RICE SELF-SUFFICIENCY: A REVIEW OF GOVERNMENT POLICIES ON RICE PRODUCTION.

[1]Abdulwaheed.A,[1]Opadotun. O.O and Amusat, M.A.

[1]National Centre for Agricultural Mechanization (NCAM), Ilorin, Kwara State.

e-mail: hopeopa@yahoo.com

Abstract: The need to make Nigeria self-sufficient in rice production necessitated the introduction of improved ways of producing, processing and storage through various government inter interventions to enhance domestic rice production in the country. Attaining self-sufficiency in rice production involves strong policy formulation and implementation aimed at infusing improved seeds, machines and techniques into rice farming. Several policies had been introducedin the past but failed to achieve the desired target of increasing local production to a level of self-sufficiency and exportation. Policy gap from successive administrations, corruption and insincerity on part of driving agencies also contributed to this debacle. This study was therefore carried out to review the policies, constraints and recommend viable solutions to achieving this goal.

Keywords: Self-Sufficiency, Interventions, Production and Implementation.

1.0. INTRODUCTION

Over the decades, rice has occupied a prominent position as a strategic crop for food security and economic development in many nations of the world. The world rice consumption has been estimated at an annual growth-rate of four (4) percent; the estimated consumption rate higher in Africa. According to Ochigbo et al (2013), Nigeria would require between 6.41 and 7.12 million tons of milled rice to meet her consumption need by 2015 with a conservative consumption rate of four (4) percent per annum. It has become evident from the recent global trend in rice industry that there is a growing import demand for the commodity in Africa.

Rice is said to rank sixth in Nigeria in terms of production in relation to crops like sorghum, millet, cassava, and yam (Singh et al. 1997).It has emerged as one of the fastest growing agricultural sub-sector and has moved from a ceremonial to a staple food in many Nigerian homes within the last two decades, such that some families cannot do without rice in a day. Nwachukwu (2008) reported that as a staple food in Nigeria, rice accounts for 40 percent of the diet of the country's population but production has been growing at a slow rate relative to consumption within the last years. Nigeria ranked second largest importer of rice in the world after Indonesia. If the present import scenario persists, huge import bill would be expended on rice. The future may even be gloomier, considering the rice prices in the world market which have risen by as much as 40 percent are predicted to rise further. The enormous rice importation has been considered by various governments/regimes as an avoidable drain on the country's foreign exchange earnings in view of the abundant natural endowments for expanded rice production in Nigeria. Adequate, appropriate and sustainable policies on rice production need to be made to combat the foreseen gloom that can befall the country if it continues to rely on importation of most of the consumed rice and neglecting local production.

In its efforts to enhance food security through improved rice production, the adoption of improved varieties, cultural practices and best bet post-harvest practices, the Federal Government of Nigeria established the National Cereals Research Institute (NCRI) with a

national mandate for genetic improvement and conduct of research into rice production, processing and utilization technologies. So far, NCRI using modern breeding technologies in collaboration with its national and international partners has released 62 improved rice varieties, which has enabled farmers across the Country increase their yields and income.

Therefore, this study was carried out to review various government's policies to improve rice production in a way to attaining self-sufficiency; the constraints to achieving this and the way forward to make Nigeria one of world's rice exporting nations in the nearest future.

2.0. RICE PRODUCTION SYSTEMS IN NIGERIA AND THEIR GEOGRAPHY.

The system of rice production in Nigeria is mainly through traditional methods which have been in existence many decades. The average rice yield on farmers' field had been described as generally lower (1.8-2.0 tones/ha) than commonly obtained on experimental plots in lowland ecology (3.5 - 4.5 tones/ha)(Imolehin and Wada, 2000). The wide disparity in yield is partly due to incomplete adoption of the total technology package (Ojehomon et al., 2006), or due to stepwise adoption pattern of farmers based on risk consideration and scarcity of funds (Ojehomon et al., 2003). Other constraints often cited for these poor outputs include poor water management, non-use of improved rice varieties and recommended production and processing practices, poor weed control, lack of inorganic fertilizer application, poor tillage operation, etc. (Adesina and Baidu - Forson, 1995).

