

Institutional Requirements for the Growth and Development of Certified Organic Farming in Africa : the case of Nigeria

By

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Introduction

- Organic farming is an approach to agriculture that emphasises environmental protection, animal welfare, sustainable resource use and social justice objectives, utilizing the market to help support those objectives and compensates for the internalisation of externalities (IFOAM, 2014; Soil Association, 2014; Lampkin, 2003).
- Although the practices that characterizes OF existed from time immemorial, what is commonly called 'organic farming', 'ecological farming', 'biodynamic farming', 'biological farming', 'nature farming', 'permaculture', 'ecoagriculture', 'agro-ecology', and other similar terms have their roots in the disenfranchisement with the way modern technology influenced agricultural farming systems and practices as evidenced in, for example, massive use of synthetic fertilizers and pesticides (Barker, 2010; Duram, 2005; Zimmer, 2000).
- Broadly, OF and organic products are categorized into two namely certified and uncertified (Parrott *et al.*, 2006).

Introduction cont...

- While it may be argued that both certified and uncertified organic farming systems and products provide similar benefits; uncertified organic farming systems and products, especially in the developing countries remain largely uncompensated, despite the positive benefits they provide.
- By contrast owing to the fact that certified organic farming systems have been institutionalized and is well regulated by relevant certifying bodies and inspectors (Egelyng and Høgh-Jensen, 2006); the positive benefits they provide is often well compensated mostly through higher premia prices payable for organic products compared to the conventional ones (Dabbert, 2003).
- Obviously, organic farming and food industry requires enabling policies as well active involvement of public institutions to grow as experiences from other regions and countries indicate (Hallam, 2003; Merrigan, 2003; Offermann, 2003).
- Denmark, it was that first gave formal economic support to organic farming, and it was not until 1987 that this happened. Subsequently, other countries and regional bodies, particularly in Europe (Orlund, 2003) and North America followed suit.

Introduction cont...

- Other countries where public institutions have played substantial roles in the growth of certified OF in various respects include but not limited to: Poland (Tyburski, 2003); New Zealand (Kettle, 2003); Korea (Kim, 2003); Netherlands (Nuytens-Vaarkamp, 2003); Japan (Yokoi, 2003); Norway (Orlund, 2003); Turkey (Ozkan, 2003), and the United Kingdom (UK) (Soil Association, 2014).
- Central to OF is certification, which has been defined as a modern process characterized by objective standards, measurements and assessment, monitoring, performance evaluation, authoritarian control and other activities (Byne *et al.*, 2006).
- Certification is necessary because it helps in differentiating organic farms and products from the non-organic ones and allows organic products to partake in both local and international organic markets (Parrott *et al.*, 2006; Wilburn, 2002).
- It is disheartening that even though some indigenous/traditional farming systems as practiced in several African countries uses several technologies and practices that are in conformity with OF, and some are indeed actually uncertified OF systems they remain uncertified as certified OF entails more than just avoiding the use of synthetic⁴ agrochemicals, for example (IFOAM, 2014).

Introduction cont...

- It is even more worrisome given the fact that the international market for certified organic product is huge and is still growing rapidly especially in north America and west Europe due to increasing consumers awareness of the benefits of organic products and their willingness to consume them (Knudsen *et al.*, 2006 ; Lockeretz, 2003; Weir *et al.*, 2003; Wilburn, 2002).
- Even in Nigeria, Africa's most populous and largest economy there is evidence indicating the willingness of consumers to buy organic products (Dipeolu *et al.*, 2009).
- Nevertheless, as at the end of the year 2011 the global market size for organic products was worth 62.9 billion dollars (\$ 62.9 billion) compared to \$15.2 billion in the year 1999 (IFOAM, 2014).
- Recent reports from the United States of America (USA) indicates that organic food sales in the year 2012 were \$28 billion which was about 4% over sales in the preceding year; in addition, sales in organic non food products grew as \$2.2 billion sales were recorded for the sector in the year 2011 (Green, 2013).
- Similarly, in the UK, recent report showed that the organic food market is worth almost two billion pound sterling (actual value = £1.79 billion); for some products it represents about 5% growth compared to the preceding year of 2012 (Soil Association, 2014).

Introduction cont...

- Given the need for different products produced organically in most European countries and other countries where the markets for certified organic products is huge and the lack of capacity to produce such products locally in those countries because of lack of favourable climate and other constraints; tropical countries in Africa and beyond owing to their favourable climate amongst other factors have the potential to produce several organic products (Aiyelaagbe *et al.*, 2010; Dipeolu *et al.*, 2009), at least for export with the enabling policies and institutions in place.
- Unfortunately, in Nigeria as with most other African countries there are no enabling policies and institutions in place to facilitate the growth and development of certified OF despite the country's comparative advantage to produce several organic products for both local and international markets as evidences from the literature indicate (Chikaiire *et al.*, 2011; Umar and Ibrahim, 2011; Aiyelaagbe *et al.*, 2010), owing to the country's abundant natural resources and human population.
- It is, therefore, not surprising that despite the fact that it is well about ten years since formal activities related to certified OF started in Nigeria (NOAN, 2014), yet OF in Nigeria remain underdeveloped.

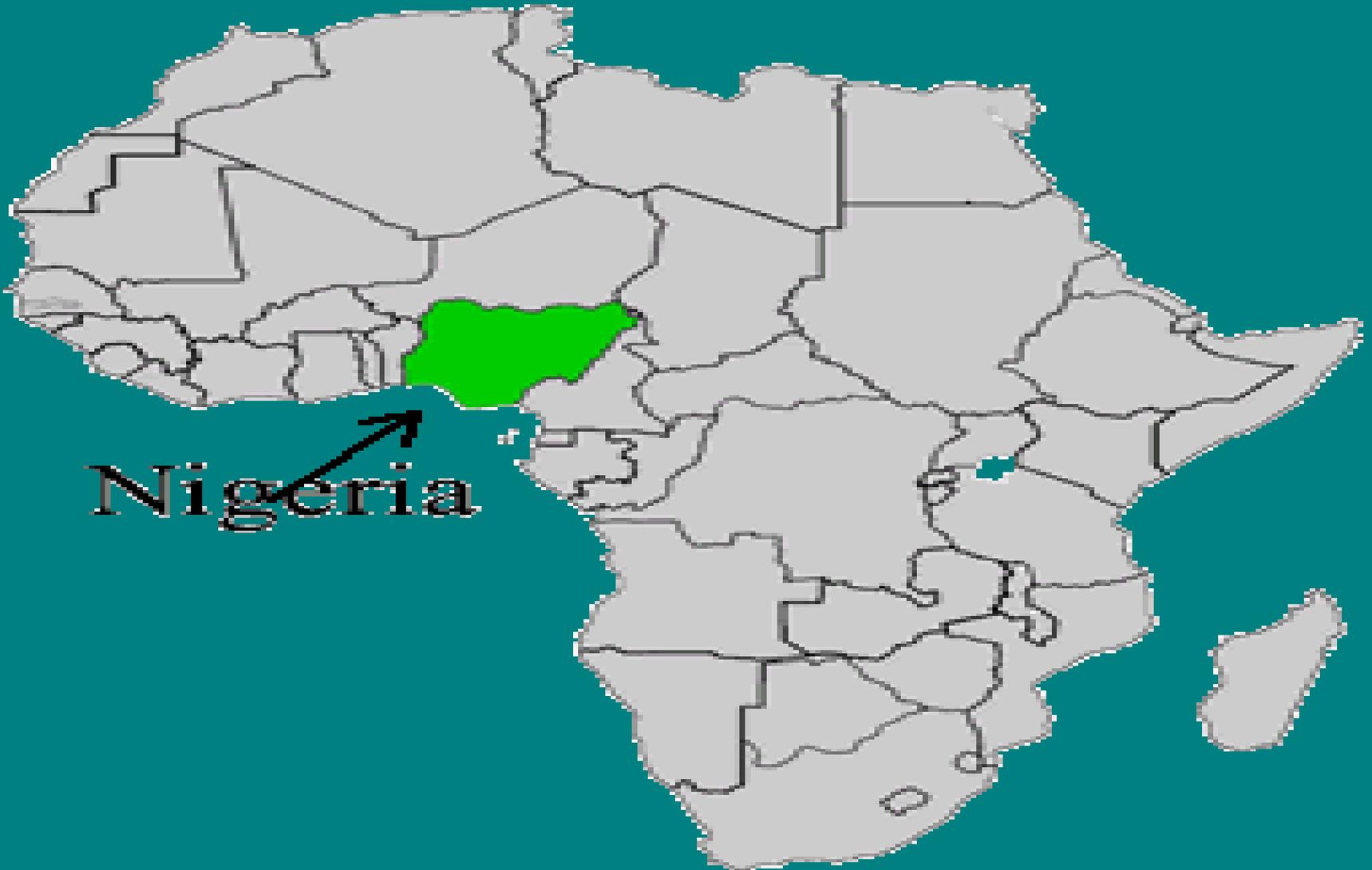
Introduction cont...

- In Nigeria, at present certified OF can be considered underdeveloped or even inexistent ; but it is obvious that uncertified OF is practiced to some extent either due to ancestral farming lifestyle or due to socio-economic factors that make the use of inputs needed in conventional farming systems inaccessible or unaffordable by farmers (Mustapha *et al.*, 2012; Oyesola and Obubire, 2011; Aiyelaagbe, 2009; Dipeolu *et al.*, 2009; Solomon and Okolo, 2008).
- Given the levels of practices that are in conformity with organic ideals and norms that are already part of traditional farming systems in Nigeria, it does not seem difficult to have a shift to certified organic farming with appropriate policies and institutions.
- Crudely in terms of positive benefits to the environment and even food quality, uncertified organic farming and products may provide similar benefits as certified organic products (Chikaiire *et al.*, 2011; Umar and Ibrahim, 2011; Egelyng and Hogh-Jensen, 2006).

Introduction cont...

- If this is the case, then it does not make sense that organic farmers in Africa are not compensated for their environmentally friendly farming systems whilst their counterparts elsewhere in the world are.
- One clear way to assist uncertified organic farmers in Nigeria is through government policies, programmes and projects that will allow them to shift from uncertified OF systems (Mustapha *et al.*, 2012; Adebisi-Adelami *et al.*, 2010) to certified OF systems.
- It will be unlikely for certified OF in Nigeria to grow without the active participation of relevant public and private institutions, associations and groups discussed in this paper.

Nigeria



Nigeria

Overview of Enabling Environment for the Growth & Development of Certified Organic Farming cont....

- It is obvious that for certified OF to grow in Nigeria, revisions of current agricultural policies are necessary. This will entail deleting some sections that do not encourage environmental sustainability and/or writing new sections that specifically targets the growth and development of certified OF in the country.
- However, as certified OF is not only about food production and environmental sustainability (Knudsen *et al.*, 2006), but also emphasizes human health, animal health, rural development and food quality amongst others (IFOAM, 2014; Soil Association, 2014; Aiyelaagbe, 2009; DeGregori, 2004; Lampkin, 1999), it does appear that policies required for the growth and development of certified OF in Nigeria will transcend just the agricultural policies.
- Beside the agricultural sector, some other key sectors where policy revisions can favour the growth and development of certified OF and food industry include health, education, rural development, trade, foreign affairs, and information amongst others.

