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Reducing the cycle of poverty through environmental extension education

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Abstract

Environmental extension education as a means of poverty reduction offers great economic returns for the youth and adults across the population. Poor people depend on environmental resources for their livelihoods. These economic activities can lead to increasing environmental degradation and depletion, worsen the incidence of poverty, and jeopardize future growth. The ability of poor people to use, maintain and control their environmental resources and services can influence their well-being. Environmental management and poverty reduction measures provide opportunities to build sustainable livelihoods and stimulate economic growth. And equitable management of the environment and poverty reduction are integral to the achievement of Millennium Development Goals. These are issues examined in this paper.

Keywords: poverty, extension, environmental extension, livelihood, conservation

Introduction

Poverty is a cankerworm that has become a world phenomenon. Deep in the fabric of society, poverty inflicts pain on the people and loss on the environment. There are types of poverty. But for the purposes of this paper, emphasis is placed on environmental poverty defined as the lack of healthy environment needed for society's survival and development, and this lack is mainly recognized as the consequence of environmental degradation caused by human activities.

Poverty according to the United Nations (2007) ^[17], "entails more than the lack of income and productive resources to ensure sustainable livelihoods". It calls for the mainstreaming of poverty eradication into the national policies and actions in accordance with the internationally agreed development goals forming part of the broad United Nations Development agenda.

The UN Environment (2018) ^[14] considers the sustainability of the environment as complementary and necessary to "end poverty in all its forms everywhere". The ecosystem services and other non-market goods make up between 50 and 90% of the total source of livelihoods among poor rural and forest-dwelling households worldwide – known as "GDP of the poor". It, therefore, means that economic development and poverty reduction strongly depends on improving the management of the environment and natural resources, the "natural capital" of the poor. To this end, eradicating poverty remains a major challenge for least developed countries, estimated to have more concentration of poverty, and where natural capital makes up 36 per cent of their wealth.

In the postulation of UN Environment, inequality endangers growth, poverty reduction and ecosystem sustainability where the poor and marginalized groups are disproportionately dependent on ecosystem services. The mainstreaming of poverty-environment, climate and gender can help eradicate poverty, reduce inequality and combat environmental degradation as economic development and poverty reduction strongly depend on improving management of the environment and natural resources. The integration of poverty reduction and environmental sustainability measures can support governments in achieving Sustainable Development Goals by making pro-poor, gender-responsive environment and climate issues a core part of their policy and decision-making processes.

The UNDP (2020) ^[16] reiterates poverty-environment mainstreaming as an important part of institutional change process to integrate poverty-environment linkages into policy and

planning, budget and implementation processes at all levels. It described it as “a multi-year, multi-stakeholder effort that entails working with state actors to enhance environmental and natural resource sustainability as a means to achieve poverty eradication”. UNDP further adds that poverty-environment action for Sustainable Development Goals is a joint global project which provides an avenue for the poverty-environment mainstreaming process.

United Nations (2008) identifies the manifestations of poverty to include “hunger and malnutrition, limited access to education and other basic services, social discrimination and exclusion as well as the lack of participation in decision-making”. Goal No. 1 of SDGs which is to end poverty in all its forms everywhere is a global initiative and should be given support and action to make the world a place where everyone has equal opportunities for survival irrespective of background or status, sex or colour.

Poverty Alleviation through Environmental Extension Education

The environment is key to human survival and this is more so for the poor. The UNDP (2005) ^[15] reports that “the world’s poor depend critically on fertile soil, clean water and healthy ecosystems for their livelihood and well-being”. This reliance creates complex, dynamic interactions between environmental conditions, people’s access to and control over environmental resources, and poverty. It is, therefore, important to understand the nature of these relationships as a prerequisite for enduring success in the fight against poverty. However, despite the undeniable reality of the importance of the environment for poverty reduction, and the economic case for pro-poor investment in environmental assets, it is still unfamiliar to many especially those who are to put action into policy. As a result, the environmental concerns of the poor all too often are undermined in the policy framework of national development planning and efforts to achieve the MDGs.

Poor households rely heavily on environmental assets as a source of wealth from which they generate income and improve their livelihoods. Similarly, environmental assets are also an essential source of wealth for the economics of developing countries (UNDP, 2005; Irish Aid, 2006) ^[15, 10]. Irish Aid (2006) ^[10] reports that one in five people in the world lives in poverty. At the same time, the planet’s capacity to sustain the more than 6 billion people living on it and to provide them with the resources they need to survive is diminishing. With this bleak outlook, only a balance between the social, economic and environmental aspects of development can a long-term solution be achieved. As Irish Aid (2006) ^[10] reports, the environment and environmental change affect poor people in three-dimensional ways:

- **Livelihoods:** Poor people tend to be most dependents on their environment and natural resources and are therefore most affected when the environment is degraded or they lose access to resources.
- **Health:** Poor people suffer most when land, water and the air they breathe are polluted. Environment risk is a major cause of ill health and occurs more in developing countries.
- **Vulnerability:** Poor people are most exposed to environmental hazards and environment-related conflict. They also have low coping and adaptive capacity when calamities and conflicts occur.

