frequently leads to second generation concerns particularly of health and environmental concerns. What are the mechanisms for guaranteeing food safety consistent with the food system change?

Some African Perspectives

The food security situation in SSA is grim both in its technical and governance aspects. The real issues are embedded in complex historical socio-economic and political circumstances that have shaped the food security policies over time and the response of national and international bodies to the situation. Specifically the precarious food situation in SSA is the cumulative effect of structural problems, which have had disastrous impacts on agriculture and infrastructure. Two classes of countries have evolved: those in the eastern/northern parts of Africa, in constant threat of desert encroachment and sporadic conflicts – Ethiopia, Eritrea, Sudan, Mali, Mauritania and Niger; and, those the southern parts of more recent concerns – Lesotho, Malawi, Mozambique, Swaziland, Zambia and Zimbabwe.

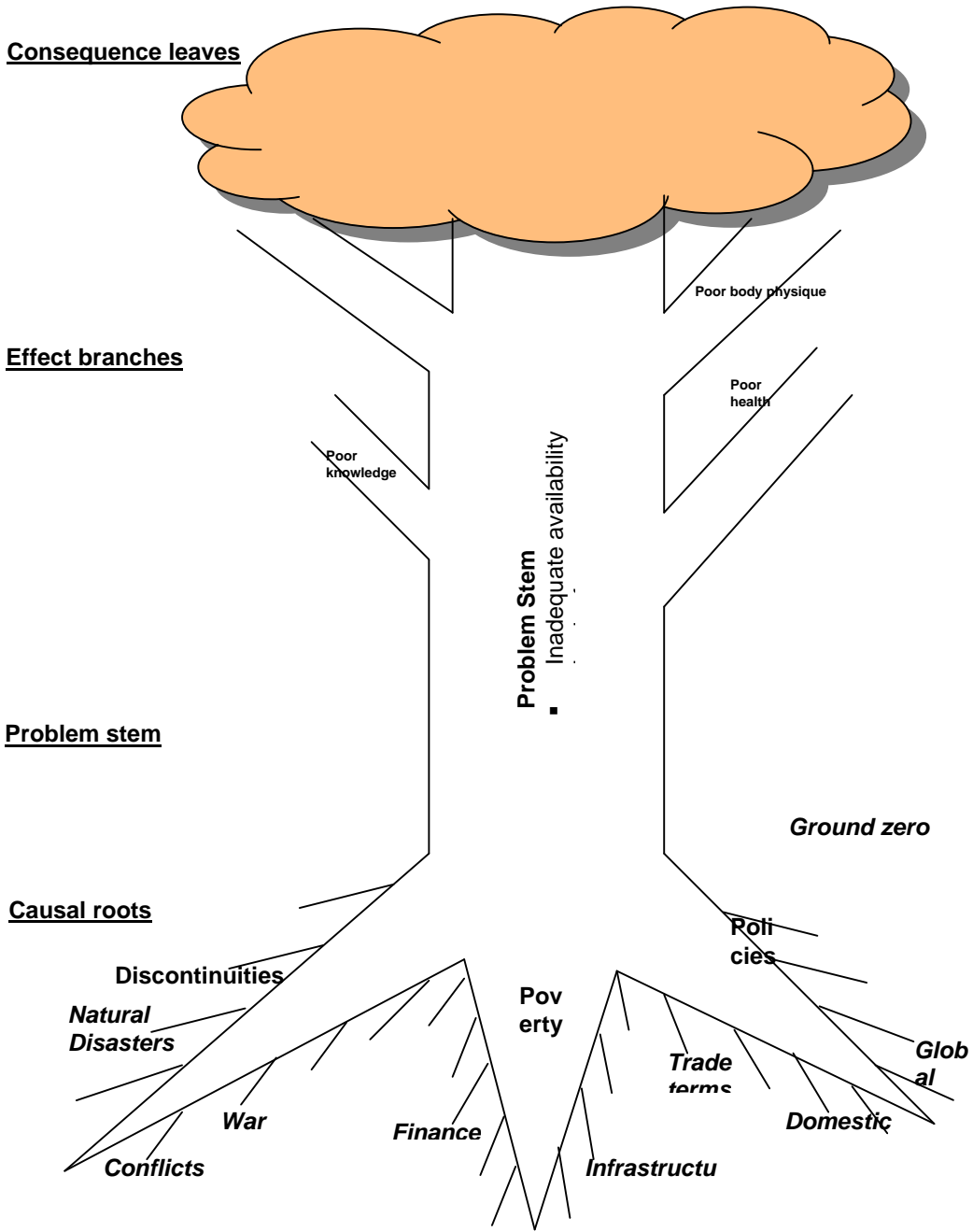


Figure 1: Hypothetical Food Problem Tree

The highlights of the features of SSA and the prevailing food security issues are empirically established as follows.