Overview of Enabling Environment for the Growth & Development of Certified Organic Farming cont....

- If experience from other countries are to be taken into considerations (IFOAM, 2014; Soil Association, 2014; Halberg *et al.*, 2006; Lampkin, 1999), and to avoid conflict between OF stakeholders particularly organic policy makers with their counterparts in conventional systems, there will be a need to set up specialist institution mainly targeting the growth and development of OF .
- A second scenario will be to promote the growth of OF through existing government institutions (most of whom are primarily targeted at conventional farming systems and food industry); some of the existing institutions that may be relevant are outside the agricultural sector.
- Major disadvantages of allowing the same institutions to cater for both production systems will include : likely biased in policies , programmes and projects in favour of conventional production systems, and subsequently lack of adequate support and funding for OF which is still underdeveloped in Nigeria and needs to be nurtured properly.

Overview of Enabling Environment for the Growth & Development of Certified Organic Farming cont....

- In any case, rather than not having any institution to support OF and food industry at all, it may still be possible for organic farming to grow using existing institutions that are established for conventional farming with enabling policies, programmes and projects.
- Here, in the sections that follow, government institutions were classified into two main groups : basic or primary institutions needed to enhance the growth and development of certified OF, and secondary institutions that will further facilitate the growth of OF and food industry in Nigeria.

Basic (Primary) Government (Public) Institutions needed to facilitate the Growth & Developpt. of Certified OF in Nigeria

- Organic faming similar to other farming systems require government support in several areas such as policy formulations, farm input supplies and distributions, farm input subsidies , conversion payments, farm insurance, post conversion payments, research, extension, and marketing amongst others (IFOAM, 2014; Soil Association, 2014; Dabbert, 2003).
- Undoubtedly, conventional farming systems also require public support in some of these areas; as such there are existing government institutions within and beyond mainstream agricultural sector that are saddled with these responsibilities.
- Therefore, some of the existing institutions that are considered as basic and necessary to facilitate the growth of certified OF include but not limited to : Federal Ministry of Agriculture and Rural Development; State Ministries of Agriculture; Agricultural Research Council of Nigeria and the Agricultural Research Centres ; Universities and other higher institutions ; Agricultural Development Projects ; Local Government Departments of Agriculture ; Bank of Agriculture, and the Nigerian Agricultural Insurance Corporation.

Ministries of Agriculture and their agencies

- The ministries of agriculture are the government institutions at federal and state levels saddled with responsibilities of formulating policies related to agriculture (FMARD, 2014), and also they have responsibility of implementing some of the programmes and projects directly as most programmes and projects are implemented by agencies and departments under the supervision of the ministries.
- The starting point for any meaningful growth of certified organic farming and indeed, wider organic food industry in Nigeria will be through recognition of organic farming by the government through the provision of enabling policies, programmes and projects.
- Government support for certified organic farming in Nigeria ideally should be through the provision of enabling environment for the growth of sector in terms of : provision of subsidies, conversion payments and post conversion payments ; farm input distribution and supplies ; provision of marketing opportunities locally and abroad; standardization of prices of agricultural products ; public enlightenment, and funding research , training and extension.

Agricultural Research Council of Nigeria and

Agricultural Research Centres

- The literature indicate that certified organic farming has not received adequate attention by researchers in most developing countries (Egelyng and Høgh-Jensen, 2006), despite the crucial role research has played and is still playing in the sector elsewhere around the world.
- Although there appears to be increasing publications about organic farming in Nigeria (Oyesola and Obubire, 2011; Umar and Ibrahim, 2011; Adebisi-Adelami *et al.*, 2010; Aiyelaagbe, 2009; Dipeolu *et al.*, 2009; Adeoluwa and Sobamowo, 2008; Solomon and Okolo, 2008; Olowe *et al.*, 2011; Olowe, 2007; Aiyelaagbe and Afolabi, 2006), given the state of growth of the sector in Nigeria, a well articulated research and extension agenda is needed and this should ideally be spearheaded and funded by reputable institution such as the Agricultural Research Council of Nigeria (ARC).
- The ARC is the umbrella body that amongst other functions: guides government agricultural research centres; provide them with areas research should focus on, and fund some of their research programmes. Besides the research centres, ARC also sometimes fund research programmes on specific areas at the universities and other tertiary institutions. The ARC in turn, is an agency under the supervision of the FMARD (FMARD, 2014).

Agricultural Research Council of Nigeria and Agricultural Research Centres cont...

- As Parrott *et al.* (2006) pointed out the ideal starting point for any research agenda aimed at the growth and development of certified organic farming should be through rigorous detailed synthesis of knowledge on various aspects of organic farming from diverse materials across various disciplines.
- Research focusing on knowledge synthesis can be facilitated and funded by the ARCN alongside some of its research centres and events such as conferences or summits are ideal avenues for transmitting research findings to other researchers, and indeed the wider organic stakeholders and beyond.
- Major research areas that should be given priority attention for funding purposes includes but not limited to : conversion strategies from conventional production systems to certified organic production systems; soil management strategies ; crop management strategies (light, nutrient, water, weed, pest and disease, and breeding) ; livestock management strategies (feed and nutrient ,breeding, housing and welfare, preventive and curative health) , and socio-economic investigations (socio-economic benefits of organic farming , economics, extension and extension approaches , growth and development investigations).

Agricultural Research Council of Nigeria and Agricultural Research Centres cont...

- Research centres that may not necessarily be under the supervision of the ARCN, but are expected to play active role in any research agenda aimed at the growth and development of certified organic farming in Nigeria include but not limited to:
- National Agricultural Extension Research and Liaison Services; Institute for Agricultural Research ; Institute of Agricultural Research and Training ; National Cereals Research Institute ; Lake Chad Research Institute ; National Root Crops Research Institute ; National Stored Products Research Institute ; National Horticulture Research Institute ; Cocoa Research Institute of Nigeria ; Nigerian Institute for Oil Palm Research ; Rubber Research Institute of Nigeria ; National Animal Production Research Institute ; Nigerian Institute for Oceanography and Marine Research ; National Veterinary Research Institute , and Nigerian Institute for Trypanosomiasis Research.

Universities and Other Higher Institutions

- In Nigeria at present there are 40 federal government owned universities, 39 state government owned universities and 50 private owned universities with three of the universities established mainly for the agricultural sector; Michael Okpara Uni. of Agriculture, Umudike, Uni. of Agriculture, Makurdi, and the Uni. of Agriculture, Abeokuta (NUC, 2014).
- Roles expected to be played by the universities and other higher institutions to facilitate the growth and development of certified OF in Nigeria include : providing specific programmes and courses at diploma, undergraduate and postgraduate levels ; serving as centres for postgraduate research training ; providing capacity training and scholarships locally and abroad for some of their staff ; organising conferences, summits, colloquia etc ; publishing specialist resource materials such as journals and leaflets , and conducting research .
- For a start, it will seem ambitious, but there is a need for some of the Nigerian universities to have undergraduate or postgraduate taught masters degrees programmes with titles such as : 'Organic Agriculture' ; 'Organic Production Systems' ; 'Ecological and Organic Farming Systems', and 'Organic Farming' amongst others.

Agricultural Development Projects

- For research results to become adapted by relevant organic stakeholders in Nigeria, nationwide platforms such as those provided by the state government owned Agricultural Development Projects (ADPs) are needed.
- The ADPs have played and continue to play substantial role in the implementation of government agricultural policies through various programmes and projects (Auta and Dafwang, 2010).
- Perhaps because most of the ADPs were established through world bank loan facilities (Auta and Dafwang, 2010), the research and other projects of ADPs appears to be tailored towards mainstream or conventional agriculture. Whilst some of the farming systems that ADPs accords priority to are low external input; such systems are not certified.
- Nevertheless, it may be possible to use the existing platforms provided by the ADPs across the states to project organic ideals, norms and practices and make major breakthroughs.

Agricultural Development Projects cont....

- As with other technologies, ADPs will have crucial roles to play towards the growth of certified OF in Nigeria in the following areas: embarking on multiplication trials; providing inputs to farmers at subsidized rates; providing inspection facilities for organic farmers and other organic stakeholders; providing certification services to organic farmers and other organic stakeholders; providing extension services to the farmers; helping farmers with conversion processes and procedures; helping farmers with procedures involved for receiving conversion payments and post-conversion payments, as well as other financial incentives from designated institutions mandated to make such payments, and providing capacity training programmes for farmers and other organic stakeholders.
- The various ADPs are also expected to amongst others: help farmers with market opportunities for their organic products, and embark on public enlightenment programmes using media such as televisions, radios, newspapers, and magazines amongst others on organic farming and its benefits.
- It should be reiterated that the relevance of research and extension for the growth and development of certified organic farming is well documented (FST, 2014; IFOAM, 2014; Egelyng and Høgh-Jensen, 2006; Lampkin, 1999), and organic farming and food industry in Nigeria will remain underdeveloped except appropriate attention and funds are provided for research and extension programmes.

Local Government Departments of Agriculture

- At present, Nigeria has more than 700 local government areas (LGAs) with virtually most of them with department mainly for the agricultural sector (FMI, 2014; Koyenikan *et al.*, 2012).
- Given their proximity to the farmers and other stakeholders in agriculture (Koyenikan *et al.*, 2012), LGAs can play the following roles to facilitate the growth and development of certified OF in Nigeria : train their own staff ; sensitise farmers and others; provide inputs at subsidized rates; link farmers and other stakeholders with organic markets; help with certification and inspection procedures ; encourage organic stakeholders to form groups in order to share ideas and knowledge as well as to benefits from developmental grants and subsidies from public or private donors , and collaborate with the federal , state and indeed the private sector to improve the lots of organic stakeholders in their respective areas.
- It may even possible for some of the LGAs to be directly engaged in some aspects of certified OF systems : engaging in arable crop production; livestock production ; processing of organic products ; mining of earth materials needed in OF , and establishing market facilities such as farm gate shops, produce shops, and weekly or daily open market amongst others.

Bank of Agriculture

- Prospective farmers and other organic stakeholders in Nigeria will need strong financial backing outside their farms and businesses at least in the first few years after conversion to organic production systems, and the ideal place to get such financial help should be through specialized banks such as the Bank of Agriculture (BOA) (BOA, 2014).
- Whilst the Nigerian BOA has been providing loans and other financial facilities to farmers and others working in the broader agricultural industry (BOA, 2014), it is important that distinction should be made between organic farms and farmers, and indeed other organic stakeholders from their conventional counterparts given the peculiarities of OF where there are several restrictions and only a few remedies available in case of problems (IFOAM, 2014; Soil Association, 2014; Barker, 2010).
- It is recommended that the BOA should have specialized low interest loans and other financial facilities with repayments period of at least 7 years mainly for those working in the OF and food industry. It should be emphasised that rotation is an essential part of any OF system (Stockdale and Watson, 2011), and the productivity or otherwise of a given organic system ideally should be based on the productivity of whole rotation cycle, which is typically on average 6 years rather than based on productivity from a season or year.

Bank of Agriculture cont...