2.1. Rice Production System in Nigeria.

Rice is grown in approximately on 3.7 million hectares of land in Nigeria, covering 10.6 percent of the 35 million hectares of land under cultivation, out of a total arable land area of 70 million hectares. 77 percent of the farmed area of rice is rain-fed, of which 47 percent is lowland and 30 percent upland. The range of grown varieties is diverse and includes both local (such as Dias, Santana, Ashawa, Yarsawaba, and Yarkuwa) and enhanced varieties of traditional African rice (such as NERICA) (Bayou 2009).

Rice grows in all the agro-ecological zones (AEZ) as diverse as the Sahel of Borno state and the coastal swamps of the southwest and south-south. It is clear that a classification of rice production systems according to the six vegetation zones of lowland forest, derived savannah, Southern Guinea Savannah, Northern Guinea Savannah, Sudan and Sahel will not be realistic. Much of the natural vegetation has been altered or even destroyed by human interference and an agro-climatic classification has been adopted by some (WARDA, 1980; Fagade and Kehinde, 1985; Ayotade and Fagade, 1986; Andriesse and Fresco, 1991; IITA, 1992; Jagtap, 1995; Singh et al., 1997; Blench, 1999). The differences in soil-water regime reflect either the topographic position of the land or the distance from the source of seepage or interflow (Moormann et al., 1986).

In the rest of this section the classification system found in (Jones, 1995) is used given its practical value. Six rice growing environments (RGEs) have been identified for the purpose of this description. These are: Upland, Hydromorphic, Rainfed Lowland, Irrigated Lowland, Deep Inland Water and Mangrove Swamp. Rain-fed agriculture is the main production systems used, while irrigated rice is the best performing in terms of yields (3.5tons/ha), followed by rain-fed lowland(2.2 tons/ha) and mangrove swamp (2tons/ha) (Ezedinma, 2008).

i. Upland Rice.

Upland rice is grown on free-draining soils where the water table is permanently below the roots of the rice plant. The ecological conditions under which upland rice grows in Nigeria are diverse. However, to obtain a successful crop, adequate and assured soil moisture reserves and fertility during key periods of plant growth are essential (Ezedinma, 2008). The upland rice environments are defined on the basis of soils, climate, water resources, water regime at the micro level (Rashid-Noah, 1995) and topography. Two types of Upland Rice Systems (URS) are found in Nigeria. These are Rainfed Upland and Irrigated Upland.

a. Rainfed Upland Rice.

It is found in all agro-ecological zones. The crop depends entirely on rainfall. Heavy rainfall can lead to soil erosion, leaching of plant nutrients and possible flooding. The risk of poor grain filling due to drought is also high.

The system is found from Abeokuta, Ado-Ekiti, Abakaliki, Ogoja in the south right up to Yauri, Zamfara River, Gombe, Southern Borno and Yola. In some places it is cultivated on hills;this is due to pressure on arable land. Hill cultivation of rice is becoming increasingly important in parts of Osun (Ilesha) and Ekiti (Effun-Alaye, Ekiti-West, Igbemo-Irepodun-IfelodunAyedire LGAs) states South-western Nigeriaand Obudu Hills of Cross River state of South-South Nigeria (Longtau, 2003).The land is prepared by hoe and the seeds planted directly with an intercrop spacing of about 20cm. The plants germinate quickly and provide good soil cover before the rains become heavy to cause severe erosion. The rice crop is harvested in the month of July during the short dry spell. In this zone apart from rice other crops grown on the hills include cassava and maize. At the foothills, rice is intercropped with cocoyam and never with maize because of the unfounded belief that the pollen grain of the tassel is harmful to the rice crop (Akande, 2014). The crop is harvested in October/November ahead of deep fadama rice. This timing arrangement gives farmers better price for their produce.

b. Irrigated Upland Rice.

In some places where the length of growing period (LGP) is short, some form of supplementary irrigation may be required to ameliorate drought conditions during critical stages of growth in the rice crop. This system is found in the southern region of Jigawa state as Birnin Kudu Local Government Area; also in places where rainfall is between 150-500mm and LGP of 0 to 90 days. These abound in Borno, Jigawa, Kano and Katsina states. The growing season in the flatlands of the Sudan-Sahel is only 90 days (Dugje, 2000). The soils are generally sandy and have low water-holding capacities.

ii. Hydromorphic Rice

Jones (1995) reported that hydromorphic conditions occur when water is supplied to the rice crop by a shallow ground water table, within the rooting zone of the plants. Hydromorphic rice is found either on lower slopes in the topo-sequence or in situations where impermeable soil layer reduces water percolation. In Tarok land of Plateau state, central Nigeria, this impermeable layer has a vernacular term “alam”. It is considered as marginal land some twenty years ago. However, today rice is cultivated even on alam.