- In most of SSA, food production is largely by subsistence producers who are resource and infrastructure-poor, so they cannot adopt proven technologies to transform the agriculture sector quickly enough. For instance the rate of fertilizer use in the region lags far behind the rest of the world in several respects (Table 1).
- In SSA countries, for a long time domestic agricultural policy was largely focused on exportable cash crops rather than establishing a solid food security governance regime to ensure the availability, access, quality and stability of food in region. As the traditional cash crops dwindle progressively in their shares of foreign exchange earnings of the countries in the region, substitution with traditional food items are underway particularly in West Africa where Nigeria and Ghana have mounted the campaign to export cassava products.
- In many SSA countries interrelationship between agriculture and industry is weak and not mutually beneficial as development of both sectors progresses; in the case of Zambia the reliance on mining did not translate into an economic asset for the benefit of agriculture; whereas in the case of Angola the large potential of agriculture was not realized because of focus on diamond and oil; and, in the case of Nigeria the windfall incomes from oil failed to transform the agriculture sector commensurately.
- In most of SSA there are genuine cases of access crisis, as in the case of Malawi with a poignant factor of poverty, the capita income is the lowest in the southern region (less than S1 per caput per day), which warranted the emergency response of several aid agencies in 2002 (Barrault 2003).
- In SSA widespread incidence of HIV/AIDS poses a new threat to agriculture through reduction of labor opportunities particularly in the southern African region, creating a chaotic situation of double emergency in Southern Africa already.

There are three areas to raise pragmatic issues and questions about the food sector of SSA:

- **Efficiency** – The issue of production and marketing efficiency of food in many SSA countries was dominated by the public debate on public enterprises until recent past, thanks to widespread economic reforms; for instance prior to the structural adjustment programme in Nigeria there were some six market intervention agencies that held monopoly mandates on the marketing of particular food commodities. But all of them were abolished at the onset of economic reform in an effort to improve the efficiency of production and marketing of these crops. However it is observed that capacity of the private sector in SSA is too weak at the moment to meet the challenge of reform adequately. Hence the question about how to sustain the gains of economic reform, in SSA countries through capacity building of the private sector.
- **Integration** – The individual markets for inputs and outputs in SSA are small so the ceiling of price efficiency is low unless these markets are integrated. It would appear necessary that political integration should precede market integration and

SSA has a suitable framework for that already; we have sub-regional and regional bodies such as AU, ECOWAS, SADC, UEMOA, etc. Nevertheless what is required more is practical action and projects to integrate the SSA food markets together for a better performance of the agricultural economy regionally and globally. So how much of these types of actions and projects are going on in SSA at present?

- **Globalization** – The core issue is that as the “global village” concept attains greater recognition, how much of the benefits of the information and communication technology accrue to SSA to make us expect that the agriculture of the region will be technologically transformed in a short while?

The Challenge of Scientific Agriculture in Addressing the SSA Food question

The framework for proffering answers to the *food question* is provided by the hypothetical *food problem tree*, so at this stage the conceptual morphology of the tree should be highlighted further for the purpose. First we make a distinction between the problem root and problem shoot, and also in the latter case between the branches and the leaves. That is, we are to draw distinctions between the causes, the effects and the consequences of the food problem. The implication of these distinctions is that the efficacy of the solutions of the *food questions* proffered depends on the system or part of the “tree” being attacked. Thus different solutions will be required in attacking the problem at the *leaves* from those required in attacking it from the *stem* or *roots*.

For instance the emergency responses of the donor community through the provision of food aid when disaster strikes in parts of SSA consist in the efforts to attack the food problem at the leaves, leaving the underlying problem stem and the causal roots unattended to; such solutions are merely superficial or short term in nature, as they only help to secure temporary relief from the symptoms of the food problem – hunger and malnutrition, pestilence, squalor - and are at best short-term in nature because the leaves will regenerate quickly from the branches. Oftentimes also some other solutions are proffered that attack the food problem tree at the branches, thereby dealing with some of the effects rather than the causes of the problem. Examples of such solutions of this nature include the domestic or international efforts to improve the delivery of health and education services to the people while they are still experiencing hunger and malnutrition. Although this might produce some medium-term relief to the people, the solutions are not far-reaching enough to deal with the problem permanently. Suffice to say that long-term objective of food security can only be attained when the attack is directly incident on the root system of the problem tree, meaning they deal with the issues at the root of the food problem, namely poverty, policies and discontinuities, directly and contemporaneously.

