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REVIEW OF THE ROLE OF ENVIRONMENTAL IMPACT ASSESSMENT IN THE AGRICULTURAL SECTOR

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ABSTRACT

A key challenge for the agricultural sector is to feed the increasing alarming population of the world while at the same time reduces the environmental impacts. Preserving natural resources for sustainability in the future generation. Environmental impacts assessment is the formal process used to predict the environmental consequences (positive or negative) of a plan, policy, program, activity or project prior to the decision to move forward with the proposed action. This paper brings to our notice some of the major agricultural activities such as farming (crops/animal), irrigation schemes, pesticide and herbicide application and many more that have posed significant impacts on the environment and Nigeria economy at large, it stress the negative impacts which include pollution and degradation of soil, water and air e.t.c., this paper also reviewed that, bad cultivation bring about erosion and flooding despite the good mind set of agricultural sector, it is clear from this article that an impact assessment may propose measures to adjust impacts to acceptable levels or to investigate new technological solutions (Encyclopedia, 2015). This paper highlight how those posed threat can be looked into via EIA (Environmental Impacts Assessment) for sustainability of agriculture and the environment by assessment, analysis and mitigation measures/policies adoption to curtail certain agricultural practices that are detrimental to our environment.

Keywords: ***Monitoring, Regulation, Sustainability, Agriculture and Environment***

INTRODUCTION

Before oil and gas sector came on board in the 1970s, agriculture was the mainstay of the Nigerian economy, the increasing population of the globe has called for increase in demand of food to sustain the increasing population. Agricultural activities have a significant role of influencing positively or negative the environment. Apart from the food and raw materials produced by agriculture, the process/activities also in one way or the other contribute immensely to environmental degradation, decreasing land productivity, threatening the human beings, the animal as well as the aquatic habitats which in turn impact negative on the social and economic sustainability of our dear environment.

The twin policy challenge of ensuring global food security for the growing population while improving environmental performance and sustainability require raising the environmental and resource productivity of agriculture, enhancing land management practices, minimizing pollution discharge and carbon emission, curtailing damage of biodiversity and strengthening policies that avoid the use of production and input subsidies which tends to damage the environment.

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Monitoring the linkages between environment and agriculture, identifying the impacts and analyzing the impacts of agricultural activities/operations successfully, is a part to the negative impacts mitigation which can only be done by EIA for policy recommendation that will enhance good sustainability.

With the EIA assessment and analysis employed, if farmers in Nigeria practice and follow the regulations, the use of good nutrient management, pesticides, energy and water application, using less of these inputs per units of land will bring about good progress in adapting more environmentally beneficial practices such as conservation tillage, improved manure storage or less land degradable practices in agriculture. To address these long-standing issues, more efforts and cooperation is needed between farmers, policy makers and the agro-allied/food value chain via EIAs.

WHAT IS ENVIRONMENTAL IMPACT OF AGRICULTURE?

Environmental impact of agriculture in general is the effect that different farming processes/operations and practices have on the Eco systems around the globe, be it negative or positive and how those effects can be traced back to these practices. The environmental impact of agriculture varies widely based on practices employed by farmers and by the scale of practice. The tracing back of these practices with caution for the wellbeing of human being, domestic animals and the aquatic habitats for sustainability. Sustainability agriculture is the idea that agriculture should occur in a way such that it continue to produce what is necessary (food for the population, raw materials) without infringing on the future generation or the wellbeing of the environment, all the process and operations must be viable from both economic and social-economic point of view.

ENVIRONMENTAL IMPACT ASSESSMENT (E.I.A)

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Munn (1979) define EIA as a process which refers to the need to identify and predict the impacts on the environment and on mans health and well being of legislative proposals, policies, programs, projects and operational procedures and to interpret and communicate information about the project. The term environmental assessment describes a technique and a process by which information about the environmental effects of a project or activity is collected, both by the developer and from other sources, taken into account the planning judgments on whether the development should go ahead. Generally EIA is a process having the ultimate objective of providing decision makers with an indication of the likely consequences of their actions. A major deficiency of many EIAs has been the failure to establish a time frame indicating when impacts are likely to be manifests.

