

# SUSTAINABILITY ISSUES AND NIGERIA'S AGRICULTURAL DEVELOPMENT PARADIGM

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## Introduction


- Over the years approach to human development has changed due to an increasing focus on the environmental aspects of daily life.
- Links between poverty, natural environment and social capital have been analyzed from different perspectives.
- Poverty was interpreted as a major cause of environmental degradation while the protection of natural resources was considered a constraint on economic growth and not an opportunity to achieve higher level of well-being.
- From the mid-nineties onwards, a direction of integration through a new paradigm was adopted within the UNDP's Human Development Report (Anand and Sen, 1996; Sen, 2000).
- In the paradigm, natural resources and environment were considered as a means of achieving well being such as education and health.

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- These complements the primary objectives of monetary stability and economic growth as recommended by the World Bank and looks at new growth factors such as social and natural capital, environmental protection, participation of local communities, governance, etc. (Dubois *et al*, 2002).
- Bilateral relationships among poverty and environment are useful for understanding the real meaning of a sustainable human development approach.
- Poverty can be a cause of environmental degradation, especially in the fragile rural areas of the developing countries, due to the lack of investments and over exploitation of finite resources, but it is also true that poor people are often forced to live in places where the standard of living including environmental conditions is very low (i. e. slums).
- The object of this study is to analyze sustainable issues in agricultural development of Nigeria based on the theory of natural resources' scarcity and its effects on growth and partly, on the principles of natural resources conservation.

# The Nigerian Rural Economy: Poverty and Environmental Degradation

- Expanding population which exacerbates social, economic, and ecological impoverishment makes all the existing environmental problems more critical.
- The environmental impact of continued population growth is felt through increase in energy demand, production, consumption and waste.
- Currently, Nigeria loses about 351,000ha of land to desert encroachment advancing southwards at the rate of an average 8km per annum.
- As reported by Abdul (2001), economically, desertification accounts for 73% of the estimated US\$5.1106 million the country is losing to environmental degradation.
- With Nigerian population projected to rise to 114.5 million by the year 2020, the fuel wood demand (a principal cause of deforestation) is expected to reach 83.5million cubic meters.

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- The disproportionate disappearance of these free gifts of nature will definitely be replaced by human misery in form of “food and social insecurity” because nature abhors a vacuum (Abdul, 2001).
  - This is a cause for concern since both intensity and urgency of the situation require a concerted and well articulated planning and action by all and sundry.
  - For the simple fact that the first victims of desertification hence, environmental degradation are the rural poor: hungry, unemployed, and uneducated, they will be forced to migrate into towns and cities to engage in menial jobs, and eventually become a powder keg for social instability.
  - No wonder, Nigeria records the re-current communal-cum-religious crises in its chequered history.
  - Fortunately, these problems are avoidable, what is needed is political commitment, strong will power and consistency in policy planning and implementation, more especially a favorable climate for both agriculture and the environment.

# The Sustainable Development Paradigm

In discussion and use of the concept, Hopkins (1991) recognizes three aspects of sustainable development:

- **Economic:** An economically sustainable system must be able to produce goods and services on a continuing basis to maintain manageable levels of government and external debt, and to avoid extreme sectoral imbalances which damage agricultural or industrial production,
- **Environment:** An environmentally sustainable system must maintain a stable resource base, avoiding over-exploitation of renewable resources only to the extent that investments is made in adequate substitutes. This includes maintenance of bio-diversity, atmospheric stability, and other ecosystem functions not ordinarily classed as economic resources,
- **Social:** A socially sustainable system must achieve distributional equity, adequate provision of social services, including health and education, gender equity, and political accountability.



## Review of the Development Approach

- a. The original idea of development was based on a straight line progression from traditional to modern mass consumption society. Within this framework, a tension is developed between the promotion of economic growth and the equitable provision of basic needs. Development is thus, as it has proceeded over the past half century has remained inequitable, and has had growing negative environmental impacts,
- b. A concept of sustainable development must remedy social inequities and environmental damage while maintaining a sound economic base,
- c. The conservation of natural capital is essential for sustainable economic production and intergenerational equity, market mechanisms do not operate effectively to conserve natural capital, but tend to deplete and degrade it,
- d. From an ecological perspective, both population and total resource demand must be limited in scale, and the integrity of ecosystems and diversity of species must be maintained,
- e. Social equity, the fulfillment of basic health and educational needs, and participatory democracy are crucial elements of development, and are inter-related with environmental sustainability.



## Agriculture:

- The need to feed an expanding population at higher per capita levels of consumption is straining global soil and water systems.
- The response to this must be two fold. On the production side, current high-input techniques which are leading to serious soil degradation and water pollution and overdraft, must be replaced by organic soil, integrated pest management, and efficient irrigation.
- This in turn implies much greater reliance on local knowledge and participatory input into the development of agricultural techniques.





