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Natural Resources Management And Poverty Alleviation: Implication For A Sustainable Livelihood In Developing Countries

ODE, M.O. Megode@19yahoo.com Tel: +234-08077729880

Department of Home Science and Management, College of Food Technology, University of Agriculture, Makurdi.
BABAYEJU, A.A. babayejuadeshola@yahoo.com Tel: +234-08035244277
OBALOWU, M.A. mobalowu@yahoo.com Tel: +234-08163739639
Department of Home Economics & Food Science, Faculty of Agriculture, University of Ilorin.

Abstract

This paper identifies natural resources management (NRM) such as land, water, air. Minerals, fisheries, forest and wild flora and fauna as resources that provide the ecosystem that under pin the human life. The paper examines the links between NRM, rural poverty and environmental degradation using a "sustainable livelihood" lens. This lens shifts the analysis of local resources management options away from NRM and agricultural strategies and toward the multiple, flexible livelihood strategies that people pursue and the institutional and cultural context in which they thrive. This paper also highlights three strategic themes related to the contributions of incentives and empowerment. Conclusion and recommendations were made.

Key Point: Natural Resources Management, Poverty Alleviation, Livelihood

INTRODUCTION

Natural resources management (NRM) refers to sustainable utilization of major natural resources such as land, water, air, minerals, fisheries, forest and wild flora and fauna. These resources together provide the ecosystem services that underpin human life.

Natural resources (NR) provide fundamental life support, in the form both consumptive and public goods services. Ecological processes maintain soil productivity, nutrient recycling, and the cleaning of air, water and climate cycles.

Soils are the foundation of agriculture which in turn is the basic building block in the livelihoods of all people. At the genetic level, diversity found in natural life-forms support the breading programmes necessary to protect and improve cultivated plants and domesticated animals, to safe guard food security. Wild flora and fauna form the basis for traditional medicine and much of the modern pharmacological industry.

The natural resource foundation is coming under increasing pressure from both increasing population and increasing level of economic activity per capital. During the period 1990 to 2030, the world's population is likely to grow by 3.7 billion, ninety percent of this increase will occur in developing countries (World Band 1999). It's also believe that over the next four decades sub-Sahara Africa's population is expected to rise from 500 million to 1.5 billion, Asia's from 3.1 billion to 5.1 billion and Latin America's from 450 million to 750 million (world bank 1999). The distribution of population between rural and urban areas has important implications of stress placed on the environment. In 1990 most people lived in rural areas, by 2030 urban populations will be twice the size of rural populations. Developing country cities are expected to grow by 160% over this period, whereas, the rural population will grow by only 10%. This pattern will vary substantially among regions (World Bank 1992).

It's believed that the growing population will aspire to a higher standard of living. This will entail an accelerated use of natural resources, both as input to the economy and as recipient of waste. How this affect the environment is very much dependent on the structure of economic growth, the input-output efficiency in production processes, and the unit rates of pollutants emitted from these activities. Higher income also means more resources to combat environment damage. New technology enhances efficiency and reduces the amount of natural resources needed for a given output, as well the pollution intensity per unit output (World Bank 1992 and 1999).

Land and Soil. Soil fertility is the result process in healthy ecosystems, which include maintaining of forests, vegetative cover and soil biodiversity. A 1990 global assessment of soil degradation found that 1.2 billion hectares almost 11% of the earth's vegetative sources have been significantly degraded by human activities over the past 45 years. Soil degradation affects more than 900 million people in 100 countries including the least developed nations. Erosion, Stalinization, compaction and other forms of degradation affects 30% of the world's irrigated lands, 40% of rain fed agricultural lands and 70% of rangelands (Watson 1998).

These figures should be seen against the backdrop of the challenge that lies ahead; production on the existing land will need to nearly double in the next 30 years. Land is becoming increasingly scares, and new land taken into cultivation is often marginally to what is removed by degradation or urbanization. Protecting and enhancing this productive base requires a wide-ranging agenda of efforts. (World Bank 1997).

