An Analysis of the Impact of the Oil Boom on Agriculture and Agricultural Research in Northern Nigeria, 1970-1987.

ALOKO, Sunday Moses Adebayo
Postgraduate Student, Department of History, Faculty of Arts, Kaduna State University (KASU), Kaduna, Nigeria.
Email: smaaloko@gmail.com

Abstract

Since the 1970's, food security has eluded Nigeria despite its indisputable agricultural potential and abundant human resources. The current imports of over $10 billion of food stuffs and other agricultural products to make up for the shortfalls only serve to demonstrate the scale of the crises. In the first decade of the country's independence, however, food was in abundance and was also the major source of foreign earnings. The paper traces the origin of the Nigerian agricultural Crises in both colonial and post-Colonial periods. To achieve this, it adopts the qualitative method of research which relies on the collection and analysis of primary and secondary data. It argues that the foundation of the crises was laid by Britain which deliberately prioritised export crops over food crops and linked the agricultural sector to their industries at the expense of local industries during the colonial period. It also contends that the failure of the Nigerian leadership to undo colonial agricultural trajectories as well as the costly mistake made during the oil Boom era which saw agriculture de-emphasised in the country's economic life worsened the situation. Consequently, budgetary allocation for agriculture and research reduced drastically, which slowed down agricultural development and the economy in general. The study concludes that for any meaningful economic development to be achieved in Nigeria, the economy has to be diversified and the traditional leading role of agriculture must be revived and linked to the budding industries. In this regard, the critical role agricultural research has to play was brought to the fore.

Key Words: Impact, Agriculture, Agricultural Research, Oil Boom, Northern Nigeria, IAR.

Introduction

The agricultural sector which supplies substantial amount of food in which the livelihood of Nigerians largely depend on has been denied its rightful place in the scheme of national growth and overall economic development of the country. To say that it has been relegated to an abysmal background would amount to stating the obvious as it has become stagnated, or at best, has been on recession. Thus, the nation's decades-long aspiration of achieving self-sufficiency in food production has become a tall dream. Feeding the steadily increasing population has become a national problem. Ironically, however, it has been observed by researchers in the Institute for Agricultural Research (I.A.R) that there is hardly any crop grown in the tropics that cannot be grown in Nigeria because the country is blessed with a vast underdeveloped and virgin land, much of which is under-utilised and mismanaged. The corollary of such under-utilisation is the continued waste of abundant human resources often classified as unemployment.

Gone were days when Nigeria was known for comfortably feeding its population as well as exporting various crops to obtain foreign exchange and add to its national income. The Kano pyramid in the north of the country, the sustained palm oil production in the Eastern region and cocoa in the Western region once symbolised the country's leadership in agricultural production. These achievements were not divinely given; neither were they accidentally or incidentally attained. They were achieved through research into agriculture that dates back to the colonial era, which the IAR played a leading role that was sustained in the first decade of independence. However, since the 1970's, things have changed for the worst as the oil sector gradually assumed prominence and comprehensively overtook agricultural output to a level where it contributed 90% of the country's foreign exchange earnings and became the only domineering parameter in the nation's Gross Domestic Product (GDP).

Misguided policies by the government relegated both agriculture and research activities to the background due to the huge petro-dollar money made from oil exploration and sale which made it the government's major priority in the national economy. Thus, the oil boom spelt more doom than boom to the Nigerian economy as it occasioned a reckless spending on elephant projects instead of the diversification of the economy through investment in agriculture, agricultural research and other productive sectors. While there is a compendium of scholarly works on the nexus between the underperformance of Nigeria's agricultural sector and the policies of successive administrations since the oil boom era, there is paucity of writings on the neglect of its inextricable component; agricultural research in the discourse of the crises. It is this lacuna the paper attempts to fillowing to the fact that the setback the application of science and technology to agriculture witnessed in the period affected agricultural production and performance in all ramifications. Thus, this paper examines Nigeria's transition from an agriculture-centred economy to a petrol-centred one and the attendant consequences on agricultural development and the economy of the country in general.