To achieve this, the two main pillars of action are technology advancement and market development; here lies the challenge of scientific agriculture. The technology pillar defines the output potential while the market pillar defines the access potential. The output potential pertains to the local maxima of the outputs of food commodities attainable in SSA countries relative to the global maxima attainable on the world food production surface at a given point in time. In this regard we observe, in the general case with the global macro economy, that though the industrial revolution in Europe and America led to phenomenal increases in the global maxima of commodity outputs, it

failed to create similar effects on the local maxima of commodity outputs in the developing world particularly SSA; we also observe, in the specific case with global agricultural economy, that though the green revolution in Asia other parts of the world led to phenomenal increases in the global maxima of food output, it failed to create a similar effect on the local maxima of food outputs in SSA. These historical observations suggest that the location matters, where the efforts are concentrated at a point in time, which probably why SSA was disadvantaged in the accrual of benefits attendant to both industrial and green revolutions in the past. Thus the main challenge facing the scientific community in addressing the SSA food insecurity problem derives from the need to evolve locale-friendly technologies to maximize the food outputs in the region.

The market pillar defines the access potential, meaning that it takes more than food production in a region to make it food secure. It also takes unhindered access of the people to reach the food items physically and acquire them financially; this implies exchange through which the people gain title to the food for consumption purposes and that, to be sustainable, takes place in the marketplace. We are rightly concerned about the efficiency at which this exchange or transactions take place.

As the exchange takes place from time to time, from place to place and from form to form, the food products gain in value terms, which are captured in quick succession in the price at which the transactions take place. Thus a value chain develops that can be short enough to benefit the immediate locality of food production or long enough to benefit distant consumers in other parts of the world. The challenge of scientific agriculture to maximize the value of the food items in the chain through technological transformations

However, for the scientific transformation of agriculture to be effective the technology challenge should be further illuminated to avoid misconceptions, particularly in respect of its definition and conceptualization. The expanded definition of technology applies, as stated elsewhere (Ayoola and Idachaba 1989): agricultural technology consists of the nature and types of available inputs (e.g. fertilizer, chemical, tools, manpower etc.) and the ways in which these inputs are combined (e.g.) land-fertilizer ratio, labor-machine ratio, etc.). Thus for technology to lead to agricultural transformation it must be based on the bits and pieces of innovations emanating from science with respect to the use and combination of production inputs. The classes of innovations possible include the following:

- Innovations in genetic engineering and bio-control; seed, seedling, hybrids, GMO, etc
- Innovations in process technology and managements – fertilizers, herbicides, pesticides etc.
- Innovation in product technology - post-harvest preservation, processing and storage etc.

The issue of commercialization of these technologies is equally important, and that relates to the need to build a bridge from science to society where they will be applied, because the SSA is replete with numerous cases of technologies that have been “perfected yet rejected”. This brings to fore the role of socio-economic factors in the adoption of proven technologies. A few instances in Nigeria will suffice for this point. In one instance, the hydraulic palm oil press was introduced in western Nigeria that led to much increased output of palm oil per bunch of the fruit and better hygiene of the product. This generated an initial excitement through government campaign that led to

widespread adoption of the machine. But soon after adoption, follow-up studies revealed that the innovation had been abandoned on a wide scale. The reason adduced for this behavior was traced to the fact that technology actually displaced the women from carrying out their traditional enterprises that used to yield them some innate gratification. Subsequently under pressure of wives the men abandoned the machines and reinstated their wives back to the job so the flow of this gratification resumed and women had less time to engage in “gossips” at home. Another instance was when the innovation of high-lysine yellow maize was introduced in the same region of Nigeria, with properties to overcome the vitamin A deficiency in children. The innovation, which was initially adopted, was subsequently rejected simply on the basis of the unusual yellow color of the pap and other meals prepared from it.

These issues are not radically different from those trailing the GMO technology in SSA at present, which though proven, many countries of SSA are reluctant to adopt based on genuine fears about possible market and non-market consequences that have not been allayed till now. One way to avoid this type of problem is for the natural and physical scientists to work more closely with social scientists from the conception stage of an innovation to the release stage.