Scherr (1999) is of the view that in qualitative terms, it appears that aggregate global food supply will not be seriously threatened during the next 20 years. This conclusion is supported by World Resources 1994-1995 (WRI 1994), including that global food production per capital has increased by 20% between 1994-1986 and 1994-1996. But some regional data are of concern, that per capita food production in Africa has been slowly dropping during the last 30 years and in the former Soviet union food production has decreased significantly since 1990 (WRI 1998).

Water; Water is one of the most important natural resources, and is at the same time, becoming an increasingly scarce commodity in many parts of the world, (Water Resources and Environment Management Interface 2010). In 1990, 28 countries with a total population of 335 million experienced "water stress" (World Bank 1999, Engeiman and Leroy 1993), this figure is expected to grow according to some predictions to around 50 countries, affecting 3 billion people by 2025 (Engel man and Leroy 1993). For example, water scarcity in Middle East and North Africa, according to regional estimates, water available per capital dropped from 3,500 cubic meters in 1960 to about 1,500 cubic meters in 1990. This problem is expected to intensify in the coming years due to population growth. By the year 2000, water demand in 14 to 19 countries in the region exceeded available renewable fresh water supplies. By the year 2025, estimates indicate that water available will be down to 700 cubic meters per capita.

To promote adaption to increasing water scarcity, the World Bank recommends that countries in the region increase water prices to encourage conservation and mobilize resources for interventions, strengthen institutions to mediate water-based conflicts and introduce integrated water resource planning and management (World Bank 1994).

Forests; Forests, grasslands and wetlands provide resources directly to billions of poor people living in rural areas, including timber, fuel wood, fiber medicine and food. Forest also regulates floods by absorbing rain and recharging aquifers flooding due to deforestation destroys settlements, crops and contaminates water supplies. A situation due to upstream deforestation clogs dams and reservoirs, rendering many of them useless and contributes to poverty and displacement.

Forest and woodland areas are shrinking at a rate of about 4 million hectares per in sub-Saharan African (World Bank 1994). In East Asia, deforestation rate per annum range up to a height of 4% (Thailand); Indonesia alone loss about million hectares of forest every year (Crook 1960). More than 1/5 of the world's tropical forests have been cleared since 1960. Global rate of forest loss increased from about 12 million hectares per year in 1970s to over 15 million hectares per year in 1980s. During the 1990s deforestation continues at about 13 million hectares per year (Watson and others 1998). Although the global loss of forest is still very high, data suggest that the rate of deforestation may be slowing. It will be difficult to know if this trend, until the global forest Resources Assessment 2000, with a comparable global data set, becomes available. (FAO1999). The World Bank is currently involved in a comprehensive review of the forest policy and its implementation record.

Air Quality; Rates of urbanization and per-capita energy consumption are rising rapidly in developing regions. Without aggressive policies, air pollution will intensify in the coming years. The World Development Report 2002 estimated that about 1.3 billion people were exposed to unsafe conditions by sooth and smoke (health and environment background paper for the environment strategy). In developing countries (Nigeria inclusive) some 3.5 billion people continue to rely on traditional fuels for cooking and heating (WRI 1998). Globally, concerns are mounting over the release of green house gases that threaten to upset climatic balances with wide ranging impacts (World Bank 1999).

Biodiversity; The conservation and sustainability use of biodiversity is fundamental to achieving sustainable development and sustainable livelihoods. Natural habitats and their component species and their genes provide both goods for consumption and ecological services to maintain healthy environments and economics. The poorest rural people are most dependent on biodiversity and natural resources for their livelihoods. They are the one to suffer severely when this habitat is degraded.

Biodiversity is always regarded as a global issue. Many of the benefits of improving biodiversity consumption and its sustainable use such as new medicine development as a result of access to new genetic resources accrue to mankind as a whole. But most of the cost resulting from biodiversity degradation and those associated with its conservation and sustainable use; accrue at the national and local levels.