The Relationship between Agricultural Research and Agricultural Growth and Development

Agriculture is a primordial activity in Nigeria. It was the mainstay of the country's economy in both pre-colonial and colonial times. In pre-colonial times, for instance, farmers concentrated more on food crop production in order to meet the

food requirements of their various societies. In the process, a high level of specialisation developed and resulted in excess production of cotton, guinea corn, millet, maize, tobacco etc. which created the need for a market system that makes possible the exchange of goods and services both within and without the communities (Aloko, 2014). Thus, an exchange based economy had developed before the conquest and imposition of colonial rule on the people by the British contrary to the claims by colonial historiographers that they were non-existent. However, the expansionist tendencies which characterised capitalist development in the late 19th century engendered the exploitation of Nigeria's human and natural resources. Colonialism not only transformed the nature and pattern of agricultural production but also shifted focus to cash crops production.

The colonial government had realised that the agricultural sector in Nigeria had the potential to facilitate the process of industrial and economic development in Britain. It was also not ignorant of the relationship that exist between agricultural research, its application to agriculture and overall economic development. They knew that a creative and dynamic agriculture is dependent on agricultural research that is capable of helping local farmers to re-adjust to agro-ecological and structural changes which tend to impede on agricultural productivity.Agricultural research is indisputably the major source of information for policy makers and planners who provide funds for the development and transfer of technology to farmers whoprovide feedback to agricultural scientists on which technological components function well and those in need of further improvement. This brings to the fore the role of agricultural researchers in the dissemination of their findings to practicing local farmers and that of the government which invests into agriculture in order to promote agricultural growth and development andlink it to industries in a way that contributes to employment creation, reduced rural-urban migration and address the challenges of poverty and hunger.

Consequently, agricultural research centres and extension services were considered very critical for the improvement of seeds, quality of yield and training of manpower in the practice of colonial agriculture. It was on this note that agricultural research started in Western Nigeria in 1893 when Sir Claude McDonald established a botanical garden in Lagos to introduce new crops into the country. In 1899, the British Cotton Growers Association (BCGA) also established the Moor Plantation at Ibadan for experimental work on cotton and in 1905, the British Cotton Growing Corporation research was set up but abandoned in 1910 (Ijere, 1974). In the Northern part of the country, the major research centre established was the Agricultural Station at Samaru, Zaria, Kaduna in 1922, which was renamed the Institute for Agricultural Research (IAR) in1962 soon after the attainment of independence to serve Nigeria's agricultural needs against its former colonial mandate (Aloko, 2015).

From a historical perspective,Nigeria's agricultural problem is traceable to the expansion of cash crops production at the expense of food crops production during the colonial period. More disturbing is the fact that the export bias created by the colonialists continued at independence partly due to the need for foreign exchange with which to import other products. The result of the export biases in the country's agriculture is shortages of basic foods. Nevertheless, agriculture sustained the colonial economy and significantly furthered British industrial and economic development. On this backdrop, the Nigerian ruling elite at independence recognised the role

agriculture had played before independence and prioritised it above other sectors of the economy. This resulted in huge investments into agricultural research and production before the 1970's (Shaib, et al, 2010).The question that naturally arises is, if agriculture in colonial Nigeria could drive the economy successfully, why has it not done same for independent Nigeria?

The obvious lack of agricultural development is neither the result of a meager endowment of natural resources nor the lack of manpower. The history of agricultural development has shown the critical role of government in fostering favourable policies and enabling environment for the practice of agriculture. In the first place, the government fosters agricultural growth and development through huge investments-in both budgetary and policy terms. Secondly, the government works toward agricultural development by protecting farmers from foreign producers and by providing incentives such as loans, fertilizers etc (Nurkse, 1953).