The IFDC Approach

The activities of IFDC an International Centre for Soil Fertility and Agricultural Development in SSA represent a model approach to achieving the scientific transformation of agriculture in the region. The organization presently executes projects in several parts of the world to address the *food question* in particular countries and regions. The Africa Division office located in Lome, Togo is currently implementing such projects in the western, eastern and southern parts of the continent.

The conceptual framework of the IFDC approach is captured in a stylized geometry known as “fertile triangle”, which has as its vertices, Intensification, Accessibility and Market/Policy. The intensification projects help to investigate and demonstrate the scientific properties of home-grown agricultural technologies for the region, while the accessibility project help to improve farmers’ access to these technologies, and the policy/market development projects help to facilitate the exchange system and environment concurrently. All combined, the critical elements of the SSA food

question are being addressed by the organization. Table 2 shows the series of IFDC projects geared towards technology advancement and market developments in SSA. Also, the highlight of IFDC activities is Annex to this presentation.

The lesson learnt from IFDC activities in SSA is that a steady scientific intervention in specific countries together with systematic integration of the markets or regional circumstances is superior to the ad-hoc arrangements to deliver food aid as a mode of addressing the *food question*. However, the food problem will not be properly addressed without commensurate attention on both the input and output sides. On the output side the technology and market solutions are required for addressing issues about preservation, storage and processing of farm products, consistent with the extended value chain. Therefore the activities of IFDC and similar organizations should be expanded to provide solutions on both input and output sides of the SSA food economy.

Summary and Conclusion

The SSA food question borders on chronic food insecurity of the people of the region, pertaining to availability and access constraints that deny the people of the region their rightful entitlements to sufficient nutrient and calories. Indeed the food question is many questions in one, relating to the causes, effects and consequences of the food problem. The various elements of the question – in terms of who, how, when, what, where, etc. – have been posed to enable us interrogate the issues and determine the challenges that various stakeholders face in addressing the food question.

Table 1: Selected features of SSA with respect to fertilizer use in relation to the rest of the world

Fertilizer use parameter	Unit	SSA Region	Modal value	World average
Rate of nutrients application ⁴	Kg/ha	19.9	366.2	93.3
Ratio of fertilizer aid to imports (1987) ⁵	%	69.9	100	-
Share in world fertilizer consumption (1999/2000) ⁶	%	3	54	100
Ratio of fertilizer import to consumption ⁷	%	97.29	143.7	-
Per ha use of NPK (1990) ⁸	Kg/ha	9	242	99
Total consumption of fertilizer (1992/93) ⁹	Million tons	3.8	59.2	125.9
Nitrogen supply potential (/93-2000) ¹⁰	Million tons	0.5	39.9	86.7
Phosphate supply potential(2000) ¹¹	Million tons	0.4	11.4	41.4
Potash supply potential (2000) ¹²	Million tons	0	3.2	28.8
N-to-P-to-K ratio ¹³	Normative standard is 2:1:1	1:0.37:0.25	-	-

⁴ Source: Bumb, Teboh, Atta and Asenso-Okyere (1994) – SSA = average of seven SSA countries namely Ghana, Mali, Ethiopia, Tanzania, Nigeria, Kenya and Zimbabwe; modal = Egypt;

⁵ Source: Bumb, Teboh, Atta and Asenso-Okyere (1994) – SSA = average of ten SSA countries namely Benin, Burkina Faso, Cameroon, Gambia, Ghana, Guinea, Mali, Niger, Nigeria, and Togo; modal = Burkina Faso, Guinea, Mali, Togo, Niger.

⁶ Source: IFDC (2001) – SSA = Africa; modal Asia.

⁷ Source: IFDC and LEI (1989) – SSA = average of forty countries of SSA.

⁸ Source: IFDC (1995) – SSA as given; world average as given.

⁹ Source: IFDC (1995) – SSA as given ; world average, as given

¹⁰ Source: IFDC (1995) – SSA as given; world average = Asia, as given.

¹¹ Source: IFDC (1995) – SSA as given; world average = Asia, as given.

¹² Source: IFDC (1995) – SSA as given; world average, = Asia, as given.

¹³ Source: IFDC (1995) – SSA = average of six countries namely Cameroon, Ghana, Egypt, Kenya, Nigeria and Zambia.