The objective of EIA is not to force decision-makers to adopt the least environmentally damaging alternative; otherwise few developments will take place. Environmental impacts are but one of the issues addressed by decision makers as they seek to balance the often-competing demands of developments and environmental production.

Environmental impact Assessment (EIA) is an important measure for ensuring that the negative impacts of these agricultural processes are identified, monitored and mitigated for environmental sustainability.

Agricultural processes/operational impacts assessment is more than just the technical report, it means to a larger extend the protection and improvement alongside the innovation of the environmental quality of life, it's a procedure to identify and evaluate the effect of agricultural activities manned by human beings when participating in agricultural activities/processes for commercial or subsistence farming, the assessments is vital to identify, predict and evaluate the economic, environmental and social impacts of activities practiced for the aim of providing information on the environmental consequences for decision making by the necessary authorities/board committees as well as to promote environmentally sound and sustainable agricultural practices.

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Monitoring & evaluating agricultural and environmental performance can help guide/improve sustainability policies on agriculture, bring about recommendations on how to develop cost-effective Agric-environmental policies, how to manage water issues for agriculture, how to deal with climate change challenges and how to preserve biodiversity and manage eco system services related to agriculture. Policy makers must have at their disposal a deep understanding and capacity to measure the linkage between policies and outcomes in order to evaluate and achieve better environmental outcomes in cost-effective manner. Environmental conditions in agriculture that may require policy responses will be from

- ✓ Highlight where new environmental challenges emerges.
- ✓ Compare trends in performance across time and between zones/state especially to assist policy makers in meeting environmental targets, threshold levels and standards where they have been established by government and international agreements.
- ✓ Monitor and evaluate agriculture policies for environmental sustainability.

BRIEF HISTORY OF EIA

EIA and related procedures have been identified as key mechanisms to translate the principals and criteria of sustainable development into practical strategies and actions. The 1982 conference on environment and development Agenda 21 put considerable emphasis on the potential ability of EIA to help achieve more sustainable forms of development. As a consequence of the illegal dumping of toxic wastes in Koko, in the former Bendel State, in 1987, the Nigerian Government promulgated the Harmful Wastes Decree which provides the legal framework for the effective control of the disposal of toxic and hazardous waste into any environment within the confines of Nigeria. This was immediately followed by the creation of a regulatory body, the Federal Environmental Protection Agency (FEPA) in 1988. FEPA is charged with the overall responsibility of protecting and developing the Nigerian environment. To put this into action a National Policy on the Environment was developed. This is the main working document for the preservation and protection of the Nigerian environment. States and Local Government Councils were also encouraged to establish their own environmental regulatory bodies for the purpose of maintaining good environmental quality as it applies to their particular terrain.

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The legal regime for the regulation of EIA of designated projects in Nigeria is contained in the Nigeria urban and regional planning Decree No,52 of 1992, Environmental impact Assessment Decree No 56 of 1992 (FEPA, 1992) and then environmental impact Assessment procedure developed by the then Federal Environmental Protection Agency (FEPA) pursuant to the Decree, since the law came into full operation, three hundred and Nineteen (319) EIA reports for various development projects have been submitted to the Deportment of Assessment of the Federal ministry of Environment for evaluation (Ajakaiye, 2004) there are no EIA submissions from the Agricultural sector and only two (0.6%) EIA submissions have been received from Dredging activities.