But in the case of Nigeria, there have been no consistent plan or blueprint by colonial administrators for Nigerian agriculture but there was nonetheless a clear-cut policy of what role agriculture was expected to play in satisfying the economic needs of Britain. As such, agriculture was divorced from manufacturing in order to hinder the process of industrialisationin Nigeria. Disappointedly, Nigeria's post-colonial administrators followed the trajectories of colonial agriculture by failing to link it to local industries. For as Lewis rightly observed:

> ***Industrialisation is dependent upon agricultural improvement; it is not profitable to produce a growing volume of manufactures unless agricultural production is growing simultaneously. This is also why industrial and agrarian revolutions always go together, and why economies in which agriculture is stagnant do not show industrial development (*Lewis, 1954, p.433).**

The historical record to which Lewis alludes to show a strong link between consistent agricultural growth and industrial development in the light of what happened in the first home of industrial development (England) in the eighteenth century. The revolution in industries would not have been possible without the agricultural revolution that preceded it. Therefore, a conscious and a deliberate effort must be made to link agriculture to industry because expanding agricultural production through technological change and trade creates important demands for the outputs of other sectors, notably; fertilizer, transportation, commercial services, and construction.

Hence, the major factor militating against agricultural development in Nigeria is policies that impede growth rather than induced appropriate technical and institutional innovations for agricultural development. These policies which include but are not limited to prioritising export crops over food crops and the lack of political will on the part of successive leadership in Nigeria to link the agricultural sector to the industrial sector were accentuated by those of the oil boom era of the 1970's that re-oriented the household demand for agricultural food

items towards imported substitute which the country is yet to recover from. This has discouraged agricultural production beyond subsistence level and has also made the widening gap between the potential and the actual productive capacities of Nigerian agriculture more pronounced (Attah, 2012).

The Impact of the Oil Boom on Agriculture

Nigeria's agriculture suffered two major setbacks in the 1970's. The first was the drought years of 1972-74 which affected local food production and also drastically reduced the country's traditional exports of groundnut and cotton (Abdullahi, 1994). This coincided with the time when Nigeria's crude oil production had phenomenally increased and the international oil price was very attractive. The enormous revenue that accrued from the emerging oil sector provided an immediate relief such that policy makers decidedly abandoned corrective measures that would have restored agriculture to its traditional role. Also, ill-conceived industrialisation policies and strategies, involving expensive industrial projects that relied heavily on the importation of raw materials were pursued instead of a lasting solution to the drought (Abdullahi, 1994). Nigeria was in the process further integrated into the capitalist world economy as a dependent partner that consumed virtually everything and produced little or nothing.

Between 1960 and 1967, the volume of export crops increased at an annual compound rate growth of 4-6%. Staple food output also expanded more or less in tandem with population growth from 82% in 1960 to 89 in 1967. Consequently, the Food and Agricultural Organisation (FAO) projected food surpluses in the seventies if the food sector was allowed to take care of itself but the oil boom became a hindrance. Between 1970 and 1976, Gross National Product (GNP) grew at an annual rate of 7.4% and per capital stood at 5.4% per annum (Watts, 1983). The growth recorded was accompanied by a gradual oil sector ascendancy as reflected in the table below:

Table 1: Comparison of National Output (in Percentages)

Sector	1970	1975	1979
Agriculture	43.8	28.1	22.4
Oil and mining	12.2	14.2	25.0
Manufacturing	7.6	10.2	5.1
Building and construction	30.0	36.2	37.8
Total	100%	100%	100%

Source: Watts, M: Silent Violence: Food, Famine and Peasantry in Northern Nigeria, p.470

By 1975, agriculture reportedly accounted for only 28.1% of the national output while the contribution of petroleum to Nigeria's revenue and to GDP between 1964 and 1974 increased from 4 to 80% and from 3 to 46% respectively (Watts, 1983).These changes in sectorial contributions to national income is indicative of a stagnant agrarian economy as shown in the table below:

Table 2: Sector Growth Rates in the Nigerian Economy in Constant Prices (in Percentages)

Period	Agriculture	Oil and mining	Manufacturing	Building and construction
1960-65	2	38	15	10
1966-69	1	8	6	1
1970-75	-1	12	14.5	21

Source: Food and Economic Development in Nigeria, Ojo, M.O, p. 28

Between 1970 and 1975, total farm output in Nigeria fell by 0.2% (Ojigbo, 1979).The severe harvest shortfall in 1972 and 1973 in addition to the rising importance of crude oil production in Nigeria accounted for the fall.