- In order to eliminate corruption in the distributions of financial facilities to the farmers reputable financial institutions that have wide coverage across the country and take issues of agriculture important should be engaged, and the BOA appears to be better placed to do this.
- In places, the BOA has no branches; it might find collaboration with commercial banks useful.
- However, it must be emphasised that public institutions at federal, state and local government levels should not be allowed to distribute financial facilities that are peculiar to OF and food industry directly, otherwise, corruption will be the order of the day, and the sector will remain underdeveloped.
- Public institution should only help farmers with processes and procedures involved in receiving financial incentives meant for organic stakeholders in Nigeria, but should not be allowed to make payments by themselves.

Nigerian Agricultural Insurance Corporation

- All agricultural systems and enterprises owing to their heavy reliance on natural resources are characterised with several problems and risks, and therefore, the provision of insurance facilities are necessary in order to allow agribusinesses overcome several problems and calamities.
- Problems that can have negative consequences on the productivity of agricultural systems and agribusinesses include but not limited to : lack of enabling government policies, programmes and projects; poor land tenure systems; lack of sufficient financial capital; insufficient rainfall and drought; heavy rainfall and flooding; insufficient nutrients or nutrient imbalances ; heat waves; crop pest and disease ; poor storage facilities; poor farm tools and machineries, and lack of improved seeds.
- Other problems that will have negative implication on the productivity of agricultural systems include but not limited to : lack of improved livestock breeds; poor livestock housing; lack of improved livestock feeds and feeding systems; animal pest and diseases; poor transportation facilities; poor marketing opportunities; lack of standardization in product pricing; inadequate skilled manpower in various relevant disciplines; insufficient research attention and lack of resource materials; poor extension facilities; fire outbreak , and theft.

Nigerian Agricultural Insurance Corporation cont...

- Whilst these problems may not appear to be new to anyone conversant with agriculture in Nigeria, and indeed in most developing countries, added to this that is more worrisome is the increasing threat by global warming and climate change (Chikaire *et al.*, 2011; Umar and Ibrahim, 2011; Wheeler and Kay, 2010), which will be revisited in a later section.
- These challenges clearly make mitigation strategies imperatives, and appropriate insurance facilities is certainly one of the ways to overcome problems and risks associated with agricultural production in order to sustain farms and other agribusinesses.
- It appears that organic farming and agribusinesses are more in need of appropriate insurance facilities than their conventional counterparts owing to the prohibitions or restrictions on the inputs allowed in organic systems (IFOAM, 2014) unlike in the conventional systems.
- Rather than having a common insurance facilities for all agricultural systems, given the peculiarities of OF and food industry, it is important that specialized insurance facilities spanning at least 7 years, which is just slightly more than a single average organic rotation is established for the sector by NAIC.

Secondary Government (Public) Institutions needed to

facilitate the Growth & Develpt. of Certified OF in Nigeria

- In Nigeria as with other developing countries there are competing needs for limited resources by various sectors beyond agriculture.
- However, the impact of OF transcends just the agricultural sector (Barker, 2010; Zimmer, 2000; Lampkin, 1999), and thus, its growth and developpt will likely be facilitated with positive policies, programmes and projects in some sectors beyond the mainstream agricultural sector.
- Given the fact that certified OF is still infant in Nigeria , it appears that virtually all government ministries and/or some of their agencies will have some roles to play directly or indirectly that will likely enhance the growth of organic farming in Nigeria .
- I have referred to these public institutions as secondary institutions needed to facilitate the growth of OF and food industry because despite the various issues OF aimed at tackling simultaneously, it remain primarily concerned with food production , which appears to be the preoccupation 26of the FMARD and its agencies.

Federal Ministry of Sci. & Technology and its agencies

- Organic farming systems relies on natural resources for various production related activities : soil management; crop management; crop pest and disease management ; animal management, and animal health management among others (Adeoluwa and Adeogun, 2011; Adeoluwa and Sobamowo, 2008; Aiyelaagbe and Afolabi, 2006; Barker, 2010; Lampkin, 1999).
- Except any given material is known to be harmful, toxic or poisonous to humans, animals, soil living organism, and/or the wider environment; there are no restrictions on materials of natural sources that can be investigated, and harnessed for possible use in OF systems (IFOAM, 2014; Soil Association, 2014).
- Part of the mandate of the Federal Ministry of Sc. & Tech. (FMST) alongside its relevant agencies such as the Raw Materials Research and Development Council and Nigerian Stored Products Research Institute is to develop policies and establish programmes and projects that can allow judicious exploration of raw materials locally available that can be harnessed and used for developmental and economic purposes in key sectors of the economy including, agriculture (FMST, 2014).

Federal Ministry of Sci. & Technology and its agencies cont...

- Major thrust of certified organic farming systems is its emphasises on the use of locally available resources of plant, animal or earth nature in agricultural production (IFOAM, 2014; Soil Association, 2014).
- Consequently, the role the FMST and its relevant agencies can play to enhance the growth and development of certified organic farming in Nigeria is apparent.
- Harnessing natural resources for use in organic farming will be better approached if collaborations amongst the FMARD, FMST and their relevant agencies, and indeed some of the institutions discussed in this paper are established.
- The so-called 'compost plant' that is already in use in some developed countries is known to be richer in plant nutrients than several other plants, to the extent that its chemical composition is comparable to that of compost, that is known to have stable plant nutrients (Barker, 2010; Duram, 2005; Zimmer, 2000). The utilization of 'compost plant' could not have been possible in organic farming without detailed research efforts.

Federal Ministry Of Information and its agencies

- The Federal Ministry of Information (FMI) has mandate of relating government policies, programmes and projects to the public directly or through its relevant agencies or departments such as the Public Communication Department (FMI, 2014).
- Therefore, it is unlikely for any new technology in the agricultural sector or any other sector to have substantial publicity without the FMI or its relevant agency working in collaboration.
- Part of the problems militating against the growth of organic farming and food industry in Nigeria is lack of awareness amongst various potential organic stakeholders and indeed the public on the benefits of certified OF and organic products compared to their conventional counterparts (Mustapha *et al.*, 2012; Oyesola and Obubire, 2011; Aiyelaagbe, 2009; Dipeolu *et al.*, 2009; Solomon and Okolo, 2008).
- Despite the massive growth in the OF and food sector that has been achieved in several countries, it is still clear that Nigeria owing to its natural and human resources has comparative advantage and potentials to produce certain organic products meant for the huge international organic markets.

Federal Mini. Of Information and its agencies cont...

- For example , in the USA the supply of organic products which Nigeria has capacity to produce such as soya bean has consistently been in deficit (Green, 2013), and it seems obvious that most farmers and others working in the agricultural sector may be completely unaware of such opportunities.
- What is required; however, are effective channels and media for transmitting such information (IFOAM, 2014; Soil Association, 2014; Michelsen, 2003), to potential Nigerian organic stakeholders such as farmers, processors and marketers.
- Traditionally, information and knowledge transfer to farmers is via extension facilities provided in the mainstream agricultural sector, but given the infant state of organic farming and food industry in Nigeria, it seems apparent that at least for now , the sector will get wider publicity when the FMI and its relevant agencies and departments (FMI, 2014), are involved.
- Agencies under the supervision of the FMI (FMI, 2014), such as the Nigerian Television Authority, Federal Radio Corporation of Nigeria and the National Broadcasting Commission that are mainly involved in electronic media can create weekly or even daily programmes such as documentaries, discussions, or even comedies and drama dealing with various topics on certified organic farming.

Fed. Mini. of Culture, Tourism & National Orientation & its agencies

- Organic farming challenges conventional production systems for various reasons, including conventional systems emphasises on use of synthetic inputs and modern technologies such as the use of genetically modified organisms (IFOAM, 2014; Alroe *et al.*, 2006; Byne *et al.*, 2006; Dabbert, 2003), that are often alien to the farming life styles of local farmers (DeGregori, 2004), and since farming is seen as a way of life by the farmers (Aiyelaagbe, 2009) , by extension their culture.
- Major mandates of the Federal Ministry of Culture, Tourism and National Orientations (FMCTNO) are in the areas of formulating policies, and establishing programmes and projects to: preserve Nigerian diverse cultures; facilitate the growth of the tourism sector, and to orient the public on government activities, especially new ones or those that are of high priority (FMCTNO, 2014).
- Consequently, the role the FMCTNO can play in facilitating the growth and development of certified organic farming in Nigeria seems apparent.

Fed. Mini. of Culture, Tourism & National Orientation cont...

- Life style changes that is required to facilitate the growth and develop of OF in Nigeria will depend on various factors including : consumers awareness of benefits of organic products; consumers financial capacity and willingness to patronise organic products; availability of relevant organic stakeholders such as farmers, certifying bodies and inspectors, and enabling policies , programmes and projects to make organic products easily accessible and at affordable prices to the public.
- The three mandate areas of the FMCTNO : cultural preservation; tourism development, and national orientation (FMCTNO, 2014) appears to have adequately positioned the ministry alongside its agencies such as the National Institute for Cultural Orientation, National Orientation Agency, and the Nigeria Tourism Development Corporation well to play crucial role in various respect that will facilitate the growth and development of organic farming.

Fed. Mini. of Culture, Tourism & National Orientation cont...

- For example, OF ideals and norms that emphasises the use of locally sourced materials and technologies in production and processing as well as on its emphasises on local marketing and local consumption (IFOAM, 2014; Soil Association, 2014) appears to be in tandem with major thrust of the FMCTNO with regards to cultural preservation, and by extension rural tourism (FMCTNO, 2014) since most agricultural activities take place in the rural areas.
- Indeed if experiences of other countries are to be taken into considerations, in Nigeria, OF and food industry has the potentials and capacities to enhance rural development and improve the economies of rural areas through : use of locally sourced materials; local processing; farm gate sales; box sale systems; producers market; weekly or daily market, and community supported agriculture that will likely help in opening up the rural areas and improve rural development, and hence, boost rural

Federal Ministry of Education and its agencies

- The Federal Ministry of Education (FME) is the highest institution responsible for policy making in the education sector (FME, 2014), and alongside its agencies implements such policies directly through programmes and projects or leave them to state and local government areas to implement with their relevant institutions.
- The growth and development of certified OF requires tremendous human resources and the only way to get such skilled manpower will be through appropriate education policies, programmes and projects, to train organic stakeholders in the first place.
- Even though in Nigeria, the tertiary institutions such as the universities, polytechnics and colleges of educations have some levels of autonomy, it is clear that the development and/or approval of curricula for various levels of education, courses and programmes still remain the exclusive mandate of the FME or its relevant agencies (FME, 2014).

Federal Ministry of Education and its agencies cont...

- With respect to agriculture, the current curricula for various levels or programmes are skewed towards the teaching and training of conventional agriculture (Aiyelaagbe *et al.*, 2009); it will be difficult to have sufficient skilled manpower needed for certified OF sector to grow without necessary changes effected.
- Therefore, major role the FME and its relevant agencies are expected to play will be that of revising the curricula of agricultural students at various levels of education to incorporate certified OF and food industry and by extension other ecological approaches to agriculture.
- Bulk of the amendments that will be needed will be at the tertiary levels. There are urgent needs to introduce programmes mainly concerned with certified OF and food industry at the universities and other tertiary institutions, and this point was discussed in an earlier section.
- Nevertheless, this will mean that at least 80% of the course content for such programmes should be related to organic farming, and will, therefore, necessitates tremendous amendments to current curricula.