EIA has become a widely accepted tool in environmental management; management, it has been adopted in many countries with different degrees of enthusiasm where it has evolved to varying levels of sophistication. A list of industrialized countries have implemented EIA procedures USA in 1969, Canada 1973, Australia in 1974, Netherlands in 1981, Japan in 1984, and the European union (EU) finally adopted a directive making environmental assessments mandatory for certain categories of projects after nearly a decade of deliberations (Emmanuel, 2020) many less developed countries (LDC) have appreciated that the procedures provide means of introducing some aspects of environmental planning, often in the absence of any formal land-use planning control system. EIA study the direct on-site effects alone, using process analysis and audit-type.

ENVIRONMENTAL IMPACT ASSESSMENT SYSTEM

The principal legislation is Decree 86 of 1992 which made EIA mandatory for both public and private sectors for all development projects. It has three goals on how these are to be achieved. The goals are:

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- Before any person or authority takes a decision to undertake or authorize the undertaking of any activity that may likely or significantly affect the environment, prior consideration of its environmental effects should first be taken.
- To promote the implementation of appropriate procedures to realize the above goal.
- To seek the encouragement of the development of reciprocal procedures for notification, information exchange and consultation in activities likely to have significant trans-state (boundary) environmental effects. FEPA categorizes mandatory study activities into three categories.

Category 1 activities require full and mandatory EIA, Category 2 activities (unless within the Environmentally Sensitive Area) full EIA is not mandatory, while Category 3 activities have beneficial impacts on the environment. Either listing or an initial environmental evaluation (IEE) system is used to determine projects requiring full EIA.

The minimum requirement of an EIA report includes not only the description of the activity, potential affected environment, practical alternative, and assessment of likely or potential environmental impacts, but also identification and description of the mitigation measures, indication of gaps in knowledge, notification of trans-state adverse environmental effects (if any) and a brief non-technical summary of all the above information. Impartial and written FEPA decisions indicating mitigation measures based on a detailed examination of environmental effects identified in the environmental impact assessment (after an opportunity within an appropriate period had been given to the stakeholders and the public for their comments) is made available to interested person(s) or group(s). It provides, where necessary, that potentially affected States or Local Government Areas are notified.

TYPES OF EIA

Different types of EIA that can help in evaluating these practices for mitigation measures include:

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- ✓ Strategic EIA
- ✓ project EIA
- ✓ Regional EIA
- ✓ Life Cycle Assessment
- ✓ Sectional EIA

WHAT ARE THE STEPS IN EIA PROCESS?

Environmental impact assessment is made of seven (7) steps which include:

- ✓ **Screening:** Determines whether the environmental and social impacts of a proposed development project (activity) would be significant enough to develop an EIA if not an environmental management plan (EMP) needs to be created and subsequently monitored.

- ✓ **Scoping:** Establish the boundaries of the EIA, set the basis of the analysis that will be conducted at each stage, describe the project alternatives and consult the affected public.
- ✓ **Impact Assessment and Mitigation:** Evaluate the socio economic and environmental impacts of the planned project and its alternatives, and then identify the mitigation measures to reduce those impacts.
- ✓ **Impact Management:** Prepare the plans required for addressing mitigation measure and other projects risks such as technical failures and natural disasters.
- ✓ **The EIA Report:** Put together all the research and work done during the previous steps into a comprehensive structured document, ensuring that the EIA report contains all the key components.
- ✓ **Review and Licensing:** Designated authorities review the EIA report to determine if the planned project will get a license or if it requires amendments.
- ✓ **Monitoring:** Ensure that the mitigation measures priorities tested in the EMP and contingency plans are properly implemented and effectively address the projects impacts.

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Environmental impact of agriculture involves impacts on a variety of different factors such as the soil, on water or air, animal and plants, human beings on food produced e.t.c the impacts of agricultural practices contribute to a large extend environmental degradation (if not properly cultivated or practice), climate change, deforestation, biodiversity loss, dead zones, genetic engineering, irrigation problems pollutants of different degrees and waste from agricultural by products.

ADVANTAGES OF EIA

EIA has many advantages that include the following:

- ✓ Minimization of the environmental impacts of our activities.