It is instructive to note that Nigeria's oil deposit was first discovered at Araromi area of Ondo State in 1908 by a German company known as the Nigeria Vitumen Corporation. However, their pioneering efforts were halted by the outbreak of the First World War in 1914 (Steyn, 2009). Significant oil exploration began in the late 1930's but was also suspended as a result of the Second World War. Oil exploration resumed in 1951 and the first major discovery was made at Oloibiri in the Niger-delta in 1956 where oil production on a commercial scale started in 1958 (Okorobia, 2018). At independence, Nigeria had 4 fields in the Eastern Region and 2 in the Western Region butby 1968, there were 150 production fields which were linked by a lattice of pipelines to export terminals in the Niger-Delta region alone.

The term oil boom is used to describe the 1970's when crude Oil became very important in Nigeria's national life as a result of the huge petro-dollar that flowed into country. The boom was the result of tremendous increase in price caused by the decision of Arab-oil producing countries to impose an embargo on oil export to Western countries in order to influence their foreign policy thrust which they believed was anti-Muslims. This decision by the Organisation of Arab Petroleum Exporting Countries (OAPEC) was the consequence of the Yom Kippur War (the 1973 Arab-Israeli War) in which Israel defeated a number of Arab states. The embargo crashed the United States (US) stock market and impacted its economy negatively (Majd, 1989). They therefore had to search for an alternative market to mitigate the effects. By virtue of the light gravity and low sulphur content of Nigeria's crude oil, it became very attractive for oil companies, which acquired a handsome premium. In 1961, production was 46, 000 barrels per day (b/d) but the construction of trans-Niger pipeline in 1965 and the exploitation of offshore fields increased it to 275, 000 b/d and to 420, 000 b/d prior to the civil war which started in 1967 and ended in 1970. It is worth noting that the daily million marks was surpassed in 1970 despite the disruptive civil war years and by 1973, it had doubled to 2.06 million b/d (Majd, 1989).

When Nigeria joined the Organisation of Petroleum Exporting Countries (OPEC) in 1971, the Nigerian National Oil Corporation, renamed the Nigerian National Petroleum Corporation (NNPC) in 1977 was created as an institutional machinery for partnership with foreign oil companies. By the late 1979, NNPC production had risen to 1.7 million b/d from its joint ventures, which made it one of the world's largest sellers of oil. By 1972, it was obvious that oil was on course to replace agriculture as the mainstay of the economy as it constituted 83% of Nigeria's exports. After OPEC's initiatives which raised the price of crude oil in 1973, Nigeria's terms of trade improved threefold (World Bank Report, 1980), a gain

which roughly equaled to 15% of the 1974 GNP as shown in the table below:

Table 3: Petroleum Production and Revenue

Year	Index of crude petroleum (million b/d)	Index of crude petroleum exports (million Nairas)	Index of volume of crude petroleum exports (million b/d)	Index of crude petroleur export Price (Naira's
1973	115	1, 933	116	33
1974	126	5, 665	128	94
1975	100	4, 593	100	100
1976	116	5, 894	100	108
1977	117	7, 046	116	122
1978	206	6, 033	120	118
1979	129	10, 034	108	174

Source: International Financial Statistics, vol. xxx111 12(1980, p.288)

Oil share in federal government revenue rose from 17% in 1971 to 71% in 1973, and to 86% in 1975. Total spending rose from less than 20% of GNP in 1970-73 to 35% in 1974-77. These developments show the gradual decline of the role of agriculture in Nigeria's economy and the steady rise of on an oil base economy which started during the Yakubu Gowon's administration and continued after his years in office.