Federal Ministry of Education and its agencies cont...

- While there will still be a need to continue with training for conventional agriculture, as part of the need to facilitate the growth of certified OF it will also be necessary that at least 20% of the course content for training conventional agricultural students are reserved for courses related to OF.
- With respect to amendments and revision of curricula as well as introducing programmes and courses related to certified OF at various levels of education, the FME will find some of its agencies such as the National University Commission, National Board for Technical Education, National Commission for College of Education, Universal Basic Education Commission, National Institute for Educational Planning and Administration, and National Board for Educational Measurement tremendously useful as collaborators.
- However, as certified organic farming is knowledge intensive and involves a lot of technicalities it will be important that the FMARD and its relevant agencies are involved before any new curricula for specialized programmes or courses related to organic farming are introduced.

Federal Ministry of Education and its agencies cont...

- It is expected that other agencies of the FME will have some roles to play in facilitating the growth of certified OF in other respect, not necessarily related to curricula revisions, and these include: the Tertiary Education Trust Fund (TETFUND) and the National Commission for Mass Literacy.
- Whilst special scholarship grants by TETFUND at least at postgraduate levels mainly targeted at courses and programmes in certified OF in reputable institutions tenable in countries where certified OF is well developed may be needed to boost skilled manpower in the organic sector in Nigeria, the National Commission for Mass Literacy may have important roles in the enlightenment and mass education of adults and indeed the wider public on certified OF and food industry.
- In order to contribute towards the growth and development of certified OF in Nigeria, it may also be necessary that TETFUND establishes professorial chair, provide scholarships for postgraduate students, and/or provide research fund and facilities at some of the existing universities and institutions.
- Other possible roles TETFUND or similar intervention funds and institutions can play include funding conferences, summits etc, and funding specialized publications such as books and journals related to certified OF and food industry in Nigeria. ³⁷

Federal Ministry of Environment and its agencies

- Major thrust of the policies, programmes and projects of the Federal Ministry of Environment (FMEN) are centred at exploring ways and strategies to protect the environment today and for the future (FMEN, 2014).
- Similarly, central to OF and food industry is the protection and sustainability of the environment (Barker, 2010; Kledal *et al.*, 2006; Halberg *et al.*, 2006 Duram, 2005).
- Therefore, the link between organic farming and the institutions charged with safeguarding the environment is apparent and clear.
- Perhaps it is for this reason that in several countries and regions, OF has been incorporated and used as a tool for achieving multifaceted aims, including food production and environmental protection.
- For instance the Agri-environment policy of the European Union centre around organic farming and related ecological production systems (Egelyng and Hogh-Jensen, 2006).

Federal Ministry of Environment and its agencies cont...

- It is clear that agriculture based on conventional production systems where synthetic inputs such as pesticides, fertilizers and herbicides are widely used poses tremendous danger to the environment in many respects including : polluting waters ; reducing soil productivity and quality , and reducing biodiversity (Goss *et al.*, 2011; Alroe *et al.*, 2006; Byne *et al.*, 2006 ; Knudsen *et al.*, 2006), thereby posing severe negative consequences to environmental sustainability.
- In addition, the biggest problem confronting the environment today is the threat posed by climate change (Enete *et al.*, 2012; Chikaiire *et al.*, 2011), and the associated extreme weather events in the form of heavy or erratic rainfall, flooding, drought, and heat waves that are becoming more frequent.
- Of major concern is the increasing evidences suggesting that climate change will cause more negative impacts to agriculture in sub Saharan Africa (Olesen *et al.*, 2011; Wheeler and Kay 2010), and therefore, Nigeria cannot be an exception (Umar and Ibrahim, 2011).
- Nevertheless, global warming and climate change is a consequence of increasing emission of greenhouse gasses (GHGs) such as carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) to the atmosphere (Reynolds, *et al.*, 2010; Kalra *et al.*, 2007).

Federal Ministry of Environment and its agencies cont...

- Interestingly, with respect to climate change issues, agriculture occupies important position. First, agriculture alongside transportation, and industrial and manufacturing sectors are regarded as major contributors of GHGs (Reynolds *et al.*, 2010), that are evidently believed to cause climate change.
- Second, agriculture is seen as one of the potential sectors that can effectively mitigate the impact of climate change on the agricultural sector itself and beyond (Chikaiire *et al.*, 2011; Umar and Ibrahim, 2011).
- Third, agriculture whether animal-based or crop-based is likely to be negatively impacted by climate change unless appropriate mitigation strategies are adopted (Enete *et al.*, 2012; Olesen *et al.*, 2011).
- Fourth, agriculture and in particular, crop production is likely to benefit positively from climate change impacts in some locations where the existing climate is very cold largely due to increasing warmth and thus, longer growing season that climate change may bring (Knox *et al.*, 2010 ; Wheeler and Kay 2010).

Federal Ministry of Environment and its agencies cont...

- Therefore, rather than tackling climate –change related problems such as flooding based on emergency and short term approaches, it will be more sensible to approach such problems using long term strategies such as by adopting certified organic farming.
- For example, some of the practices of OF such as composting or anaerobic fermentation of organic materials before application in the fields helps in stabilizing nitrogen and thereby reducing N losses (Jones *et al.*, 2006).
- Similarly, methane emissions is believed to be minimised when organic materials are composted rather than left as fresh manure.
- In any case, the FMEN alongside some of its agencies such as the National Environmental Standards and Regulations Enforcement Agency, National Emergency Management Agency and Forestry Research Institute of Nigeria will find useful and beneficial collaboration with FMARD and some of its agencies with respect to using organic farming to solve environmental problems.

Federal Ministry of Health and its agencies

- In Nigeria, the Federal Ministry of Health (FMH) is the highest government institution concerned with policy formulation and to some extent alongside its agencies and departments policy implementation in the health sector (FMH, 2014).
- In general, policies, programmes and projects in the health sector are targeted at preventive medicine or curative medicine (FMH, 2014).
- Policies targeted at preventive medicine will include those emphasising the consumption of certain foods and/or the use of vaccines to prevent certain infections. On the other hand, policies, programmes and projects targeted at curative medicine will allow the use of synthetic drugs and modern health procedures and practices in the event of preventive medicine failing.
- Some of the ailments that afflict humans and animals are linked to the types of food they consume (IFOAM, 2014; DeGregori, 2004; Lampkin, 1999). For example, in poultry, the routine use of antibiotics as growth promoters and curative medicines have been implicated in the development⁴² of transferable antibiotic resistance to humans.

Federal Ministry of Health and its agencies cont...

- Whilst it is not the primary mandate of the FMH to produce agricultural products, there is no doubt that production practices at actual field levels, processing or storage stages may have substantial impacts on products quality and by extension may influence their potential health benefits (IFOAM, 2014; Soil Association, 2014).
- Crops produced using conventional systems can as well as absorbing and accumulating beneficial nutrients also accumulate residues of pesticides and/ or non beneficial substances such as heavy metals (Barker, 2010; Duram, 2005; Zimmer, 2000), that may have tremendous capacity to cause health challenges to humans that eventually consume their products.
- Major thrust of organic farming is to link production with human and animal health (IFOAM, 2014; Soil Association, 2014).
- It is in an attempt at safeguarding human and animal health that synthetic chemicals such as pesticides, herbicides, chemical fertilizers, genetically modified organisms, synthetic veterinary drugs are either restricted or completely prohibited in organic farming (Mustapha *et al.*, 2012; Vaarst *et al.*, 2006; Lampkin, 1999).

Federal Ministry of Health and its agencies cont...

- Therefore, OF as well as primarily concerned with food production also plays substantial role in preventive medicine. This role makes OF stakeholders well positioned for collaboration with public health policy makers.
- It is, thus, clear that policy makers at the FMH will find OF useful with respect to preventive medicine.
- At least two agencies under the FMH : National Primary Health Care Development Agency , and National Agency for Food, Drug Administration and Control (NAFDAC) may have crucial roles to play in facilitating the growth of certified OF in Nigeria .
- In particular, the former can emphasise the need for the citizens to consume organic foods as part of its preventive health programme.
- NAFDAC) is the federal government institution that is charged with the responsibility of ensuring amongst others food consumed in Nigeria are safe and healthy. The agency's role will be particularly needed with respect to testing the quality of organic products meant for the international market.

Federal Mini. of Mines & Steel Development & its agencies

- It should be reiterated that the use of synthetic inputs such as chemical fertilizers, pesticides and veterinary drugs are either restricted or completely prohibited in OF (IFOAM, 2014; Soil Association, 2014; Vaarst *et al.*, 2006).
- This makes reliance on the use of materials of biological or natural sources alongside management imperative in OF (DeGregori, 2004; Lampkin, 1999).
- It is worthy nothing that substantial amount of natural resources other than of plant or animal origin that are used in organic farming are derived from rock minerals; Nigeria has substantial deposits of these minerals.
- For example, whilst the use of water-soluble phosphorus fertilizer such as triple super phosphate is prohibited in organic farming (Knox *et al.*, 2011), the use of minimally processed phosphate rock is allowed, and Nigeria has substantial deposits of phosphate rocks at various locations that can be mined and supplied to potential organic farmers for use in soil and nutrient management.

Federal Mini. of Mines & Steel Developpt & its agencies cont...

- Even though there have been reservations about the prospects of wide scale and sustainable use of rock phosphate for crop production in Africa due to the prevalence of low reactive deposits in several locations (Pender and Mertz, 2006), most of the continents' reactive rock phosphate deposits are located in Nigeria and other west African countries.
- The growth and development of OF in Nigeria will depend on access to inputs by stakeholders in the industry, and access to relevant processed rock minerals is obviously critical.
- In Nigeria, the Federal Ministry of Mines and Steel Development (FMMSD) is mainly responsible for policy formulations and establishing programmes and projects related to the solid minerals sector (FMMSD, 2014).
- Therefore, it is unlikely for any sustainable progress towards the exploration of rock minerals needed for certified OF to be possible without involving the FMMSD or some of its relevant agencies (FMMSD, 2014), since issues regarding the solid minerals sector are clearly outside the mandate area of the FMARD.

Federal Ministry of Water Resources and its agencies

- All agricultural production systems irrespective of whether they are crop-based or livestock-based require water, which is largely sourced from natural sources for production related activities to take place.
- Although in Nigeria, substantial percentage of the agricultural systems, whether animal based or crop based depends on natural rainfall, there are needs to harness water resources for irrigation purposes if organic farming is to be well practiced.
- For example, OF requires that soil should not be left bare and that vegetation whether in the form of arable crop, green manure or just cover crops covers the soils (Hansen *et al.*, 2011; Stockdale and Watson, 2011; Knudsen *et al.*, 2006).
- With variations in the annual reception, density and frequency of rainfall across Nigeria, it is unlikely that natural rainfall will allow soils to be covered all year round without water being supplemented through irrigation, for example.
- Consequently, it is unlikely that wide scale organic farming will be possible in Nigeria without appropriate irrigation facilities provided that will allow all year round vegetation cover of the soil of the type emphasised in organic farming systems (IFOAM, 2014; Soil Association, 2014).