Another situation which can give rise to hydromorphic conditions is the slow flow of water in a grassed waterway or even a simple ditch by a highway. It is now common to see rice in this environment all over the Northern and Southern Guinea Savannah. In Tarok land some twenty years ago such ditches were left fallow but today they are usually lush rice patches due to great demand for land (Ezedinma, 2008).

Hydromorphic land occurs as a transition zone or fringe on a continuum of the topo-sequence from the bottom of an inland valley to upland or a mere depression on a flat plain or topography whose soils have good water holding capacities(Singh et al, 1997). Fringes of streams or rivulets are areas for this system of rice production. Wet uplands will also be an appropriate terminology for this system. The area sown to hydromorphic rice fluctuates from season to season depending on the amount and distribution of rainfall. Hydromorphic rice generally gives higher and more stable yields than upland rice. Figures are not available on the size of land under this system in Nigeria.

iii. Rainfed Lowland Rice

An estimated 25 percent of Nigeria's rice area is under rainfed lowland rice cultivation. This ecology is said to contribute between 43 and 45 percent of national rice production (Imolehin and Wada, 2000; Singh et al., 1997). However, hydromorphic rice might have been included in that category. Two sub-types are set up here for lowland ecologies: shallow fadama and deep fadama or deep inlands valleys or so called wetlands.

A distinguishing feature of this system and hydromorphic rice is that the soil must be covered completely by water at some stage in the growth cycle. In deep fadamas the land is flooded all the time or during the major part of the cropping season. Farmers generally adjust their date of planting or transplanting in order to avoid flooding during the early stage of growth (Moormann et al., 1986).

This is the dominant system in the floodplains of the rivers Niger, Benue, Katsina Ala, Kaduna, Yobe and their tributaries. Shallow fadamas are seldom flooded. Excessive flooding, iron toxicity and lack of water control structures have been the bane of lowland swamp rice production in the Abakaliki area for instance: Farmers make giant mounds at the end of raining season or onset of rain. Yam is planted at the top of the mound. With early rains, groundnuts is planted lower down the mound. By May, rice is raised in a nursery for 4 weeks. The yams and groundnuts are harvested and the mound broken down and puddled by hand and the crop residues incorporated into the soil. At this stage the fields are flooded and rice is transplanted. The giant mounds prevent the yams and groundnuts from being waterlogged. This system started some 30 years ago and has become a remarkable innovation and technology. Jigawa state has one of the highest network of wetlands for rice cultivation in the country.

iv. Irrigated Lowland Rice

The establishment of River Basin Development Authorities (RBDAs) in the 1980s gave a boost to Rice Schemes and irrigated lowland rice. Irrigation is supplied from rivers, dams,

wells, boreholes, wash bores, and other sources to supplement rainfall for full rice crop growth (Imolehin and Wada, 2000). This system accounts for 18 percent of cultivated rice land and 10-12 percent of national rice supply. In parts of Ogoja, irrigation is by gravity. It is a system developed entirely by the farmers. They have incorporated the use of rice bran as organic fertilizers in the farming system. Apart from the Adani Scheme in Enugu state and Bida Scheme in Niger state, most of irrigated rice is in the Northern Guinea Savannah, Sudan Savannah and Sahel.

v. Deep Inland Water Rice

This is the floating rice system. Just before rain sets in, much of the water in the river course has receded. The land is prepared and planted with rice by direct seeding or transplanting of seedlings which had been raised in a nursery. The plants grow in not too moist conditions for 4 weeks and the water level of the river begins to rise and overflow its banks. The rice fields become flooded but the plants send down deep roots and the vegetative parts float on top of the water. The plant has the ability not to be submerged. It matures in this flooded condition and may be harvested from a canoe as may be seen in Sokoto. This system has been known there for hundreds of years. According to Imolehin and Wada (2000), it constitutes 5 to 12 percent of the national rice production area and 10 to 14 percent of the national rice output. This system is plagued by the problem of low yield because of the use of unimproved varieties of the traditional rice Oryzaglaberrima. The average yield in deep water areas is around 1.2 t/ha, with a yield potential of up to 3 t/ha (Singh et al., 1997). The Sokoto-Rima valley is the home of floating rice in Nigeria.