Perhaps the most obvious aspects of the impact of the oil boom on Nigeria's agriculture has been the tremendous surge of imports. In 1973, for instance, imports stood at 1 billion Naira and reached N14.6 billion Naira in 1981 (Cited in Ramanova, 2007, p.20).The table below presents a statistical figure of Nigerian increasing imports in millions of Naira from 1974-79:

Table 4: Nigerian Imports in Millions of Naira

Principal imports	1974	1975	1976	1977	1978	1979
Food and live animals	155.2	232.0	441.8	790.3	1, 108.6	699.0
Drinks and tobacco	9.1	19.6	63.7	146.8	57.7	5.0
Crude materials	63.4	67.0	79.3	70.7	113.6	92.5
Mineral fuels, e.t.c	50.9	92.0	181.2	136.8	181.2	111.6
Oils and fat	3.6	6.8	241.7	46.8	81.8	60.2
Chemicals	188.7	284.0	398.4	464.9	680.4	392.0
Manufactured goods	512.1	888.0	1, 135.7	1, 581.9	1, 970.2	973.6
Machinery and transport	608.3	1, 306.0	2, 447.4	3,528.8	3, 759.4	1, 720.6
Misc manufacturers	113.4	208. 0	351.4	516.8	668.2	197.8
Others	10.7	8.2	8.5	13.0	13.8	12.0
Total	N1, 715. 00	N3, 717. 0	N5, 140.0	N7, 100	N6, 524	N4264.5

Source: Quarterly Economic Review of Nigeria, 1980.

Although wages increased by 159% between 1971 and 1978, the price level of wage goods leaped by as much as 800% (Cited in Ramanova, 2007, p.20). The collapse of the local food sector and the high inflation that followed systematically reduced the standard of living of the people despite the country's massive oil returns. Part of the problem is that the raw materials needed by nascent manufacturing industries in the country diminished abruptly and were replaced by imports which required large chunk of foreign exchange.In the process, the cost of production and prices of manufactured goods increased. Regrettably, these were raw materials that

could have been produced locally through concerted research efforts at IAR and other research institutes if adequate investment in agriculture had continued during the oil boom era.

The impact of oil revenue on Nigeria's agriculture could also be seen in the provocative producers' price offered by the government for foodstuffs in the 1970's which were far below producers cost. For instance, the prices offered by the National Grains Board in 1977-78 for millet and sorghum were 20-50% below estimated production cost (World Bank Economic Memorandum, 1979).

Consequently, a culture of diversion or attraction of large labour force to other sectors of the economy such as business, civil service, oil and others too numerous to mention evolved as the orientations of the people towards agriculture was negatively impacted. Farming which was once lucrative and the pride of many rural dwellers became unrewarding and was considered a profession for hopeless peasants and the not-well-to-do villagers. It thus became a last resort for those in abject poverty to fend for their families. Export crop production was not an exception to the free fall of the period.The resultant massive rural-urban migration made labour shortages endemic in agricultural development. Hence, agricultural labour productivity has become increasingly low because farm households are largely comprised of fairly old people and very young children and the farmers lacked improved hand tools and implements which would enable them to raise their yields (I, Gandu, Personal Communication, March 20, 2014). The movement of labour away from agriculture as a result of rural-urban migration was relatively gradual between 1960 and 1970. It however became rapid in the 1970's because the earnings from petroleum export in urban construction industries created employment for unskilled labour (J, Faleke, Personal Communication, December29, 2022).

The Impact of the Oil Boom on Agricultural Research at IAR

The government's regrettable neglect of agriculture and agricultural research due to its contentment with the petro-dollar economy undoubtedly spelt doom to the country's hope of an agrarian and industrial revolution that is capable of fostering sustainable economic development. The development had a far reaching consequence on agricultural research because the level of government subvention through the Federal Ministry of Science and Technology, which was the major source of funding for agricultural research institutes (up till March, 1992) was not only inadequate for the actual needs of research but has also been on a steady decline since the late 1970's. Inadequate funding led to the closure of some of the sub-stations of the IAR, suspension of many key research projects of national importance, drastic reduction in the number of trials/experiments sited at state locations, inability to procure many essential research equipment and spare parts and inability to procure up-to-date journals and titles for the Agricultural Library since 1984 and a 40% reduction in the Institute staff strength in 1985 (Noma Magazine, 1996).This has significantly curtailed the research capability of IAR and other allied agricultural research institutes in the country.