## Energy:

- According to Nura *et al*, 2011 energy supply has an environmental impacts leading to the accumulation of green house gases. This mean that it will be necessary to accomplish a transition away from fossil fuels well before 2050.
- A non-fossil system would be significantly more decentralized, adapted to local conditions and taking advantage of opportunities for wind, bio-mass and solar power systems.
- This is unlikely to occur without a major mobilization of capital resources for renewable energy development in countries now rapidly expanding their energy systems.



## Industry:

- As the level of global industrial production increase several folds over current levels, which themselves represent a quadrupling over 1950 levels, it is apparent that ‘end-of-pipe’ pollution control could not be adequate.
- The new concept of ‘industrial ecology’ implies the restructuring of whole industrial sectors based on a goal of reducing emissions and revising materials of all stages of the production cycle.
- Cooperative efforts between corporations and governments will be needed to achieve the goal.





## Renewable Resources System:

- World fisheries, forests, and water systems are severely overstressed.
- With even greater demand on the all systems expected in the next century, all levels of institutional management must be urgently reformed.
- Multi-lateral agreements and global funding are needed to conserve transboundary resources.
- National resource management systems must be shifted from goals of exploitation to conservation and sustainable harvesting, and local communities must be strongly involved in resource conservation.

## The Environment and Sustainable Agriculture

- According to Solow (1986) modernity has tried to polarize and classify ideas into “nature” and ‘culture”, “science”, “social” “human” and “things”.
- Thus, it dismisses the inconvenient “intermediaries”, the “networks” that exist between these extremes. He called the middle between society and nature, the “middle kingdom”.
- It is within this sphere, he argues that systems are constructed, and ideas crossbred, and where much of the discourses on the modern world actually takes place.
- In this third sector, politics, science, technology and nature are constantly mixed making the distinction between nature and culture (with each in a separate mental chamber) illusory and difficult to maintain.
- Solow’s thinking when applied to agriculture sheds light on the scientific basis of conventional agricultural practice which from its very foundations ignored the connection between nature and culture, production and the environment.
- Modern agriculture depicts the false separation and isolation of “science” from “society”. As such, the complex web translations and interactions for the most part leading to the promotion of a system that exploits nature’s resources without the environment.
- Modernism encourages us not to mix up knowledge, interest, justice and power. Similarly, monoculture sums up modern agriculture not to mix.

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- Conventional agriculture has pursued technical innovations and the use of external non-renewable energy sources and inputs for the sake of economic gains.
  - In bridging the divide in agriculture and development studies, Solow (1986) cautioned on saving the best of modernity should served as a guiding principle.
  - First, there could be a '*hybridization*' of institution whereby traditional institutions such as the family are hybridized in to formal institutions as custodians of sustainable resources management practices and indigenous knowledge (IK) that could contribute in building stable global food systems.
  - Second, there could be '*hybridization of knowledge*' such that IK and modern scientific knowledge can draw from what is good and valuable in both systems. For instance, African agriculture has been known as very flexible and amenable as reflected in the adoption and success of the variety of crops that have been introduced on to the continent.

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- Third, there is possibility of the '*hybridization*' of methods. That is perhaps, the most problematic in the sense that many aspects of the methods of conventional agriculture (such as the use of agro-chemicals) are significantly in conflict with the principles of agro-ecology and sustainability. The effects of modern farming methods have resulted in water pollution, proliferation of susceptible species, increased use of pesticides and soil depletion etc.
  - Fourth, there can be a '*cross hybridization of hybrids*', where for instance, modern farming methods can benefit from traditional knowledge systems. Aspects of traditional farming such as the focus on stability and risk reduction, system diversity and entropic complexity of natural systems can be valuable to conventional agriculture in achieving sustainability. Similarly, agro-ecology is generally high in net energy yield due to the fact that external energy inputs are relatively low.

## Conclusion

- The wave of sustainable development has currently come to the forefront of development studies.
- Many of the related issues (resource depletion, population explosion, soil degradation, loss of habitats and species) are recurrent sustainability issues.
- Linking rural economy, poverty and environmental degradation appear to incorporate the development needs and aspirations of a developing country like Nigeria.
- It also becomes clear that conventional agricultural development cannot be divorced from environmental issues.
- Elsewhere strenuous efforts have been made to explain the relation between “natural” and “cultural” concepts of hybridization as a combined development strategy that involves the institutions, knowledge, methods and cross-hybridization of the hybrids of both traditional and modern systems.
- Improving small-holder agriculture in enhancing food security and reducing poverty will entail:
  - i. Stepping-up improving investment in infrastructure, sustainable technology and facilitating access to credit and sustainable inputs,
  - ii. Stepping-out: Investment in non-farm economy e.g. education, health care, and
  - iii. Hanging-in: Providing social protection and investing in technology for food production.



Thank you for listening