vi. Mangrove Swamp Rice

This is also called Tidal Wetland rice system (Singh et al., 1997). The coastal swamp areas in Delta, Ondo, Lagos, Rivers, Bayelsa, Akwa-Ibom and Cross River states are suitable for swamp rice production. This covers a potential 1 million ha of land, but at present not up to 1000 ha is cultivated (Imolehin& Wada, 2000). This vast potential lies waste due to neglect given the cheap harvest of petro-dollar in these oil producing states. Mangrove rice is produced only in Warri and on Shell Company farms in Bayelsa state. According to Moormann et al. (1986), the development of unused mangrove swamps for rice cultivation is a long-term endeavour that must be based on hydrologic, soil and socio-economic surveys and of course appropriate technology (Singh et al., 1997). Mangrove Swamp Rice is no longer a core ecosystem under WARDA's mandate its huge potentials in Nigeria notwithstanding (WARDA, 1999b).

Table 1:Various ecological zones, states found, average yield and other useful data on rice production in Nigeria.

Productio	Major States	Estimate	Share of	Average	Potentia

n Ecology	Covered	d Share of National Rice-Farmed Area (%)	Total Domestic Production (%)	Yield/ha (Ton)	l Yield/ha (Ton)
Rainfed Upland	Abia,Benue,Delta,FCT,Edo,Ekiti, Kaduna,Kebbi,Kogi,Kwara,Ogun, Ondo,Osun,Oyo,Sokoto&Niger.	30	17	1.7	3.5
Rainfed Lowland (fadama)	Adamawa, Akwa-Ibom, Bayelsa, Cross River, Delta, Ekiti, Edo, Ebonyi, Rivers, Ondo, Lagos &All major river valleys.	47	53	2.2	5
Irrigated	Adamawa, Anambra, Benue, Borno, Niger, Sokoto, Enugu, Ebonyi, Cross River, Kano, Kogi,Lagos, Kwara, Ogun, Akwa-Ibom &Kebbi	17	27	3.5	6-7
Deep Water Floating	Flooded Areas: Rima valley in Kebbi state & Deep flooded area in Delta state.	5	3	1.3	2.5
Mangrove Swamp	Akwa-Ibom, Bayelsa, Cross River, Delta, Edo, Rivers & Ondo	1	1	2	4

Source: Ezedinma, 2008.

3.0. GOVERNMENT'S POLICIES, ACTS AND INITIATIVES ON RICE.

Akande (2014), affirmed that the Nigerian government has actively interfered with the rice economy over the last thirty years. The country's policy on rice has been inconsistent and has oscillated between import tariffs and import restrictions including outright ban.
The specific policy measures and initiatives below have an impact on the rice sector, and include a mixture of input and price support.

i. Presidential Initiative on increased Rice Production (2002-2007)

The Presidential Initiative on increased Rice Production (2002) specifically aimed at reversing the import bill meeting domestic demand by 2006 and reach export capacity by 2007. Main targets were to increase rice production, improve milling quality, and promote marketing to provide domestic rice for consumption and to ultimately reduce national rice importation. The ambitious goal of the Initiative was to produce 15 million Tonne of rice from 3 million ha of consolidated farm land by 2007.
The main activities included: (1) increase production, inputs and crop protection, by increasing yields, enhancing agronomic practices, providing credit to farmers, providing

inputs, applying agricultural good practices such as minimum tillage;(2) enhance irrigation and land development schemes through rehabilitation and construction of current endowments;(3) improve processing, marketing and storage; (4) enhance farmers' groups; and (5) seed production (mainly NERICA and Oryzasativa) (Adejumo-Ayibiowu,2010. Although the initiative did not reach its final goal, there was a 31 percent increase in rice production between 2002 and 2007. Among the results of the Initiative's application, there were 81 505 supply packages (known as R-Boxes, containing seeds and agro-chemical supplies) distributed in 36 states, the National Seeds Service (NSS) produced 58 tonne of foundation seed, 4.92 tonne of breeder seeds and 25.23 tonne of foundation seed Stage 1 of NERICA and 12.6 tonne of lowland varieties were produced by the National Cereal Research Institute and West African Rice Development Association, while capacity building was enhanced through Management Training Plots (MTP) in 25 states (Odoemena, 2008).