Federal Ministry of Water Resources and its agencies cont...

- In Nigeria, it is the mandate of the Federal Ministry of Water Resources (FMWR) alongside its River Basins Development Agencies (RBDAs) to formulate policies and back such policies with programmes and projects for harnessing water for various uses, including for agriculture (FMWR, 2014).
- While it is acknowledged that Nigeria's 36 state governments owns most of the water projects domiciled in the state concerned that are needed for municipal water supplies; water needed for agriculture is of greater magnitude (Wheeler and Kay, 2010), and it is unlikely that successes will be recorded with respect water use in agriculture in Nigeria without the active involvement of the FMWR and its RBDAs.
- Indeed, the water infrastructure needed for the growth of certified organic farming will be substantial in the short run in both livestock-based and crop-based production systems, and policies, programmes and projects that will allow judicious use of water resources through the establishment of new dams or the expansion of existing dams to allow for wide scale irrigated agriculture to take place will be sensible.
- The FMWR, the RBDAs, and indeed agencies under the supervision of the FMWR such as the Nigeria Hydrological Services Agency, the National Water Resources Institute and the twelve RBDAs all have crucial roles⁴⁸ to play in various respects.

Federal Mini. of Foreign Affairs & the Nigerian Embassies

- Opportunities exist in international organic food market because : there appears to be in balance between supply and demand for organic products locally in most countries, and some products cannot be economically produced in some countries despite the huge market for certified organic food products they may have (IFOAM, 2014; Green, 2013).
- For example, organic food market in the UK is well developed but it does not seem economically wise to produce Soya bean (*Glicine max*) in the UK when the environment is just not right, and the crop can be more economically produced in tropical countries such as Nigeria.
- Part of the mandate of Federal Ministry of Foreign Affairs (FMFA) alongside its Embassies and High Commissions is to explore avenues and channels of collaboration with foreign countries that will benefits Nigeria and the countries concerned (FMFA, 2014) .
- Certainly, trade and investments has been critical instruments used to cement the relationships between Nigeria and its foreign partners (FMFA, 2014), and it is also possible to further consolidate Nigeria's relationships with its foreign partners based on trading in certified organic products.

Fed. Mini. of Foreign Affairs & the Nigerian Embassies cont...

- For example, the USA, one of Nigeria's trading partner in petroleum, has arguably the worlds largest markets for organic food and non food (Green, 2013), that Nigeria can easily benefits from with right policies in place.
- The fact that some products that Nigeria has the potentials and comparative advantage to produce such as soya bean is in deficit supply in the USA organic market (Green, 2013), and indeed global organic market clearly indicate that OF has potential to serve as instruments of foreign policy that will enhance the growth of Nigeria's economy.
- In this regard clearly, the FMFA and its various Embassies and High Commissions (FMFA, 2014) have crucial roles to play.
- For example, in countries such as the USA, UK, Germany and others where OF and food industry is well developed, the FMFA alongside its relevant Embassies and High commissions can establish linkages with public and private organic stakeholders in order to amongst others: help in establishing relevant institutions needed for the growth and development of certified OF; help in training organic stakeholders from Nigeria, and exploring opportunities for marketing organic products produced in Nigeria in those countries.

Federal Ministry of Industries, Trade & Investments and its agencies

- Organic farming and food industry is also concerned with profitability, in order to allow organic farms and associated businesses to grow.
- The mandate of the Federal Ministry of Industry, Trade and Investment (FMITI) is that of formulating policies, programmes and projects to facilitate trade and investment in Nigeria (FMITI, 2014).
- Investors and traders will only put their monies where they are sure of getting returns.
- Returns on investment can be affected by various factors such as government policies, programmes and projects, as well as market dynamics and opportunities amongst others.
- For investments in the agricultural sector; climatic factors, pest and diseases as well as human induced calamities such as bush burning can also affect product outputs and returns.

Federal Mini. of Industries, Trade & Investments & its agencies cont...

- In Nigeria, the existing conditions do not appear to favour investment even in the conventional agricultural sector.
- For example, there is no standardization in the pricing of agricultural products to allow farmers and other agricultural stakeholders to derive appropriate returns on their investments.
- Similarly, as discussed in earlier sections, despite the apparent risk associated with agricultural production, only rarely do farmers get access to insurance facilities, and farm inputs are often supplied inadequately, and sometimes too late.
- The growth of OF to some extent largely depends on the state of growth of conventional agriculture as it often uses conventional agriculture as a benchmark (IFOAM, 2014; Alroe *et al.*, 2006).
- For example, price premia is an essential component of any certified OF and food industry (Soil Association, 2014; Dipeolu *et al.*, 2009), but organic premia uses conventional prices as benchmarks (Byne *et al.*, 2006).

Federal Mini. of Industries, Trade & Investments & its agencies cont...

- Thus, it will be difficult in Nigeria to label organic products with appropriate premia prices without first standardizing and streamlining the prices of agricultural products produced conventionally.
- The peculiarity of OF also mean that to facilitate the growth of the sector relevant institution may need to be established by both public and private sectors.
- However, relevant institutions specifically for OF are not existing at the moment in Nigeria, even though some existing institutions may be able to expand their mandate to carry out such functions.
- As an infant industry, there is a need that prospective institutions in the OF sector are registered free or at concessionary rates by the FMITI or its relevant agencies such as the Corporate Affairs Commission as a way of facilitating the growth of the sector.
- It seems obvious that for wide scale certified OF to be possible in Nigeria, institutions such as organic inspection bodies, and organic certification bodies amongst others need to be established.

Federal Mini. of Industries, Trade & Investments & its agencies cont...

- Nevertheless, some of the agencies of the FMITI (FMITI, 2014) that will have one role or the other to play in the growth of certified OF in Nigeria include Bank of Industry, Consumer Protection Council (CPC), Corporate Affairs Commission (CAC), Industrial Training Fund (ITF), Nigerian Export Promotion Council (NEPC) and Standard Organisation of Nigeria (SON).
- While Bank of Industry can establish financial facilities that can be of benefits to organic farmers and others working in the broader organic food industry, the CPC have substantial roles to play in case of frauds and wrong doings by any stakeholder in the organic food industry since the main necessity for OF is about consumer disenfranchisement with mainstream agriculture.
- On the other hand, the ITF can establish schemes specifically targeted at capacity building amongst potential organic stakeholders, while the NEPC have substantial role to play in promoting organic products that are produced in Nigeria to other countries where they are most needed.
- The SON amongst others have responsibility of ensuring products produced in Nigeria are of high standards in compliance with lay down rules and regulations. In certified OF, products standards are critical, especially if the products are meant for the international markets (IFOAM, 2014). Therefore, the role SON can play to ensure products standards and thus facilitates the growth of organic food industry in Nigeria is clear.

National Planning Commission and its agencies

- The growth and development of OF and the wider organic food industry in Nigeria will require short term, medium term and long term strategic planning that can be better spearheaded by the National Planning Commission (NPC) which is headed by a cabinet minister.
- Moreover, the NPC also has relevant agencies such as the National Bureau of Statistics and National Institute of Social and Economic Research (NPC, 2014) that will be useful in monitoring the growth of OF and food sector from time to time.
- Of course, developing strategic plans for OF and food industry will require tremendous inputs from stakeholders in the mainstream agricultural sector, and indeed some of the sectors discussed in the preceding sections.
- As a prelude to the initiation and design of any strategic plans for the sector there will be a need for detailed reviews of existing government policies within the agricultural sector and associated sectors that will facilitate or likely hinder the growth of organic farming and food industry and necessary amendments proposed and effected.

National Planning Commission and its agencies cont...

- Consequently, areas that short term to medium term plans will be most needed include but not limited to: certification systems and certification institutions; inspection systems and inspection institutions; conversion procedures and conversion incentives; local and international marketing opportunities for products Nigeria has potentials and comparative advantages to produce; data on existing and potential stakeholders in organic farming; local resource availability and input for organic farming.
- The long term plans for the sector will necessitates developing strategic plans that will enable organic farming to be used to solve several multifaceted problems simultaneously, since the literature indicate that organic farming has several multifaceted benefits (Mustapha *et al.*, 2012; Oyesola and Obubire, 2011; Adebisi-Adelami *et al.*, 2010; Aiyelaagbe, 2009).
- For example, as discussed in the earlier sections, climate change is a major problem confronting the agricultural sector, and indeed other sectors of the economy today; the literature indicate that organic farming is one of the sustainable ways to mitigate against climate change (Chikaiire *et al.*, 2011; Umar and Ibrahim, 2011).

National Planning Commission and its agencies cont...

- Thus, for example, strategic long term plans that will allow organic farming which is primarily concerned with food production to be used as a tool to combat climate change, sustain the environment, improve rural economy, boost rural or simply agrarian tourism, generate employments, and serves as a tool for foreign diplomatic relations amongst others will be interesting.
- The justification for the development of any strategic plan for OF should be based on the fact that OF system provides several public goods that stands it out from conventional production system, and indeed for a developing country such as Nigeria where there are limited resource with multifaceted problems competing for such resources, it will be in the best interest of the public to uphold to systems such as OF that can solve various problems simultaneously.
- It is possible for organic farming systems in Nigeria to succeed, if for example, strategic plans that will link agriculture, education, environment and health are designed.
- For instance, plans that will allow exclusively free daily provision of organic fruits and vegetables, to all public owned primary and secondary schools in Nigeria will likely facilitate the growth and OF whilst at the same time protecting and sustaining the environment, safeguarding the health of pupils and students, as well as improving their learning abilities since organic products are devoid of harmful synthetic residues (IFOAM, 2014).

Federal Capital Territory Administration and its agencies

- Abuja, Nigeria's federal capital is arguably the fastest growing modern city in the country (FCT, 2014), and it is also arguably the city with the fastest growing educated elites populations that are comparatively financially capable of making informed choices about the type of product they will consume, depending on whether they are aware of the benefits of various products.
- It should also be pointed out that Abuja is not just a city, but it also has adjoining towns and villages together that make up what is commonly referred to as the Federal Capital Territory (FCT) and the human population in the FCT has been on the increase (FCT, 2014).
- It seems apparent that the FCT has potential huge market for certified organic products (FCT, 2014).
- This is based on the premise that substantial percentage of the dwellers of the FCT is educated elites, and most of whom may have the financial capacity to patronize organic products even at premia prices.

Federal Capital Territory Administration and its agencies

- It is obvious that the availability of local market will play substantial role in the growth and development of organic farming and food industry in Nigeria, and it seems apparent that Abuja and indeed, the wider FCT holds the key given the tremendous progress that has been made in the provision of infrastructures in the territory (FCT, 2014).
- Therefore, the first step at exploring local marketing opportunities and locations for organic products produced in Nigeria that cannot be consumed in locations they were produced should target major cities dominated by the elites, and Abuja and the wider FCT arguably should be first point of call.
- Moreover, the infrastructures that is already in place in Abuja and the wider FCT (FCT, 2014) appears to have well positioned the territory to facilitate the marketing of organic products using different channels and systems .
- The city has arguably the best road infrastructure in the country, several shopping plazas and complexes, comparatively good electricity supply, more secure than other parts of the country, several rural areas within short distance from the city, and is well served by public transportation systems (FCT, 2014).