Many of the world's species are threatened. It was suggested that, between 1975 and 2015, 1-11% of the world's species per decade will be committed to extinction (WRI 1996). If current rate of loss of tropical forests continue for the next 30 years, the projected number of species that the remaining forest could support would be reduced to 5-10%, Relative to forests in the absence of human disturbance this rate of decline

would represent 1,000 to 10,000 time the expected rate of extinction without deforestations by humans (Watson 1998)

Natural disasters are often amplified because of poor natural resource management. The loss of coastal and inland forests aggravates damage caused by hurricanes and cyclones such as bay of Bengaland hurricane Mitch in Central America. The effects of natural disaster can be mitigated if certain ecological services such as maintenance of forest cover and wetland conservation are preserved.

Climatic Services: Human activities such as burning of fossil fuels like coal, oil and natural gas resulting in about 6 million tons of carbon released per year and land use practices particularly deforestation amounting to 1 to 2 billion tons released per year, are changing the atmospheric concentration of green house gases that shape the planet's climates.

As a result of these human activities, the earth's temperature has increased by about one-half degree centigrade this century, and is projected to increase to another 35 degree centigrade over the next century of atmosphere concentrations if green house gases continue to increase according to the current pattern (Watson 1998).

According to Watson (1998) the projected temperature changes will be accompanied by changes with amount and pattern of precipitation, leading, in many areas, to more floods and drought. It will also be accompanied by a rise in sea level of 15 to 95 centimeters. These events will cause serious problems for the world's poor, including significant increase in the incidence of malaria and dengue, increased risk of famine and hunger for many who depend on isolated agricultural system and displacement of millions of people by rising sea level.

Non Renewable Resources. Some countries that are rich in non-renewable resources are exploiting them without investing sufficiently in human and human made capita. This is, their genuine saving rate is insufficient for future needs. For example, most of the mineral-rich countries have exhibited low, or even negative, genuine saving over many years (World Bank 1997).

Beyond the question of sustainability, Mineral-dependent economies face other important macroeconomic issues, known as "economic". The boom and burst nature of resource markets creates significant problems for governments that are highly dependable on revenue from natural resources (e.g. Nigeria). The tendency to boost subsidies and consumption expenditure during boom times is difficult to reverse when the bust time arrives, resulting in soaring government deficits and, ultimately in inflation and macro instability. Managing resources income requires ability to buffer revenues, policy to match investment programs to the economy absorptive capacity for productive me mechanisms for restraining expenditure when resources price fall.

Strategy Involves; Natural resource management and poverty involves poverty driven degradation leading to calls for reducing rural population pressure, by creating urban employment alternatives. There is a need for a shift basically toward micro-level institutions mediate the impacts of the macro environment to foster sustained ability. This involve how people access and use resources as part of their overall livelihood strategy, and how they adapt to the conditions created by macro policy and political frameworks. The United Kingdom Department for International Development (DFID) (1999) defines "livelihood as comprising" the capabilities, assets and activities required for a means of living. A livelihood is a sustainable when it can cope with and recover from stresses and shocks maintain or enhance its capabilities and assets both now and in future, while not undermining the natural resources base (DFID 1999).

This lens broadens the analysis of local resources-management, looking at the involvement of the multiple, flexible livelihood strategies that people pursue and the constitutional and cultural context in which they thrive. The narrower, technological focus tends to look at strategies as inherently viable or non-viable, without looking at overall livelihood context within which these strategies are being adapted. It also assess the local situations and political economy that shapes who in the society (men, women, indigenous people, farmers, and industrialist) have resources entitlements and access to resources capital studies using the sustainable livelihood lens showed the importance of social capital at multiple institutional levels, the role of environmental entitlements, including land and resources tenures, the values of social and cultural preference; and the value of urban-rural remittances from migrants still culturally tied to rural areas. These studies offer a richest set of examples of ways in which local people instigate poverty induced by environmental degradation or limited resources access. These also show how local people have reserved pattern of degradation, despite less than perfect policy and legal conditions.