ii .Nigerian National Rice Development Strategy (NRDS) (2009-2018)

Similarly to the 2002 Presidential Initiative, the NRDS (initiated in 2009) goal is to increase rice production. The target set by NRDS is to raise paddy output from 3.4 million tonnes in 2007 to 12.8 million tonnes in 2018. There are three priorities areas set for enhancement by the Strategy, they are: (1) post-harvest processing and treatment; (2) irrigation development; and (3) input availability, mainly focusing on seeds, fertilizer and farming equipment. NRDS includes a mixture of input supply promotion (such as 50% subsidy for seeds and 25% for fertilizer) and reduced custom tariff on imports of specific agricultural machineries (such as tractors and processing equipment). The high cost of seeds is currently a constraint on increased production. The National Agriculture Seed Council is in charge of seed production and certification, while the National Cereals Research Institute (NCRI) and the Africa Rice Centre regulate their delivery to producers (Diagne et al, 2011).

iii. Presidential Transformation Agenda (2011)

The overall goal of the Agenda is to define agriculture as a business, promote private sector investment in agriculture, along with the development of private sector driven marketing organizations and the promotion of Incentive-based Risk Sharing for Agricultural Lending (NIRSAL). Rice is among the commodities (together with cassava, sorghum, cocoa, and cotton) for which a country-wide commodity-specific transformation plan is envisaged.The final goal of the rice transformation agenda is to reduce the import bill, and make Nigeria self-sufficient within a 5 years' timeframe. To achieve the goal, the strategy aims at improving rice quality offering a viable alternative to the current imports, aiming for a significant portion of demand in the domestic rice market will shift from parboiled rice to milled rice. Consequently, policies will especially focus on milled rice but also on parboiled rice as a supply side target.Activities focus on enhanced irrigation and mechanization systems, through private sector involvement. For example, incentivize the private sector to invest in large parboiling and de-husking facilities in regions of high current production, such as Niger State and Cross River State.

iv. Cross-commodity Input Support: Fertilizer Policy

Aside from rice-specific input support policies, there are initiatives that influence rice production, although their specific impact cannot be quantified.Both State and Federal Government can provide fertilizer to farmers as input support. However, contribution varies

consistently between one state to the other, and from one year to the other. The Federal Market Stabilization Programme (FMSP) allows companies to produce and import fertilizer and allocate it to state governments with a 25 percent subsidy. Additionally, State Governments can further add to the subsidy.

v. The National Investment Plan (NAIP): This policy sets a target of a 30 percent increase in fertilizer use in the period 2010-2015, with an overall demand expected to grow from 2.6 to 3.4 million tonnes per year by 2015. There are three main initiatives within the NAIP actively targeted towards the increase in fertilizer use: (1) the Organic Fertilizer Development Programme (OFDP) promotes the use of organic fertilizer though a Public Private Partnership (PPP) approach; (2) the Fertilizer Quality Control (FQC) project aims at increasing the quality of fertilizer used and distributed; and (3) the National Foundation Seed Multiplication aims at releasing high quality foundation seeds to certified producers. (Cadoni and Angelucci, 2013).

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vi. Cross-Commodity Price Support Measures: Guaranteed Minimum Price

The Guaranteed Minimum Price Programme is the follow-up to the Buyer of Last Resort Grain Programme, formerly run by the Food Reserve Agency. The Buyer of Last Resort Grain Programme's main goal was to develop a buffer stock to respond to shortages of cereals, as well as to influence prices by purchasing cereals when markets prices are below an intervention threshold (WTO Review, 2011).

In 2008, in response to the high food prices crises, the Government encouraged producers by indicating that they would prevent prices from falling below a minimum by purchasing excess produce (FAO, 2008).

vii. Trade Policy measures

Nigerian has only partially implemented the 2005 ECOWAS Common External Tariff Regime (CET). The country issued in 2008 a CET Book to harmonize its tariffs within the CET, including a five tariff bans systems and the reduction of import duties on a number of items including rice.