Similarly, the Empire Cotton Growing Corporation (ECGG) which was attracted to IAR soon after its re-organisationin 1962 and invested so much into cotton research across the Northern region departed the country in the early1970's. The departure of the ECGC was a big loss to the country's agriculture and agricultural research because it

contributed tremendously in sustaining cotton production after the demise of colonial rule. Its contribution could be seen in the fact that cotton was the only crop with a separate section under its team of specialists from London who supported a team of cotton breeders, agronomists and entomologists at Samaru (Aloko, 2014). Their input was noted to have madecotton research and farming the most stable of all the research sections at IAR. However, the impact of the oil boom which permeated every sections of research made their continuing involvement uninspiring and unrewarding. Consequently, the tide change as cotton output reduced drastically

Hence, IAR's big dreams within the period could not be realised due to poor funding. Similarly, its ability to make further impact on agriculture was impaired. For instance, in order to give adequate coverage to its area of mandate, IAR at one time maintained six well-staffed and well equipped sub-stations. Three of these: namely, Mokwa (Niger state), Yandev (Benue state) and Kano (Kano state) were devoted to rain fed agriculture while the other three at Bakura (Sokoto state), Kadawa (Kano state) and Ngala (Borno state) were to solve problems of irrigated agriculture (Aloko, 2014). However, due to insufficient funds occasioned by the oil boom, the animal husbandry section at Shika known as the animal stock farm was taken away from IAR and given a National mandate on animal production research, known as National Animal Production and Research Institute (NAPRI). The Nigerian Government also eventually handed over the Ngala station to Lake Chad Research Institute (LCRI) in 1978; Mokwa and Yandevstations were closed down in 1985 and Kano/Minjibir and Kadawastations were merged under one administration in order to manage the meager resources made available for research (This is IAR, 2010).The close down of Mokwa and Yendev and the merger of Kano and Kadawa sub-stations into one led to the retrenchment of 594 out of the institutes total staff of 1, 478 (Noma, Magazine, 1996).

Thus, Nigeria's penchant for cheap oil money made it to spend billions of Naira importing what it can produce and export through sufficient funding of agriculture and research simply because the oil boom of the 1970's and the huge money it brought in hard currency pushed agriculture to an insignificant position on the scale of national priority. The economic cluelessness and managerial bankruptcy of Gowon led to a spending spree of the stupendous wealth from the sale of petroleum without devoting substantial part of the money towards boosting the agricultural and mining sectors which made tremendous contributions to the country's GDP before the rise to eminence of oil.It is instructive to note that successive governments after him followed suit.

This was aggravated by state corruption which concentrated the wealth that accrued from oil export in the hands of the privilege few at the expense of the poor majority who have continued to endure poverty. Although the Murtala/Obasanjo and AlhajiShehuShagari administrations made successive attempts at combating the challenges of agriculture with the view of restoring food sufficiency achieved in the first decade of independence through their Operation Feed the Nation (OFN) and Green Revolution (GR) programmes, such self-serving and uncoordinated efforts have failed to push agriculture in Nigeria to regain its status as a major contributor to the economy, national development and a proud occupation in rural and semi-urban communities (Ojigbo, 1979).

However, it is important to note that the financial constraints IAR suffered during the period of the oil boom did

not deter its research efforts completely. Considerable progress was made in crop research programs in collaboration with the International Institute for Tropical Agriculture (IITA) and other foreign agricultural bodies, universities and the Ford Foundation. The support that came from these foreign bodies had implications for Nigeria's agricultural research. Research efforts mostly focused on crops the supporting bodies were interested in and paved the way for further neo-colonial intrusion into the country's dwindling agriculture.The foreign aids which augmented the little research funds allocated for agriculture and research made it possible for the IAR to continue the improvement of seeds up to 1987. These seeds were reported to have early maturing periods, were high yielding and were patronised both within and outside Nigeria. An example can be seen in the table below:

Table 5: Varieties Based on Beniseeds (Sesame) Yield on Various Locations and Remarks

Variety	Locations	Remarks
SAMSEM- (E-8)	Yandev, Mokwa, Osara Wukari and Serti	Medium white large, seeds mature 75-78 days
SAMSEM-2 (PBTIL No. 1)	Yendev, Mokwa, Wukari and Serti	White large, seeds mature 78-80 days
SAMSEM-2 (65B-28	Lafia, Doma, Yandev, Saminaka, Dura and Mokwa	White and medium-size seeds. Matures 80-85 days.