- ✓ Reduction of costs and time taken to reach decisions by ensuring that subjectivity and duplication of efforts are reduced to a minimum
- ✓ Helping to identify and quantify the introduction of expensive pollution, control equipment, compensation or other costs.
- ✓ Improving the efficiency of decision-making if applied at early stages of project planning and design.
- ✓ Enhancement of public-image of developers/companies and their host communities.
- ✓ Prevention of any litigation and future liabilities.
- ✓ Creation of awareness of environmental protection.
- ✓ Continuous improvement in our environmental performance.
- ✓ Compliance with regulatory requirements.
- ✓ Compliance with the environment policies of economics and developer/proponents.

FACTORS /CHALLENGES AFFECTING EIA

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The factors affecting EIA in Nigeria include:

- ✓ Financial
- ✓ Commercial
- ✓ Professional
- ✓ Personal
- ✓ Accountability
- ✓ The failure of the responsible authority, proponents desire to supply fulfill “all righteousness’’ professional in competence of EIA fractional, poor screening and scoping, ineffective coordination, poor public participation, lack of project monitoring among others.
- ✓ Delay is a more complex issue as it depends to a large extend upon the quality of the EIA its relative narrow spatial and temporal scope as pointed as a challenge EIA at the project level and is insufficient because it starts too late and end too soon and is

too site-specific (shepherd and Ortolano, 1996) beside lack of EIA audits, is the absence of EIA follow – up monitoring (Ramjeawon and Beedassy. 2004).

WHAT ARE THE AGRICULTURAL PROCESSES /OPERATIONS THAT NEED EIA?

Agricultural practices/operations that need assessment by EIA include:

1. **Disposal of industrial and Agricultural wastes**

   The use of by-products such as paddy Straws and rice husk has not been made properly from time immemorial, the burning of such by-products create increase in carbon dioxide and carbon-monoxide in the atmosphere resulting in respiratory problems for human beings and animals. The need for recycling the Agricultural wastes by having enterprises like dairy, poultry, fishery, factories etc, processing of by-products and ploughing in the field as organic matter can only be achieved after services of EIA is engaged for comprehensive analysis, the mechanization of agriculture require various energy recourses such as diesel, electricity, petrol etc. higher use of fertilizer has negative impact on ecology of the country, undegradable solid waste from industries and domestic users have also been responsible for toxicity in plant and animal particularly fish and unbalanced soil nutrients which needs to be checked through treatment plants.

2. **Pest problems:** With the shift in crop pattern, increase in area under irrigation and higher cropping intensely, the pest problems has become very severe, the seriousness of pest has further increased by way of indiscriminate and increased use of pesticides, large variety of cases of residual effect of pesticides and intake by human and animal have create health hazards, over 98% of sprayed insecticides and 95% herbicides reach a destination other than the target species due to run off and high breezes such as grazing arrears, have settlements.

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3. **Irrigation scheme:** The environmental impacts of irrigation relates to the changes in quantity and quality of soil and water as a result of irrigation and the effects on natural and social conditions in river basins and downstream of an irrigation scheme. Poor irrigation scheme bring about depletion of underground aquifers, over drafting, soil can be over-irrigated or under irrigated due to lack of understanding of consumptive use of corps, poor distribution or uniformity management, waste water, chemicals may lead to water pollution, improper irrigation lead to serious drainage issues bringing about rise in water table soil salinity, building up of toxic salts, lack of soil aeration and many more resulting to high soil degradation that affects highly the microbial community of the soil and altars nutrient cycling and chemical transformation properties of the soil.
4. **Deforestation:** Deforestation is carried out for pasture or crops, planting of palm plantation, cattle ranching by human being, forests fires and lack of afforestation. Deforestation causes the loss of habitat for millions of species, land damage via burning effect that lead to a drive of climate change. Trees act as a carbon sink, removing tree causes extreme fluctuation in temperature in the environment. The annual demand for industrial wood is 28 million cubic meters against the production capacity of 12 million cubic meters.
5. **Biodiversity:** As agriculture is becoming more and more commercialize, a number of plants and animal species are becoming extinct, the crops showing high profits in value are covering more area while, the less profit-table ones are rapidly declining, creating a number of environmental problems. The depletion of vegetative cover such as grass lands and forest tree species and similarly extinction of wild animal and birds is a matter of concern.
6. **Farm encroachment**: Both agricultural and pastoral land expansion as not checked posed a serious impact on agriculture. This is because two or more independent resources users between crop farmers and pastoralists are very likely to have clash