Federal Capital Territory Administration and its agencies

- Ordinarily, organic products are marketed using channels such as : farm gate shops; farmers cooperative shops; organic speciality shops; daily or weekly open market channels; super markets and hyper markets, box systems , and community supported agricultural schemes (FST, 2014; Soil Association, 2014; Lampkin, 1999).
- All these channels of marketing organic products make Abuja with its existing infrastructure (FCT, 2014) suitable for marketing organic products.
- Whilst conversion to organic farming systems should be encouraged throughout Nigeria, concentrating on cities such as Abuja for the marketing of organic products at least until significant growth is achieved will be the best option in the short term.
- The discussion so far, clearly indicate that the FCT Administration, which is headed by a cabinet minister alongside its relevant agencies (FCT, 2014), clearly have substantial role to play in facilitating the growth and development of organic farming and food industry, at least by providing enabling policies, programmes and projects to allow easy marketing of organic products within the territory.

National Assembly, the Judiciary, Federal Mini. of Justice and other relevant agencies

- Laws back the symbols on certified organic products that differentiate them from the conventional ones (IFOAM, 2014; Soil Association, 2014), thus, in the events of default by any organic stakeholder appropriate penalties should be applied according to the relevant sections of the laws.
- Ordinarily, laws on any issue comes to existence only after necessary procedures are concluded, and all the three arms of the government namely executive, legislature and judiciary have one or more roles to play in the initiation, deliberation and passage , or in the interpretation of relevant sections of the laws.
- Whilst it is acknowledged that it is the responsibility of the executive arm of the government to execute government policies through programmes and projects; the legislature and judiciary also play significant roles in their own rights.
- For example, in Nigeria no government fund can be spent by the executive arm without first following the appropriate legislative processes (National Assembly, 2014), and in the event of frictions between the executive and the legislative arms with regards to such problems or any other issues, it is exclusively the responsibility of the judiciary to make appropriate interpretation of the relevant sections of the laws.

National Assembly, the Judiciary, Federal Mini. of Justice and other relevant agencies cont...

- This explicitly indicate that legislations, legislative institutions and legislative processes (National Assembly, 2014) as well as the judiciary and judicial processes are indispensable if the enabling environment that will facilitate the growth of certified OF in Nigeria were to be achieved.
- For Nigeria, where certified OF remain underdeveloped, in part due to lack of enabling rules and regulations, obviously legislations in several areas of OF including but not limited to : conversion and conversion processes; certification and inspection processes; soil management; production practices and standards in both crop based and livestock based systems ; inputs permission, prohibitions and restrictions; processing and storage including standards for the food industries , and marketing are needed.
- Laws needed to facilitate the growth and development of certified OF in Nigeria require tremendous inputs from several institutions including the National Assembly, Federal Ministry of Justice (FMJ) and its relevant agencies (FMJ, 2014) , the Judiciary, as well as from policy makers, researchers and academicians in the mainstream agricultural sector and other sectors discussed in this paper.

National Assembly, the Judiciary, Federal Mini. of Justice and other relevant agencies cont...

- To start with, the FMJ and its relevant agencies (FMJ, 2014) alongside the FMARD and its relevant agencies can carry out detailed review of existing laws that can facilitate or hinder the growth of certified organic farming. Following such reviews areas that need reviews, should be proposed and necessary legislative procedures for amendment initiated.
- It is important that any bill seeking the review of relevant sections of the laws to facilitate the growth and development of certified organic farming in Nigeria should be as comprehensive as possible, and should be handled at the highest levels of the executive arm by the presidency itself, or by the FMJ (FMJ, 2014) working in collaboration with other relevant public and private institutions and stakeholders.
- The need for collaboration between institutions can be exemplified by the fact that even though it is the mandate of the FMJ to handle all issues related to reviews of relevant sections of the laws irrespective of the sector involved ; issues related to agriculture and specifically OF require the understanding of the technicalities involved, as such can be better handled by those in the mainstream agricultural sector.

National Assembly, the Judiciary, Federal Mini. of Justice and other relevant agencies cont...

- Relevant agencies of the FMJ that will have substantial role to play in any step towards the preparation of comprehensive laws that will facilitate the growth of certified OF in Nigeria include the Nigeria Institute of Advanced Legal Studies and the Nigeria Law Reform Commission.
- The second step towards achieving the necessary laws to facilitate the growth and development of OF in Nigeria will be through appropriate legislative work by the lawmakers in the National Assembly (National Assembly, 2014), and indeed the 36 state assemblies since all amendments to the constitutions needs to be assented to by most of the state before they become laws.
- It is important that in the course of legislation on organic farming and food industry, the benefits the system and indeed the sector has to offer compare to other systems and sectors should be the deciding factor as to whether it is of merit and thus, deserves comprehensive laws to facilitate its growth and development .

National Assembly, the Judiciary, Federal Mini. of Justice and other relevant agencies cont...

- Issues concerning the knowledge of organic farming and its benefits are best handled by organic stakeholders such as public policy makers, academicians and researchers, farmers and marketers, and several other stakeholders such as farmers groups and professional associations such as the Agricultural Society of Nigeria, and therefore, inputs from all relevant stakeholders in the course of legislative work, at least during public hearings will be tremendously needed.
- Aside the FMJ and other institutions that have substantial role to play in the developments of laws necessary for the growth and development of certified organic farming, in case of defaults other institutions such as the Nigerian Police Force (NPF) and various law courts will have different and crucial roles to play as well.
- To maintain the required organic standards, appropriate punishments and penalties must be meted to defaulters, and in this regards both the NPF and the various law courts have major roles to play.

Transportation based Ministries and their agencies

- There are four major transportation systems namely roads, rail, aviation and maritime; in Nigeria government policies, programmes and projects regarding these systems are handled by more than one ministry alongside their relevant agencies.
- For example, while at the federal level the construction and maintenance of roads are the responsibility of the Federal Ministry of Works (FMW) and its relevant agencies (FMW, 2014), issues related to policies, programmes and projects in the rail and maritime sectors are handled by the Federal Ministry of Transport (FMT) alongside its relevant agencies and departments (FMT, 2014).
- Of course, as the name suggest the Federal Ministry of Aviation (FMA) with active involvement of its relevant agencies handles issues related to the aviation sector (FMA, 2014).
- It is, therefore, obvious that issues related to the broader transportation sector in Nigeria transcends just a single ministry.

Transportation based Ministries and their agencies cont...

- The growth of sectors such as agriculture that rely heavily on the transportation sector to move farm inputs and products within and beyond a given country will in part depend on the growth of the transportation sector .
- Consequently, the growth and development of certified OF in Nigeria will largely depend on the provision of necessary infrastructures and facilities in the roads, rail, maritime and aviation sectors of the broader transportation sector.
- For organic products produced in Nigeria that are mainly targeted at the local markets; roads and rail sectors ideally should be the systems that should be used in moving them from areas of production to the marketing areas.
- Even for products meant for the international markets; roads and rail sectors still, have crucial roles to play.
- However, the provision of necessary infrastructure and facilities in the maritime and aviation sectors will largely influence the potentials of Nigeria to access international markets for organic products.

Security based Organizations & Agencies

- The growth of organic sector in Nigeria will to a large extent depend on the security of lives and properties.
- The OF and food industry will require free movement of people, inputs and products from one location to the other if the sector is to develop in Nigeria.
- At present Nigeria has several security challenges ranging from theft and arm robbery, kidnapping, to piracy amongst others.
- It is obvious that with such multifaceted security challenges that transcends just a given part of the country, sectors such as agriculture that require free movement of people, inputs and products within and beyond the shores of Nigeria will be negatively impacted.
- For example, I do not think any potential organic stakeholder will be willing to invest in areas that arm robbery and piracies are the orders of the day.

Security based Organizations & Agencies cont...

- Therefore, unless people's lives and properties are secured, and people, inputs and products can be freely moved from one location to the other, organic farming and food industry in Nigeria will remain underdeveloped.
- In Nigeria, as with other countries issues of security is not restricted to just a single institution as various organisations are seen as active security operatives in their own rights.
- Infact, issues of security involves everyone not just those that are typically referred to as security operatives.
- It is clear that organisations needed to secure Nigeria land and waters in order to facilitate the growth of not just organic farming and food industry or the wider agricultural sector but indeed various other sectors of the economy includes but not limited to : Federal Ministry of Police Affairs; Federal Ministry of Defence; the Nigerian Police Force ; Department of State Security Service; the Nigerian Army ; the Nigerian Air force ; the Nigerian Navy; the Nigerian Immigration Service, and the Nigerian Custom Service.

Federal Ministry of Finance and its agencies

- The major preoccupation of the activities that take place at the Federal Ministry of Finance (FMF) is that of formulation of policies and establishing programmes and projects to take care of the economy (FMF, 2014) largely with the Central Bank of Nigeria (CBN, 2014), working in collaboration.
- The FMF and some of its agencies such as the Budget Office, Nigerian Custom Service and the Nigerian Export/Import Bank also play various roles in the economy that it is not possible to isolate their influence in the activity of any sector (FMF, 2014), including the agricultural sector.
- For example, whilst it is the primary responsibility of the legislative arm to pass the appropriation bill to allow for all government ministries, agencies and departments to spend monies legitimately (National Assembly, 2014), it is equally the primary responsibility of the FMF or specifically, the Budget Office to prepare the appropriation document detailing what each institution is allocated and how the budget will be funded (FMF, 2014).

Federal Ministry of Finance and its agencies cont...

- The agricultural sector as with other sectors of the economy require adequate funding to allow government policies to be appropriately executed through programmes and projects (Adebisi-Adelami *et al.*, 2010; Auta and Dafwang, 2010; Bello, 2008); therefore, the role the FMF and its relevant agencies have to play is apparent.
- It is worthy pointing out, however, that as well making necessary budgetary provision for all other sectors of the economy, it is also the primary responsibility of the FMF alongside its relevant agencies to collate all funds generated from all sectors of the economy in order to fund government programmes and projects to sustain or grow the economy (FMF, 2014).
- Whilst some sectors that are not primarily targeted at revenue generations but have crucial roles to play in the economy as exemplified with the education and health sectors, are often referred to as social sectors, agriculture and solid minerals amongst others are often referred to as the real sector because of their capacity and potentials to sustain or improve the economy through employment generations, and contributing to the gross domestic product (FMF, 2014), amongst others.

Federal Ministry of Finance and its agencies cont...

- Whether or not the agricultural sector plays important role in the economy will in part depends on the enabling policies, programme and projects as well as appropriate funding of such programmes and projects (Adebisi-Adelami *et al.*, 2010; Auta and Dafwang, 2010; Bello, 2008).
- Whilst it is the primary mandate of the policy makers in the agricultural sector to formulate enabling policies and establish programmes and projects to execute such policies; it is equally the mandate of the policy makers in the financial sector to generate funds for the government and also to fund government programmes and projects irrespective of the sector they are domiciled (FMF, 2014).
- Even though various governments, including the current one have established programmes and projects to revamp the agricultural sector in order to play the crucial role it played prior to the discovery of oil (FMARD, 2014) ; the sector still remain under developed.