Source: This is IAR Occasional publication, 1996.

Other improved varieties were developed by the IAR within the period of this study are SAMSORG-20 (Samaru improved Sorghum); the Maiwa Composite SAMMIL-4, Bristle Composite (SAMMIL-5, SAMMIL-6) and SAMMIL-7 (Samaru improved millet seeds);SAMWHIT-6, SAM WHIT-7 and SAMWHIT-8 (Samaru improved Wheat seeds); SAMCOT-9 and SAMCOT-10 (Samaru's improved Cotton seeds); SAMSOY-1 and SAMSOY-2 (Samaru improved Soybean seeds); SAMNUT 1-17 (Samaru improved groundnut seeds); SAMPEA 1-7 (Samaru improved peanut seeds) etc.

IAR Extension Services and the Response of Local Farmers to New Seeds and Technology

Agricultural extension is the link between research outcomes and farmers. It is also a programme that geographically extends the educational resources of an institution to persons who otherwise would be unable to take advantage of such them (Yazid, 1994).The extension services of IAR carried out by Agricultural Extension and Research Liaison Services (AERLS) was designed to offer assistance to farmers; help to identify and analyse their problems and to make them aware of existing opportunities for improvement through improved methods, techniques and tools. The system of extension was based on crop demonstration, training and visit under the Agricultural Development Programme (ADP) system. Under this system, extension specialists from IAR and extension workers meet regularly and carry out visits to farmers (Yazid, 1994). Through this process, the problems of research were taken to IAR and results of research were communicated back to farmers.

The adoption of new seeds and technologyby local farmers was not easily achieved. The reasons are not far-fetched; the oil boom era had rendered agriculture unattractive. Secondly, the Marketing Boards were very exploitative to the farmers who considered the adoption of improved seed unrewarding (M.

Balarabe, Personal Communication, December 26, 2022). These unfavourable prevailing conditions made it necessary for IAR to come up with initiatives capable of attracting the interest of the farmers in Zaria. It is against this background that it encouraged the formation of Farmers Association among farmers in Zaria and its environs as a channel for disseminating its finding for adoption. The farmers' associations formed were the Bomo group, Shika group, Bassawa group, KurminBomo group, Kudungi group, Miligoma group Giwa group, and others not mentioned (P. Ndahi, Personal Communication, November 17, 2022). All these groups were seen as channels to the entire farming population of their respective villages.

Also, through its monthly Technology Review Meeting (TRM), technological and preseason trainings were offered to the above Farming Associations on rotational basis and also spread across various states, especially in the Northern Nigeria. For example, during preseason, farmers were given the opportunity to plan ahead of the season with new seeds varieties, fertilizers, farm inputs and agro-chemicals (Noma Magazine, 1996). NGOS were also invited to assist the farmer groups and also the women in agriculture group to cross-check outdated fertilizers and fake chemicals which affect harvests.

It is instructive to note that though the initiative was helpful, it was limited and did not produce the desired outcome. For instance, (NAERLS reports, 1989-1992) showed many problems which farmers faced and sent to research institutes to provide a future guideline for extension services. The report shows that the use of leading farmers as contact groups or association for extension workers limited the scope and effectiveness of extension services as the local farmer leaders do not always disseminate accurate information to other farmers. Some were also reported to have hoarded vital information meant for their respective communities for selfish reasons. Investigations into the scheme also revealed that some of the extension workers did not reside in the villages where they were meant to work but only visited them occasionally (NAERLS Reports, 1989-1992).

Also, IAR carried out annual research review on cropping scheme and performances across several states in the country and disseminate the information to farmers on field days, during exhibitions; agricultural shows to get the farmers equipped with research findings for use in the subsequent season. On the part of the farmers, visits to IAR were made for the collection of new improved seeds and firsthand information on their cultivation practices and outcomes provided to agricultural researchers (K. Fajimi, Personal Communication, January 4, 2023). While some were bought, others were given for free to the villagers as the case may be. Some of the village associations also visited IAR for training on some specific needs. Hence, a dialectical relationship was established to ensure farmers co-operate more meaningfully with agricultural scientists and researchers.