A review of regional contributions to the environmentally sustainable Development strategy, as well as other relevant literature generates a vast array of recommendations in support of sustainable NRM and hence livelihoods for the poor. This paper highlights the following three themes for contribution of the NRM work for the environment strategy property rights, incentive and empowerment.

Property Right; inefficiencies in the utilization of natural resources generally arise because property rights are not complete, exclusive, enforced and transferable. Also defined property rights are often turned round as the opportunities to exploit weakness in the assignment of such rights. The result is a "smaller pie" than theoretically possible and a smaller piece of the pie for poor (Ekbom and Bojo 1999). They should assign complete property

rights" as many natural resources (grazing land, local forests and woodlands etc) have traditionally been under common management. A common feature is also the high cost of exclusive from access to these resources. It's believed that moving towards privatization would contrary to poverty alleviation as the rich tend to largest land owners after common land is privatized. Good examples are available of well-established common-property management regime that do not meet the criterion of exclusivity and yet function to the satisfaction of the involved parties and have proven to be sustainable (Ostrom 1990) neither is the formal issuance of legal titles, the essence of this exercise, as perceived security and local enforcement are more significant concerns.

- There should be clear property rights were they do not exist or in dispute.
- There should be altering property distribution in the interest of poverty alleviation.
- There should be enforcing property right that are compatible with poverty alleviation.

These three points imply that exclusivity that is assignment to private individuals and groups, and transferability that is the established market for property rights are seen as secondary. They are not seen here as equally essential to the task of poverty alleviation. Also existing property rights are often turned round or twisted and need to be changed before effective enforcement approach become a priority. An example of innovative approach to property rights in India according to Mearns (1999) and Sinha (1999) demonstrate the need to enhance the performance of land-lease market by selective deregulation, reduce transaction cost in land markets, reduce rent-seeking among land-market administrators, promote women's independent land rights, and improve the transparency of land administration.

Incentives; there is insufficiencies in the utilization of natural resources because private and social price differ and markets are incomplete or distorted. Also powerful elites can manipulate incentives to their advantage. This results into lower total welfare especially for the poor. There should therefore be:

- Removals of policy. Include distortions that undermine sound natural resources management.
- Complementary market signals with taxes/fees that reflect social opportunity cost
- To regulate remaining extremities.

Some government subsidizes energy, which result in commissions and rapid depletion of resources (World Bank 1999). Others subsidize water, which leads to over utilization and rapid emerging scarcity. These interventions have social costs that can be documented, although, it's sometimes difficult. The World Bank has an important role in this aspect. Its unique position to perform the solid analytical work required and to forcefully channel the results into dialogue at the country level.

Removing subsidies is technically straight forward, but finding the right level of environment taxation is not. Many developing countries are progress (World Bank 2000). Agreeing on the basic rules of behavior through environmental legislation and regulation can set the stage for more specific intervention by government, the bank and other factors. Environmental assessment can be carried out to weed the damaging projects.

The opportunity created by markets, especially new markets created by environmental valuation such as carbon sink funds, certification and ecotourism represent an increasing important element in sustainable livelihoods. Murphree and Hulum (1999) are of the view that a new conservation based on the belief in the contribution that markets can make to the achievements of conservation goals. Its purposed that this Models, which treat biodiversity conservation is simply one form natural resources uses, exist side by side with the "old orthodox" of conservation purely as a state-enforced protection. One must be realistic about the existing and potential level of demand for product service derived from biodiversity friendly land uses. Also, it's important to distinguish between market force that favors biodiversity conservation and of itself and those which involve exploiting specific biological resources, whether on a sustainable of unsustainable basis.