Federal Ministry of Finance and its agencies cont...

- It is likely that this could have been because in establishing previous programmes global developments in agriculture and indeed, the wider food industry were not taken into account adequately.
- It could also be because priority was not given to agricultural systems that Nigeria has more comparative advantages in light of the country's favourable climate and other natural and human resources.
- For example, it has been the governments consistent policy thrust to promote conventional production systems as can be exemplified by the tremendous subsidies on synthetic fertilizers and pesticides (Auta and Dafwang, 2010).
- However, intensive conventional farming system is practiced worldwide and for Nigeria to be competitive in intensive farming systems with the rest of the world, it has to provide farmers with adequate inputs and as at when due.

Federal Ministry of Finance and its agencies cont...

- Obviously, this has not been the case since lack of sufficient inputs or problems associated with input delivery in addition to several other problems have characterized what is typically referred to as conventional farming system in Nigeria (Adebisi-Adelami *et al.*, 2010; Auta and Dafwang, 2010).
- With such multifaceted problems, it is of course, certain that, Nigeria cannot outperform other countries in the world with respect to conventional production systems.
- By contrast OF emphasises the use of materials of biological or natural sources that ideally should be sourced locally in the production of agricultural products, and also emphasises local processing, marketing and consumptions of agricultural products targeted at improving rural economies (IFOAM, 2014; Knudsen *et al.*, 2006; Pender and Mertz, 2006).
- Given the scope of OF, it appears Nigeria will likely make major breakthrough in the execution of its agricultural programmes and projects if it takes OF as a major sector that should be accorded appropriate policy attention and adequately funded.

Federal Ministry of Finance and its agencies cont...

- The FMF and some of its relevant agencies (FMF, 2014) can help through : removal of taxes, levies and custom duties on inputs needed for OF that are not locally available; put heavy taxes , levies and custom duties on organic products imported into Nigeria which the country has the potentials and capacity to produce locally ; initiate and/or fund programmes and projects targeted at promoting the growth of OF in Nigeria, and provide sufficient funds to finance all activities related to OF in the agricultural sector or other sectors discussed in this paper.
- As well as promoting OF by establishing programmes and projects mainly targeted at promoting it, government policies and programmes that will make conventional farming system unattractive will also likely benefit organic farming systems and further enhance its growth (Byne *et al.*, 2006).
- Government policies that will discourage conventional farming systems include: heavy taxes, levies and custom duties on inputs such as synthetic pesticides and fertilizers, and genetically modified organisms as well as the standardization in the pricing of agricultural products to allow organic products get premia prices over their conventional counterparts in order to attract more farmers into organic farming systems (Alroe *et al.*, 2006; Kledal *et al.*, 2006).

Other Ministries, Agencies, Special Projects & Programmes

- From the fore going, it was apparent that despite the fact that organic farming is primarily concerned with food production, and thus, should ideally be the mandate area of the FMARD and its relevant agencies, its multifaceted goals and objectives as well as its benefits transcends just the agricultural sector.
- It was obvious that virtually all the key ministries or at least some of their agencies have some roles to play towards the growth and development of certified OF in Nigeria.
- Besides what may be referred to as the key ministries, there are other specialized or special purpose ministries and agencies that are primarily established to take care of certain segments of the society or mainly to generate jobs such as the Federal Ministry of Labour and Productivity and the National Directorate of Employment (FMLP, 2014) , Federal Ministry of Youth Development (FMYD, 2014) and the Federal Ministry of Women Affairs and Social development (FMWASD, 2014).
- Similarly, there are special purpose projects and programmes such as the Subsidy Re-investment and Empowerment Programme (SURE-P), where agriculture is one of the key sectors of the economy under its mandate, as well as various empowerment programmes in various ministries and agencies that has agriculture as one of the mandate areas.

Other Minis., Agencies, Special Projects & Programmes cont...

- Even though agriculture is the mandate area of the FMARD and its relevant agencies, the fact that these institutions and programmes have special programmes and projects targeted at the agricultural sector further indicate the relevance of institutions beyond the agricultural sector in facilitating the growth and development of certified OF in Nigeria.
- As interesting as the various agricultural programmes and intervention projects by these institutions may look, part of the problems that could have been the obstacle to achieving meaningful results is the generalization of the programmes without targeting agricultural systems such as OF, that the country has capacity and resources to grow with the enabling environment provided by the government.
- Rather than generalizing employment and empowerment programmes in the agricultural sector, what may be needed is to focus on some sectors within the broader agricultural sector such as OF.
- It is these type of programmes that will likely succeed and contribute to the economy since the international market for organic products is growing rapidly and Nigeria's climate and ecology as well as its human resources are advantages that will allow the production of several products targeted at both the local market, and the international market for organic products (IFOAM, 2014; Soil Association, 2014).

Other Minis., Agencies, Special Projects & Programmes cont...

- Typically, youths are reluctant to take jobs in the agricultural sector , and in part this could be due to drudgery involved in agricultural production systems and practices as well as perceived poor returns on investments, and lack of enabling policies to facilitate the growth of agribusinesses in general (Adebisi-Adelami *et al.*, 2010; Auta and Dafwang, 2010) .
- As long as there are enabling environment, the potentials to derive reasonable investment from OF in Nigeria is high given the large size of the country's population, which is indicative of the huge potential local markets for organic products . In addition, the country can also benefit from the well established international markets for organic products.
- It seems obvious that institutions such as the Federal Ministry of Labour and Productivity and its relevant agencies such as the National Directorate of Employment (FMLP, 2014) as well as the Federal Ministry of Youth Development (FMYD, 2014), the Federal Ministry of Women Affairs and Social Development (FMWASD, 2014), and their relevant agencies will find OF attractive in their empowerment and/or employment generations programmes.
- Similarly, special purposes projects and programmes such as the Subsidy Re-investment and Empowerment Programme (SURE-P) will likely succeed at least in the agricultural sector when ⁷⁸sub sectors such as OF are targeted.

Commercial Banks and Insurance Institutions

- In the earlier sections of this paper, the need for sufficient funding of various activities and programmes related to certified OF were stressed. Obviously, the agricultural sector as with several sectors of the economy requires tremendous funds in order for it to grow or even for various activities and programmes to be sustained, and the OF sector cannot be an exception.
- Whilst intervention by the public sector in various areas of the OF systems are needed as exemplified by the evidences in the literature elsewhere (IFOAM, 2014; Soil Association, 2014; Hallam, 2003; Offermann, 2003), given the limited resources available to the Nigerian government to tackle various issues within and beyond the agricultural sector, there is no doubt that funds from the financial institutions such as commercial banks will be needed.
- However, owing to its heavy reliance on natural resources, agricultural production is typically associated with uncertainties and risks to the extent that most commercial banks in Nigeria are reluctant to provide financial facilities such as loans to the stakeholders within the sector.
- Ideally, the risks involved in agricultural production that to a large extent is responsible for lack of access to funds can be overcome with functioning insurance facilities provided for the sector.

Commercial Banks and Insurance Institutions cont...

- Apparently, as discussed in the previous sections even within the agricultural sector itself, the OF systems is riskier than the conventional counterpart because of the prohibitions and restrictions on inputs that can be used in production related activities.
- Unfortunately, in Nigeria the insurance sector is still not well developed because functioning insurance facilities are lacking in several sectors beside the agricultural sector.
- It should be reiterated that for the OF sector in Nigeria to grow, loans and other credit facilities would be required not just from specialized banks such as the Bank of Agriculture or the Central Bank of Nigeria, but also from the commercial banks.
- Even though typically most commercial banks in Nigeria are reluctant in providing loans and other financial facilities for agricultural production due to uncertainties involved, it is likely that their position on the financing of OF sector will be different if they are aware of the benefits it provides and the marketing opportunities it has locally and internationally (IFOAM, 2014; Soil Association, 2014; Green, 2013).

Commercial Banks and Insurance Institutions cont...

- Therefore, organic stakeholders have responsibility to educate other stakeholders beyond the agricultural sector, including those in the financial sector such as the banking and insurance institutions on the benefit of organic farming and food industry in order to attract adequate attention to the sector.
- In order for the banking and insurance institutions to accord OF the needed priority and provide it with specialized financial facilities to suite the sector where at least on average six years is needed for a single crop rotation to complete, the government has a responsibility of providing basic infrastructures in the agrarian areas.

Specialist Organic Stakeholder Groups and Associations

- It should be emphasised that at present certified OF is at best still at its infant stages of development in Nigeria despite evidences suggesting uncertified OF is practiced (Mustapha *et al.*, 2012; Chikaiire *et al.*, 2011; Oyesola and Obubire, 2011).
- This trend is not likely to change without the interest in and active participation of Specialist Organic Stakeholder Groups and Associations (SOSGA) in OF in Nigeria.
- Relevant SOSGA that will be needed include but not limited to: organic certification bodies; organic farmers groups; organic processors groups, and organic marketers groups.
- It is obvious that organic production systems despite its emphasis on the use of locally available inputs is knowledge intensive and its success will largely depend on farmers experiences (Adebisi-Adelami *et al.*, 2010 ; Liebhardt, 2003; Nynen, 2003).
- Even in developed countries farmers groups have been active participants in OF mostly in collaboration with other organic stakeholders such as the organic processors groups, organic marketers groups and organic certification bodies (Soil Association, 2014).

Specialist Organic Stakeholder Groups and Associations cont...

- Key functions and activities of such groups includes : informal knowledge sharing amongst members related to production or wider organic food industry; formal knowledge sharing through the organization of conferences, summits, workshops, agricultural shows and farm visits, and joint marketing of products using channels such as cooperative shops, specialist organic shops, farm gate shops etc (Soil Association, 2014) .
- It seems obvious, therefore, that farmers and indeed, other organic stakeholders should be encouraged to form groups and association in order to share experiences and carry out joint activities in order to move certified OF in Nigeria forward.
- Private organisations concerned with certification in OF help farmers with their certification processes and procedures often at a financial cost (IFOAM, 2014).
- The need for certifying bodies privately owned to come together and form associations or groups to share experiences is necessary in order to maintain organic standards in all aspects of production related activities.

Specialist Organic Stakeholder Groups and Associations cont...

- Allowing each certification body to operate according to its own standards will result in non-uniformity of products in the markets that will all align themselves with organic farming, and this may lead to loss of confidence in the wider organic farming and food industry.
- In addition, it can disenfranchise some organic stakeholders particularly consumers of organic products, most of whom became organic in the first place because of discontent with the conventional farming approaches to food production (IFOAM, 2014; Soil Association, 2014; DeGregori, 2004; Lampkin, 1999).
- Nevertheless, as well as organic farmers groups and certification bodies, organic processors, and organic marketers in Nigeria will find it useful to share experiences and knowledge about the wider organic farming industry when they form relevant groups.
- Therefore, the growth of certified OF in Nigeria will in part depend on the establishment and active participation of these indispensable organic stakeholder associations, groups and organisations.