Occasionally, the extension workers visited tertiary, secondary and even primary schools. They went along with published leaflets and handouts to create awareness of their findings. They also utilized the mass media such as radio and television for adverts in various languages for the benefit of those who do not understand the English language. An example of such programmes in the Hausa language is the **Noma Karkara**(to farm in the countryside) (A. Usman, Personal Communication, January 10, 2023). The programme was designed to encourage farmers in the villages not to give up on farming and remind them of what they stand to benefit from it. When a new seed was developed for trials, the Farmers

Associations were given the seeds, fertilizers, agro-chemicals, technical know-how, expertise and specialists to assist them in the cultivation of the crop. This practice had dual importance. In the first place, it enabled the IAR to determine the performance of the improved seeds and problems encountered during farming season for further research and improvement. Secondly, it encouraged the farmers to adopt both the seed and the technology required for its production. According to Lukeman Abdul, due to financial constraints,Kudungi farmers were unable to buy IAR's improved seeds and technology. To surmount the challenge by a way of encouraging farmers to adopt improved seeds and technology, IAR offered farmers fertilizers and seeds and demanded they pay half of the amount and complete the balance after harvest. In addition to that, they were at times assisted with tractors to aid their farming activities (Personal Communication, November 18, 2022).According to him, this was one of the major factors behind the adoption of IAR's improved seeds in Kudungi and other villages in Zaria.

Therefore, IAR extension services influenced the positive response of the rural farmers to the improve seeds and innovations despite the lack of enthusiasm occasioned by the aftermath of the oil boom through education, incentives and information exchange. The success of the extension process was achieved in an atmosphere of openness, mutual trust and respect on the part of both extension workers and rural people. As a service, agricultural extension made the institute as useful to the people who supported it through practice and the outcome of practice communicated back to the research institute. Thus, the argument that the broader function of extension work is to help people to solve their own problems through the application of scientific knowledge found full expression in IAR's relationship with farmers in Northern Nigeria and other parts of the country.

Conclusion

To say that the Nigerian economy is in desperate need of a lifebuoy may amount to stating the obvious. This is particularly true in the light of the relationship between the potential of the country and the current state of its economy and people. The fact of the matter is that the rich human and natural resources have not translated into meaningful and sustainable development for the country and its people. The neglect of agriculture and agricultural research as a result of the oil boom era of the 1970's has been identified as the root cause of the problem. The country's regrettable management's decision has had a lasting impact on the economy in general because it has also accounted for the relegation of the country's manufacturing and mining sectors to an abysmal background. Little wonder why in spite of Nigeria's vast, unexploited land and waters which support the cultivation of food and cash crops and animal husbandry, it has made little contributions to the country's foreign exchange earnings. It has also been unable to supply the needed raw materials for the country's budding industries; some of which have died while others are gradually dying. The implications have been failure to achieve food security and over-reliance on imported goods which are usually very expensive, especially for the poor masses. The earlier the country realises that the best and most reliable source of food is through home-based agriculture, the better for it.Thus, Nigeria's inclusion in the list of poor countries is the result of poor leadership that has repeatedly failed to convert abundant human and natural resources into wealth for the benefit of all.

The decline in oil revenue in recent times beckons on the Nigerian government to revisit the place of agriculture in the overall economic development of the country. Similarly,energy diversification which is gradually reducing global dependence on oil points to a dim future for the country if attempts are not swiftly made to diversify the economy across board. It is therefore the submission of this paper that agriculture should be given a second thought in the national attempt to diversify the economy and set Nigeria on a path to agricultural development that is capable of culminating into industrialisation, which the nation is in dire need of. In line with this, effective and efficient research into agriculture is particularly inevitable. Thus, the government should step up its funding of research in IAR and other agricultural research institutes across the country. Attempts should also be made to link the agricultural sector to industries so that as the agricultural sector provides the industries with the needed raw materials for manufacturing goods, the industries will on the other hand pave the way for agricultural mechanisation, a critical step towards an agrarian and industrial revolution.

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