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over common environmental resources such as land, pasture, crop-residue, livestock routes and water points (Ime 2013) crops damage caused by animal belonging to herdsman as a result of cattle routes or water points on farm lands (Gefu and Gills, 1990) spraying of livestock into the grazing land of other pastoralists are possible impact that need sever EIA Assessment.

7. **Tillage erosion:** there is growing evidence that tillage erosion is a major soil erosion process in agricultural lands, surpassing water and wind erosion in many fields all around the world especially on slope and hilly lands. Tillage erosion results in soil degradation that lead to significant reduction in crop yield and therefore economic losses of the farmer
8. **Animal Agriculture:** The environmental impact of meat production varies because of the wide variety of agricultural practices employed around the word. Some of the environment effects that have been associated with meat production are pollution through fossil fuel usage, animal methane, effluent waste and water. The 2006 report livestock's long shadow released by the Food and Agriculture Organization (FAO) of the united nations, states that "the livestock sector is a major stressor many ecosystems and on the planet as a whole, it is one of the largest sources of greenhouse gasses (GHG) and one of the leading causal factors in the loss of biodiversity and in developed and emerging countries, it is the leading source of water pollution.

The agricultural sector cannot be sustained for good living condition if these prevailing circumstances are not assessed and checkmates for mitigation measures Via Environmental impact assessment (EIA)

THE ROLE OF EIA ON AGRICULTURE/POSITIVE ATTRIBUTES

Environmental impact assessment (EIA) played the role of providing mitigation measures to the detrimental agricultural practices/operations by assessing and planning agricultural

practices, evaluating the effect that will affect the environment negatively if employed, bringing out certain/risk analysis involved in any agricultural process. It is only environmental impact assessment (EIA) and probably those that think EIA can bring about agricultural practices that are ecosystem friendly. All these negative impacts can be minimize only if EIA is allowed to take it full course of implementation in this contemporary society.

CONCLUSION AND RECOMMENDATIONS

We acknowledge that Nigeria has taken serious steps to develop effective environmental strategies by the promulgation of the EIA Decree and all the procedural guidelines. Yet there are too many regulators with similar and identical responsibilities. Harmonization and clear allocation of responsibilities has become necessary. FEPA is the apex regulator, and DPR in reliance on regulations cannot usurp the responsibility of FEPA nor the State EPA when under our canon of legal interpretation, any Edict (law) in conflict with the Decree (Act) to the extent of the conflict is void. Recognition of this, and avoiding such rivalry act among the administrators, will encourage co-operation among them. To be relevant the regulators (administrators) should be better supported and, for effective compliance monitoring and enforcement, stiffer sanctions and penalties should be prescribed and strictly adhered to. This way environmental requirement will be met and maintained.

Compliance should be tied to renewal of licenses and consents and proponents should ensure that staff is highly motivated with adequate equipment and capacity building programs vigorously pursued not only by the administrators but also the proponents. The administrators should invest more in capacity building, staff motivation and provision of conducive work environments together with the necessary facilities. The government in this regard should make funds available to the secretariat. Otherwise, they become exposed to monetary inducements leaving compliance in the hands of the proponent. This is unhealthy. With basic knowledge of their responsibilities they could become more efficient and effective in improving the quality of EIA report.

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Let's employ the services of environmental impacts assessment on agricultural process/operations for sustainable agriculture and environment.

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