The ECOWAS CET was modified in 2009 to include a fifth higher band of 35%, in addition to the four tariff bands (from 0 to 20%) which the ECOWAS member states originally agreed upon, to meet Nigeria's request to protect its nascent industries and sub-sectors. Nigeria is currently applying the 35 percent tariff line on 167 tariff line items. None of these items has non-zero import value (World Bank, 2010).

The country's average MFN (Most Favourite Nation) tariff stands at 12 percent, while the average tariff for agricultural products is 16.5 percent. Building on its restrictive regional trade policy approach, Nigeria adopted a protectionist stand with its other international counterparts. Although the adoption of the CET shows the political will to adopt trade and investment reform to harmonize policies within the region, there is still resistance in embarking on further reform

Importing in Nigeria is still subject to multiple difficulties, such as frequent policy changes in tariffs, duties and procedures, along with often unclear and inconsistent interpretation of rules by the Nigerian Customs Service (NCS) (USTR, 2009).

4.0. SOME CONSTRAINTS TO RICE SELF-SUFFICIENCY IN NIGERIA.

Over the years, various factors had contributed to the non-self-sufficiency in rice production in Nigeria some of these factors are perused below with possible solution (s) suggested. Reviewing the production and postharvest constraints affecting rice self-sufficiency in Nigeria is an important step in providing a way forward to achieving this goal in no distant future.

i. Policy gap and instability

Each presiding government in Nigeria formulates policies without cause other than political considerations and some intangible reasons. In the democratic setting, states are autonomous and

their policies can even be at variance with the Federal government. Every government has its interest and resources are allocated to meet them. This makes most government of the day jettison laudable policies of previous administrations without recourse to their aims and attendant benefits on improving agricultural productivity and rice sufficiency. The issue of fertiliser subsidy best illustrates this; Fertilizer use is promoted mainly by the fertilizer subsidy policy in Nigeria. In spite of economic reforms in Nigeria, fertilizer subsidies have remained. Input subsidies were widely practiced in the 1960s through 1990s. The costs of subsidies became high and unsustainable. Due to diversion of fertilizer subsidy to unintended beneficiaries and persistent economic woes, government can no longer bear it. These have placed a high budgetary burden on the government of Nigeria. Government policies have been very inconsistent.

ii. Land acquisition and tenure constraints:

FAO (2001) affirmed that land tenure and barriers related to land availability are major constraints to agricultural intensification in Nigeria. The importance of land to agriculture cannot be over emphasized; land is the most primary natural resource for any nation to sustain agriculture. The land tenure situation in Africa as confusing and conflict-ridden. The land tenure decree of 1978 did not alter the Norther region traditional tenure system but changed the system that operate in the Eastern and Western regions. Ownership of land in

each state is vested in the state government. This encouraged highly placed individuals and government officials to acquire lands from rightful owners at little or no cost thereby dispossessing peasant farmers of their land (Akpokodje et al., 2003). This constraints have continued to discourage Africans from making needed agricultural investments. However, accessibility, availability, conflict, poor fertility, topography and land fragmentation also affect land acquisition for rice production (CAPRI, 2005). For instance, Sawah development needs a secured land on which structures such as bund, canals and dykes should be constructed if not permanently but for a reasonable number of years. Wakatsuki (2008). This becomes apparently impossible under land tenure system.

iii. Infrastructure: Inadequate infrastructures such as road network, irrigation, processing and storage facilities, etc. play a key role in the under-productivity of rice in Nigeria. There are no good transport media from farms to market/city centers. Improved transportation is also associated with diffusion of technology, better use of inputs and better prices for farmers (ATAI 2011). Inadequate irrigation facilities does not make the farming all-year round in the country; likewise the non-availability of appropriate technologies for post-harvest processing and packaging facilities these lead to wastage and underpricing of the commodity.Significant post-harvest losses ranging between 15-40 percent are reported on rice fields due to the use of rudimentary technologies and poor practices. This constrains has reduced possible income small holder farmers could have made from rice cultivation(Adesina and Baidu - Forson, 1995).