Other Non-Governmental Groups, Associations and Institutions

- The broad issue certified OF despite primarily concerned about food production aims at tackling (IFOAM, 2014; Soil Association, 2014; Mustapha *et al.*, 2012) necessitates the participation of Non-governmental Association, Groups and Institutions concerned with the issues of environment, food quality and safety, human health, animal welfare, and rural development amongst others.
- Whilst NGOs that take any of these issues important might not directly be advocating for OF or for the public to consume organic products; the issues they aim at tackling are in line with OF norms and aspirations (IFOAM, 2014; DeGregori , 2004; Lampkin, 1999).
- As such their existence and activities will likely benefit organic farming and food industry and facilitates its growth.
- For example, the main thrust of NGOs concerned with issues of environment is how to protect and sustain the environment today and for the future while allowing indispensable human activities such as agricultural production to take place.

Other Non-Governmental Groups, Associations and Institutions cont...

- Undoubtedly, one of the major thrust of organic farming is related to environmental protection and sustainability (Chikaire *et al.*, 2011; Umar and Ibrahim, 2011; Halberg *et al.*, 2006).
- Moreover, the discontent with conventional production system that has necessitated organic farming systems in part is due the negative consequences of conventional farming systems and practices to the soil and the wider environment, and the implication on environmental sustainability (DeGregori, 2004).
- Therefore, even though some of the NGOs may not explicitly align themselves with organic farming, obviously those that take issues such as global warming and climate change, desertification, deforestation, water pollution amongst others seriously, and are looking for solutions to these problems will find organic farming useful, and collaboration with relevant organic stakeholders within and beyond the agricultural sector is recommended.
- Thus, the establishment and activities of NGOs that are not necessarily concerned with OF but have concerns about environmental sustainability will directly or indirectly enhance the growth of certified OF in Nigeria.

Professional Agricultural & Non-Agricultural Societies & Associations

- Organic farming and food industry require the active participation of several professional bodies within and beyond the agricultural sector in the areas of research, extension and development in order to facilitate growth and development.
- There have been increasing research attention to organic farming systems in Nigeria, but it seems apparent that more work is still needed.
- Organic farming is knowledge intensive and given the dearth of resources on some aspects of certified OF at present in Nigeria, tremendous amount of high quality technical research is needed and it is likely that researchers will be more stimulated to embark on research relevant to OF if their relevant professional associations or societies take issues of OF seriously.
- Research is assumed incomplete until the result has been transmitted to other researchers or relevant stakeholders.

Professional Agricultural & Non-Agricultural Soc. & Associations cont...

- There are several ways to relay new research results to the target stakeholders, but for OF that is still underdeveloped in Nigeria, it is likely that researchers' interest in the sector will be greater if special events such as conferences, colloquia, summits and workshops amongst others on OF are organised by various professionally associations within and beyond the agricultural sector.
- In addition, special publications also on OF are necessary also to attract researchers and other stakeholders towards embarking on research on some aspects of OF systems.
- It should be reiterated that even though OF is primarily concerned with food production, other broad issues it also aims at tackling simultaneously mean that professional bodies that can contribute significantly to facilitate the growth of certified OF in Nigeria transcends the agricultural sector.
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- For example, while the role the Agricultural Society of Nigeria (ASN, 2014), can play in facilitating the growth of OF in Nigeria seems apparent; the sector's other objectives such as environmental sustainability, human health, rural development amongst others clearly make the participation of professional bodies outside the agricultural sector such as the Economic Society of Nigeria necessary.

Professional Agricultural & Non-Agricultural Soc. & Associations cont...

- It is, therefore, obvious that various professional associations and societies particularly those in the agricultural sector have clear role to play in facilitating the growth and development of certified organic farming and food industry in Nigeria through basically three ways: encouraging their members to embark on research on various issues related to the sector; organising special events such as conferences, colloquia, summits, workshops, agricultural shows, field laboratories, and farm visits amongst others related to the sector, and establishing special Journals and other publications mainly targeted at the sector.
- Relevant professional bodies within the agricultural sector that will have substantial role to play in all or any of the three areas in order to facilitate the growth and development of certified OF in Nigeria include but not limited to: Agricultural Society of Nigeria; Animal Science Society of Nigeria; Horticultural Society of Nigeria; Soil Science Society of Nigeria; Agricultural Economic Society of Nigeria; Farm Managers Association of Nigeria; Agricultural Extension Society of Nigeria, and Veterinary Association of Nigeria.
- Similarly, other associations beyond the agricultural sector that will find OF useful to project through special events and /or publications include: Nigerian Economic Society, Nigerian Medical Association; Nigerian Geological Association; Nigerian Sociological Association; Geographical Society of Nigeria; Nigerian Bar Association, and the Nigerian Political Science Association amongst others.

Private Organic Research and Development Institutions

- Besides public owned reputable institutions mainly established to cater for organic farming and food industry, experiences from elsewhere indicate that active participation of reputable private organic institutions is needed in various areas including research and extension, input supplies and distribution, marketing, and general developmental issues (IFOAM, 2014; Soil Association, 2014).
- It is clear that the establishment of similar institutions will be highly needed in Nigeria in order to further boost activities related to certified OF in the country.
- In the UK, for example, the Organic Research Centre (ORC), Elm Farm in Berkshire has played substantial role in the growth of organic farming in the UK, and it is still an active stakeholder in the organic farming and food industry not just in the UK but Europe wide and to some extent globally (ORC, 2014).
- The ORC has several events and publications on certified organic farming and food industry, including its popular annual 'Organic Producers' Conference'. Typically, the conference draws participants from organic stakeholders including farmers, academicians, researchers, processors, marketers, certifiers and inspectors.

Private Organic Research and Development Institutions cont...

- I had the opportunity of attending the 2014 conference held in January, and it was very informative and enriching, and I will recommend such type of forum to be replicated not just in Nigeria, but also in other countries as a way of increasing the activities related to organic farming and food industry in order to facilitate the growth of the sector globally.
- In the USA, the 'Rodale Farming System Trials' has played and continue to play crucial role in the US organic farming and food industry largely in the areas of research and extension (FST, 2014).
- Organic farming requires long term for some of its benefits to the soil and indeed the wider environment to be apparent compared to other production systems (IFOAM, 2014; Soil Association, 2014 ; Barker, 2010; Duram, 2005; Zimmer, 2000; Lampkin, 1999), and the Rodale farming system despite being privately owned has some of the worlds long term organic trials (FST, 2014).
- It is apparent that private owned centres such as Rodale will be needed in Nigeria to further boost research, extension, and developmental activities in organic farming and food industry.

Federal Organic Farming & Food Industry Development Agency

- The previous sections have concentrated on existing public and private institutions that will have some roles to play in facilitating the growth of certified OF in Nigeria.
- However, if experiences of other countries such as the UK (Soil Association, 2014) and Turkey (Ozkan, 2003), are to be taken into considerations, it is likely that growth and development of the organic farming sector in Nigeria will be more enhanced if a specialized institution is established to harmonise and coordinate all programmes and projects targeted at growing the industry.
- Consequently, it is recommended that a new agency to be called 'Federal Organic Farming and Food Industry Development Agency (FOFFIDA)' which will be under the supervision of the FMARD be established.
- The proposed agency should work alongside other relevant public and private stakeholders at the federal and state levels to formulate enabling policies, programmes and projects aimed at moving organic farming and food industry forward in Nigeria.

Federal Organic Farm. & Food Industry Develop. Agency cont...

- Major functions the proposed agency can play to move organic farming in Nigeria forward include but not limited to :
formulating and implementing policies; carrying out awareness campaign to sensitize farmers and general public; helping farmers with conversion processes and procedures ; helping to implement policies such as conversion payments, post conversion payments and subsidies ; carrying out certification of organic farms , processing centres, food industries and/or products; carrying out certification and inspection of organic products imported into Nigeria, and issuing or authorizing organic stakeholders organic labels for their products.
- The proposed agency should also serve as regulator and inspector of private certification bodies and organisations; supplying and distributing inputs to the farmers ; linking farmers with organic markets locally and internationally ; carrying out capacity building programmes for organic stakeholders; carrying out research and extension activities ; conducting events such as conferences, colloquia, summits, workshop etc; establishing linkages and collaboration with relevant public and private institutions in Nigeria, and to assist state and local governments to establish similar agencies or assist them on any issue related to OF. 93

Federal Organic Farm. & Food Industry Developpt. Agency cont...

- It is likely that once a specialized agency has been established at the federal level, the 36 Nigerian state governments and indeed, the local governments might establish similar outfits since in Nigeria most federal policies, programmes and projects are trickled to the states and local governments.
- However, already there are several agencies at the federal levels and government current focus appears to be towards merging or even abolishing some.
- Whilst this may be the required thing to do for some agencies that may be duplicating functions or are redundant, I do not think this should stand against the way of establishing a specialized agency for certified OF.
- It should be stressed that the market for certified organic products is huge and is still growing globally and it will be senseless for Nigeria not to tap into the market in order to improve the welfare of its resource poor farmers and other stakeholders most of whom are already involved in uncertified OF due to traditional farming life style or socio-economic factors that have made their access to conventional inputs impossible.

Federal Organic Farm. & Food Industry Developmt. Agency cont...

- Assuming the government think establishing an agency solely devoted to organic farming and food industry is not necessary or may be too much a cost to bare, rather than not having any outfit to project the growth of certified organic farming it is proposed that at least a specialized department be established at the FMARD or in one of its relevant agencies .
- The proposed department can be called names such as 'Department of Organic and Food Industry', 'Department of Certified Organic and Ecological Farming and Food Industry' or simply 'Organic Farming Certification, Inspection and Development Department'.
- The proposed departments ideally should perform functions and activities as were detailed in respect of the proposed 'FOFFIDA' discussed above.
- It may also be that the government might prefer that issues related to OF be dealt with by a specialized committee.

Federal Organic Farm. & Food Industry Developmt. Agency cont...

- If establishing agencies or department is not acceptable, the proposed 'Nigerian National Council on Organic Agriculture' discussed in the earlier section of this paper can ideally be the right body to handle such issues.
- Even if specialized agency and/or departments have been established, it will still be useful if such body serve as the highest policy making platform for the sector.
- Assuming no specialized agencies and/or departments have been established for the sector, then the proposed 'Nigerian National Council on Organic Agriculture' ideally should be responsible for formulating policies , setting standards and regulations, and harmonizing practices and activities related to organic farming, in order to facilitate the growth and development of the sector in Nigeria.

Conclusions

- Experiences from other countries indicate that certified organic farming and food industry requires active participation of both public owned and private owned institutions, organizations and groups in order for the sector to grow.
- This paper had detailed institutional requirements needed for the growth of certified organic farming in Nigeria from its present infant stage.
- The paper concludes that various stakeholders within and beyond the agricultural sector in both public and private sectors are needed as active participants to facilitate the growth of the sector in Nigeria.
- However, in order to facilitate rapid growth and development of the sector in Nigeria, it was concluded that a new institution to be called 'Federal Organic Farming and Food Industry Development Agency (FOFFIDA)' be established at the federal level with similar agencies or outfits established at the state and local government levels.

Thank You for listening