The permanent solutions seem to be the concentration of domestic and international efforts on the agricultural economy of the region to bring about technology advancement and market development, in order to realize the food output and access potentials of the region on a sustained basis. Thus to put the accent on food security of SSA, the scientific community has an important role to play as a constant source of technological innovations required to transform SSA agriculture to higher performance levels.

References

1. Ayoola, G. B. (1988). 'The Dependency Problem in Food Grains and Rationale for Self-Sufficiency Policy in Nigeria". *J. Rural Development in Nigeria*, Vol 3, No. 1, pp. 12-20.
2. Ayoola, G. B. and F. S Idachaba (1989). Technology and Nigerian agricultural Development.
3. Bumb, Balu L. (1994). Ghana Policy Environment and Fertilizer Sector Development, IFDC, International Fertilizer Development Centre, Muscle Shoals, Alabama 35662, U.S.A.
4. Bumb, Teboh, Atta and Asenso-Okyere (1994). Global fertilizer perspective, 1980-2000. IFDC, Muscle Shoals, Alabama, U.S.A.
5. Barrault, Claire (2003). Overcoming Food Insecurity in Malawi. Taking the road less Traveled". *The Courier, the magazine of ACP-EU Development Cooperation*.
6. IFDC, International Fertilizer Development Centre (2001). *Africa Fertilizer Situation*. Muscle Shoals, Alabama, U.S.A
7. IFDC, International Fertilizer Development Centre (2003). *IFDC Corporate Report, 2003*. Muscle Shoals, Alabama, U.S.A.
8. Mohamed Salih, M. A. (2003). Food security Governance: Implications for the ACP Countries. *The Curier*. European Union.
9. Sen., A. (1981). *Poverty and Famines*. Oxford: Clarendon.

Table 2: IFDC Project Portfolio, 2002/2003

PROJECT	OBJECTIVE	LOCATION
CNDC I PROJECT	To combat nutrient depletion of soils in SSA	Burkina Faso, Mali, Ghana, Togo, Benin, Nigeria
CNDC II PROJECT	To combat nutrient depletion of soils in SSA	Togo, Benin
COSTBOX Project	To develop methodologies to encourage systems approaches in SSA	Togo, Benin, Ghana, Nigeria
Daregal Study	To conduct a study on improved and integrated soil fertility management for peri-urban agriculture with emphasis on basil cultivation around Lome, Togo, at two sites: Adetikope (Daregal farm) and Baguida (Vegetable growers)	Lome- peri-urban agricultural farmers
Developing Agro-Input Markets in Nigeria (DAIMINA)	To improve policies and regulatory regimes related to agri-inputs and to develop systems for providing market information and access to credit	Nigeria
Development and Dissemination of Sustainable Integrated Soil Fertility Management Practices for Small-holder Farms in SSA	To improve plant nutrient management in resource-poor areas of SSA	West Africa
East and Central Africa Maize and Wheat Network Project	On-Farm evaluation of maize varieties; Soil Fertility enhancement; Soil moisture conservation; agronomic methods to control Striga	Kenya, Ethiopia, Tanzania, Uganda
FASEPE Project	To promote sustainable agricultural production and market development by improving necessary socio-economic and policy conditions	West Africa
Ghana Agro-Input Market Strengthening (GAIMS)	To develop technical and business training programs for agricultural input dealers and importers in Ghana	Ghana
Institutional Capacity Building Agro-Input Market Development in Malawi	To strengthen agro-input markets by deepening policy reform, establishing regulatory systems, developing capacities of private sector dealers and expanding market information systems	Malawi
ISFM Project (which combines the F&SAD and FIF Projects)	To promote ISFM Strategies at the village and regional levels and to develop sustainable linkages of farmers to input/output markets	Benin, Burkina faso, Ghana, Mali, Niger, Nigeria, Togo
Policy Reform to Enhance Trade of Agricultural Inputs in West Africa	To promote regional fertilizer and seed trade associations in West Africa and Synchronized trade policies governing agri-inputs	West Africa
Promoting Agricultural Development Through the creation of a Regional Agricultural Input Market in West Africa (MIR)	To strengthen the private sector and create a regional market in West Africa	Burkina Faso, Benin, Ghana, Mali, Nigeria, Togo
Promoting Sustainable Agricultural Inputs Markets in SSA	To provide practical guide for fostering open, private sector, competitive, and reliable distribution networks for agri-inputs	Nigeria, Malawi, Ghana, Mali, Uganda, Zambia, Tanzania

Source: IFDC (2003)