iv. Climate change: This is caused by the release of greenhouse gases, carbon dioxide, water vapours and nitrous oxide into the atmosphere due to human activities, such as fossil fuel burning, gas flaring and deforestation (World Bank, 2010).Climate change is one of the most critical challenges ever to face humanity; it can cause the worst forms of economic and food security problems for humanity (Kuta, 2011). World Bank (2010), reported that developing countries are expected to be hit the hardest with climate change which Nigeria is not excluded. The 2012 floods which occurred in Nigeria was one of the most devastatingin the country which affected states like Kogi, Edo, Cross Rivers, Rivers, Benue, Delta and Bayelsa. Washing away vast farm lands and rice plantations. The effects of climate change are higher temperatures, changes in precipitation patterns, rising sea levels, and more frequent weather-related disasters such as flood, drought, etc all pose risks for agriculture, food, and water supplies (Nwalieji and Uzuegbunam, 2012).

v. Poor Funding and Coordination of Agricultural Extension: The Nigerian extension service is bedevilled by several problems, these include inadequacy and instability of funding, poor logistic support for field staff, use of poorly trained personnel at local level, ineffective agricultural research extension linkages, insufficient and inappropriate agricultural technologies for farmers, disproportionate Extension Agent: Farm Family ratio and lack of clientele participation in program development(Agbamu, 2005). Others are poor input supply, irregular evaluation of extension programmes and policy, institutional and programme instabilities of National agricultural extension systems.Lack of synergy with the donor-supported projects domiciled within the ADP and target groups (Izuogu and Atasie, 2015). These challenges have made the diffusion of aids and technologies to local rice farmers difficult and impede rice-sufficiency.

vi. Low and Unstable Investment in Agricultural Research: Funding of agricultural research institutes have largely been left in the hands of government. This has made funding to the Institute has very limited. Therefore, research work on key agricultural crops like rice is suffering badly. For instance, the National Cereals Research Institute (NCRI), the only government funded rice research institute in the country suffers from attaining its full potential due to funding problems and shortage of staff (Longtau, 2003).There are only a handful of multinational corporations such as the International Institute for Tropical Agriculture (IITA), International Rice Research Institute (IRRI), and West Africa Rice Development Association (WARDA) and NGOs that are directly involved in the dissemination and research of rice technologies.

3.1. RECOMMENDEDSTRATEGIES FOR RICE SELF-SUFFICIENCY IN NIGERIA.

1. Supervision, monitoring and subsidizing agricultural inputs and machineries by government at all levels.

2. Establishment of tractor and equipment hiring unit (THU) and repair workshop by governments at all levels with the aims of encouraging mechanized farming by peasant farmers.

3. Provision of adequate training for various rice farmers on latest best practices in rice production e.g. SAWWAH technique of rice production, soil and water conservation.

4. Equipment fabrication and distribution at subsidized rate for rice farmers and processors. This includes their standardization by specialized institution like the National Centre for Agricultural Mechanization (NCAM).

5. Development of appropriate hand tools for rice production. NCRI and NCAM can collaborate to achieve this.

6. Strengthening of existing institutions and encouragement of private sector to invest in farms, tools and equipment fabrication, seed multiplication, farm inputs, marketingand research.

7. Development of simple processing and storage technologies for rice and other agricultural produce to reduce post – harvest losses.

8. Provision of necessary infrastructure to the rural areas through the national policy on integrated rural development to attract private sector.

9. Promotion of existing rice processing facilities available in the country by enlightening small investors on the potential economic opportunities that exist in simple cottage agro – processing activities.

10. Provision of water from reservoirs, lakesand dams for irrigation purpose to rice farmers to enhance year round farming.

11. Retention of all existing agencies for water resources development and exploitation such as the River basin Development authorities, state water boards, and so on, and streamlining their operations to make them efficient and more effective.

12. Provision of adequate funds and support for existing Rural Agro –Industrial Development Scheme (RAIDS) to undertake more research into low cost and adoptive small – scale agro – processing machines for rice in rice producing areas.

CONCLUSION

From the fore going, it can be seen that Nigeria can achieve rice self-sufficiency with the vast natural and human resources at her disposal. Notwithstanding, inconsistent government policies over the years, lack of proper coordination of resources, poor and misappropriation of funds, lack of adequate synergy between government organizations (GOs), non-governmental organizations (NGOs) and multinational corporations (MCs) in term of policy guidelines, poor investment in research and extension services and proper pricing regime of the produce and inputs among other factors has hampered the attainment of this goal. The need to awaken the sleeping giant in rice production through proper harnessing of available resources and cooperation between relevant stakeholders would make Nigeria a self-sufficient rice producer and exporter in no distant future.

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