

# SUSTAINABLE DEVELOPMENT IN AGRICULTURE IN THE NEW MILLENNIUM

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## Abstract

This paper examined the factor for promoting sustainable development in agriculture. Nigeria is currently witnessing rapid development; culturally, economically, politically etc. However, most development tends to create more problems than they set to ameliorate and as such cannot be sustained for a tangible period of years by the populace. The inability to sustain such development in agriculture is due mainly to technological transfer without consideration for the peculiar local environment. This paper therefore recommended that the curricular in schools should include concepts such as environmental pollutions, conservation and technology that are not environmental friendly should not be adopted. Finally, scientist should be encouraged and rewarded accordingly. The paper concluded that human and cultural factors should be taken into consideration when adopting new technology in order to achieve sustainable development in agriculture in the new millennium.

## Introduction

Development is directly linked to science hence it is the research effort of scientist that brings about development, it is not the activities of scientists that is important but the discovery aspect of their activity therefore for any meaningful development to be attained, science and scientist must be accorded their rightful place and not relegated to the background in the development exercise.

Science can be defined as a systematic knowledge considered as distinct field of investigation, a branch of study concerned with observation and classification of facts especially with the establishment of verifiable law, accumulated and accepted knowledge. Kerlinger (1964) however, regards science as an activity of scientist, which emphasized imagination problem solving.

Development is used to refer to an improvement upon ways of accomplishing tasks, utilizing materials in more effective and profitable ways. The term development use to provide many questions which include: what kind of development? Development for what? etc. It arouse keen consideration of extremely important issues that require continuous reformation if they are not to become mechanical or rhetorical for instance, the management of decision making power and its decentralization as a fundamental pre-requisite for genuine participation, appropriate technologies, land ownership, distribution of wealth, adequate medical facilities, purpose of education and rationale use of natural resources.

Agriculture is the main stay of any development process and its sustainability is fundamental to any nation's development. The aim of this paper is therefore to underscore this point and to pul forward factors which will promote the sustainable development of agriculture in Nigeria.

## Developments In Agriculture

Man's quest for civilization and development cut across all spheres of life whether in medical, agricultural, educational, economical, political, technological or environmental advancement. Advancement in agriculture dates back to the old age when the use of crude implements became grossly inadequate with increase in population of human beings and subsequently their demands for food, shelter and clothings. This brought about invention of equipments like ploughs, harrows, ridgers and tractors. Scientist have helped to put at ease the problem of primitive farming by developing hand operated machines that makes it easier to accomplish agricultural tasks resulting in an increased food production.

Knowledge gained from the science of pathology and parasitology has enabled the combat of pests and disease and even their pathogens with the use of chemicals.

Incubators which can hatch thousands of eggs at a time have been developed to replace the natural method of incubation which can hatch only ten eggs at a time and milking machine that can extract milk in commercial quantities from milk producing animals have been developed too. Improved varieties of plants and breeds of animals have also been produced through improvement of strains by crossing organisms of different varieties but the same species. Even apomixis-reproductive method which involves only the female parent has been developed through scientific effort of developments, it virtually eliminates genetic changes and the male pollen does not fertilize the ovule but only reaches the

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albumen. Science have contributed immensely to the development of agriculture but the question is the sustainability of such developments.

#### Factors For Promoting Sustainable Development In Agriculture

Allen (1980) suggested that sustainable development is development that is likely to achieve lasting satisfaction of human needs and improvement of the quality of human life. A more detailed definition, given by Brundtland, (1986 cited in Mofatt, 1996), is that sustainable development, requires four aspects, namely the elimination of poverty and deprivation; the conservation and enhancement of the resource base which alone can ensure that the elimination of poverty is permanent a broadening of the concept of development so that it covers not only economic growth but also social and cultural development; and most important, it requires the unification of economics and ecology in decision making.

The concept of sustainable development in agriculture requires some vital issues which are essential to the concept. First, is the fact that human beings have a common destiny of interdependence with other living creators on earth; second the primary objective of development should not be growth at all costs but to render the lives of most of the world's population easier and more harmonious. Third, there are thresholds of irreversibility which traditional economics does not take into consideration.

In Nigeria the systematic application is conceivable only on two conditions viz.: sustainable development in agriculture should be environmental friendly and ensure a real intensification of production and thus respond to the challenges of rural poverty, secondly the application of development in any country should be accomplished with a change in the accepted socio-political and economic framework. A lot of development effort of the government is yet to be crowned with success due to inability to sustain such for a tangible period of years.

Malcolm (1993) once said that the amount of money spent on training scientist has been immense and the wastage equally impressive due to governments inability to provide the bearest essential to build up the experience and knowledge required by scientist to promote sustainable rapid technological development. Farmers are faced with the problem of making a living from a quarters of an hectare of land, there is little to offer him other than technologies which are beyond his or more frequently her reach. The ultimate is to have the manpower and the commitment to developmental tasks by the scientist but unfortunately there is a dwindling of effective national support for agricultural research.

Experimenting is as much a part of farming as planting seeds and tilling the soils. Yet. in some cases, development agencies have encouraged farmers to simply adopt new technologies developed by others. Problem then arises when introduced technology fails significantly to improve low external input farming system. Developing appropriate sustainable technologies for rain fed farming under the tropical soil and difficult conditions for the subsistence farmers which constitute a greater percentage of agricultural producers should be adequately involved more often right from the conception through to the accomplishment of such developmental ideology as against an imported idea being forced on them with feeble explanation.

A global reassessment of the role of local cultures is an essential condition for more efficient and balanced development. Sustainable development in agriculture should best be based on the use of local technical and human resource without relying on inputs from abroad. This should be accomplished not as an alternative but a complement to the existing highly developed agriculture with external support.

Science generally, is a sort of research oriented series of activities aimed at finding solutions to problems that arise in the course of man's strive for survival and development. A lot of time, money, commitment and dedication is required for any meaningful result to be attained on the part of the scientist. However, the government must be ready to provide the necessary fund and as well take proper care of their needs. A lot of scientific manpower is lost from time to time in Nigeria, the key factor underlying the loss of scientific manpower in Nigeria is the sense that government is less than committed to actual developmental research.

## **Recommendations**

It is therefore recommended that schools, colleges and universities which serve as training ground for scientists should modify their curricular to include information on new scientific discoveries and techniques alongside such concepts as the environment, environmental pollution and conservation of the environment for sustainable development in the new millennium. Technologies that are not environmentally friendly should not be adopted.

Innovations or developments in agriculture which are planned to be sustained for long should take the people way of life and their real need into consideration with the aim of reducing the poverty level of the farmers.

The scientist should also be adequately encouraged and rewarded morally, physically and financially for their scientific invention as a means towards promoting sustainable developments in the new millennium.

## **Conclusion**

Some development projects that are technically well designed have proved puzzlingly to be failures due to the fact that the facilities, technologies, seed varieties or farming techniques are either unexploited or simply ignored by the target population. This occurs more often with projects that rely on the power of technology and investment without sufficient consideration of human and cultural factors.

The recommendations given above should be taken seriously by the government through the appropriate ministry in order to achieve sustainable development in agriculture in the new millennium.

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