Empowerment: inefficiencies and inequities in the utilization of natural resources arise due to poor information and costs and benefits are not equally distributed. The result is that, sound management of natural resources often "does not play" from individual or local perspective, as other will reap the benefits. If the local forest is managed by a distant ministry that may issue logging permits without local constitution, why should the villagers conserve the forest? If wildlife is managed by the central government, and tourism revenues accrue to the external entrepreneurs while wide animals damage local crops. What is wildlife more than an opportunity to compensate for a protein deficient diet.

The work required here include:-

- Capacity building on an individual and provision of information and training
- Building of social capital through decentralization and empowerment and supporting institution that are honest and transparent and have the confidence of local population.

Since 1992 Andhra Pradesh (AP) has embarked on an ambitious program of joint forest management (JFM) in India. As of march 1998, some 3,665 forest protection committees have been formed at the village level, with oversight of over 900,000 hectares, of which are associated with implementation of JFM in AP. The World Bank is already involved in rehabilitation and conservation through Andhra and Pradesh forestry

project with an IDA credit of 877.4 million. This project was launched in 1994 with the main objectives of supporting regeneration and a forestation of degraded forests, plantation forestry, expansion of community forestry, research and protected areas management after reconstruction in 1997, it has achieved good results in terms of regeneration of degraded forests and JFM supports. (World bank 1994). Examples of incentive created for wild life conservation include the Luponde Development Project in Zambia which involves the local community directly in the protection of wildlife and to share in the benefits of wildlife revenues. A village scout program was instituted to provide training and employment for locals. It's reported that poaching has dropped considerably since pre-project levels and the scout is being extended into new areas.
The Herero community Game Guards in Namibia also has taken a similar approach. Poaching in the areas has dropped and wildlife has begun to return. This has stimulated tourism in the kaokoveld which has given rise to a crafts industry. The community now levies a tax on all tourists who spend a night on their land. (II ED 1994)
The world bank recognizes the need to support the obligations that our client have assumed under the convention of Biological diversity, and is also committed to serve as an implementing agency for the Global Environment Facility (GEF). The GEF remains, to date, the only major mechanism to address these issues, even though the benefits of biodiversity conservation and its sustainable use are the foundations of economic sustainability (World Bank 1995).

Conclusion

Natural resources management refers to the sustainable utilization of major natural resources such as land, water, air, minerals, forests, fisheries and wild flora and fauna. Together these resources provide the ecosystem services that underpin human life. This natural resources management should contribute to poverty alleviation, and (NRM) should be used in a sustainable manner to enhance human welfare.

The links between NRM, rural poverty and environmental degradation using a "sustainable livelihood lens was examined".

Poor people are often critically dependent on natural resources, and suffer most when they are degraded. While poverty alleviation and sustainable NRM are generally compatible, some situations may require difficult trades off. For example, in some countries, short term poverty alleviation such as shoot the wild animals, cut down the forest and plant maize is in opposition to long term poverty alleviation such as "conserve the ecosystem and develop ecotourism". It was emphasized that poverty alleviation must be pursued in the most cost efficient manner possible, including external costs. For example, riverbed mining that uses hazardous chemical may be income generating for some, but for people living downstream, resource degradation may be far too costly. A situation specific cost-benefit analysis should be helpful in determining how such tradeoffs should be solved.
Emphasis were also made on attributes responsible for non consumption services, including those provided by ecosystems, it emphasize the functional relationship among natural resources such as forest, water and fisheries that constitute an important element in the sustainability of ecosystem. The status and trend of natural resources as well as strategic considerations that are paramount in addressing the problems identified were discussed.

Recommendations: The following recommendations were made:-

1. To promote adaptation to increasing water scarcity, countries in the region should increase water prices to encourage conservation and mobilize financial resources for investment, strengthen institutions to mediate water based conflicts, and introduce integrated water resources planning and management.
2. Combining productivity with the sustainability of the overall landscape and maintaining flexibility in the face of changing market demand, changing labour availability, or natural disasters should be maximized rather than the return to a single resource such as corn production per hectare and timber growth per hectare.

Technologies should be adapted or produced with gender lens, making sure that woman as well men control access to resources and financial capital and benefits from production.

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