It is access to natural resources that crystallize into aspects of governance and environmental extension services. Poor people need secure access to the natural resources on which they depend (forests; arable land, pastures, coastline) to maintain their livelihoods. In many developing countries there is lack of enforcement of rules and regulations. This creates room for overexploitation of natural resources and accompanying environmental degradation with negative impacts on people’s livelihoods.

Environmental extension services are required to recover (in the case of natural disasters), preserve and sustain natural resources upon which people depend for livelihood. The establishment of institutions for cooperative management of resources for optimum benefits of private and public interest has become a necessity. The management of natural resources had been done to the exclusion of community participation. The Environmental Agencies have the capacities in providing extension services to a large communal rural development programme.

Extension is communication. The Bases of extension is a two-way flow of information between the recipients (those who depend on natural resources for their livelihood) and the facilitators, (those advising them) - (Christoplos, 2018) ^[4]. The environmental extension services offered by Singer, Bezabin & Lovo (2015) ^[12]; UN (2009) ^[13]; UNDP (2005) ^[15]; Irish Aid (2006) ^[10] are adapted here as key environmental extension practices needed by those who draw their livelihoods from natural resources. These include:

Training and extension services

Training programmes educate people to adopt sustainable strategies, make better-informed choices and reduce the impact of their economic activities on the environment, usually through community-level courses or targeted extension services. Through this approach, people are helped to develop environment-friendly methods and skills and learn to make better decisions.

Community-based natural resource management

This strategy involves communities becoming responsible for managing natural resources. This is a participatory resource management approach to help manage forests, open woodland or grasslands for livestock grazing, wood supply, medicines and famine foods, farmland for gleaning, grazing after harvest, and crop residues; wildlife for game meat and safari incomes; fish in fresh water and lakes; and aquifers, tanks, and irrigation channels for domestic and livestock water supply and irrigation.

Providing access to credit and other mechanisms

Support and promote efforts to provide access to credit and other mechanisms as well as resources for farm-based activities, especially for small-scale farmers to better manage the various risks they face, including price, weather, climate, water shortages, land degradation and natural disasters etc.

Promote equitable access to land

Support and promote equitable access to land, water, financial resources and technologies.

Promote efforts to harmonize modern technologies

Support and promote efforts to harmonize modern technologies with traditional and indigenous knowledge for sustainable rural development.

Protect and ensure sustainable use of traditional knowledge

Protect and ensure sustainable use of traditional knowledge, including indigenous knowledge in accordance with article 8(j) of the Convention on Biological Diversity, for the management of natural resources to address the challenges of sustainable development.

Build adaptive capacities of rural communities to cope with natural disaster

Support and build the resilience of rural communities to cope with and recover from natural disasters.

Promote and scale up labour-intensive recovery activities

Promote and scale up labour-intensive recovery activities in addition to capital-intensive programmes.

Support training and capacity-building of rural communities

Support and promote training and capacity-building of rural communities to effectively implement adaptation programmes to climate change at the local level.

Invest resources to enhance research

Support and promote investment in resources to enhance research aimed at adapting to the challenges of climate change.

Strengthen the human capacities of rural people in health-care delivery

Support and strengthen rural health-care facilities and capacities, train and increase the number of health and nutrition professionals, sustain and expand access to health-care systems; design and develop educational programmes for rural communities aimed at disease prevention.

Encourage rural communities' participation in decision-making

Encourage rural communities' participation in decision-making, promote rural communities' empowerment and rural leadership.

Provide entrepreneurial training

Support and provide entrepreneurial training, credit and other support to off-farm and other non-primary production activities.

Support provision of water supplies and sanitation

Support and promote the provision of water supplies, sanitation, and waste management. Improved water supplies and sanitation create time savings that translate into higher economic output and productivity as well as greater school attendance.

Support replacing the traditional biomass used by the poor

Support and promote replacing the traditional biomass fuels yield multiple benefits in terms of time savings, improved

human health, reduced environmental damage from firewood cutting, and improved soil quality.

Support activities that highlight and address the links between the environment and poverty reduction

Such activities should include community organizations and NGOs etc.

Develop instruments that encourage pro-poor investment in public goods

Such instruments should include incentives for business to invest in the protection of natural resources to encourage fair access to resources such as water and forest products.

Building capacities for the poor would greatly enhance access to environmental assets and contribute to poverty reduction.

Preserving livelihoods through Environmental Extension Education

It has been stated that one out of every five people in the world is poor (Irish Aid, 2006) ^[10]. USAID (2006) ^[18] has also stated that "about three in four people live in rural areas, where they depend on natural resources for their livelihoods". These statements of reality call for urgent actions by actors, agencies of government and NGOs to ameliorate circumstances that increasingly endanger the livelihoods of the poor and a steadily worsening poverty situation.

As DFID, EC, UNDP and World Bank (2002) report, the environment matters greatly to people living in poverty. The poor critically depend on a wide range of natural resources and ecosystem services for their livelihoods; they are often the most affected by unclean water, indoor air pollution, and exposure to toxic chemicals; and they are particularly vulnerable to environmental hazards (such as floods, prolonged drought, and attacks by crop pests) and environment-related conflict. Addressing these poverty-environment linkages must be at the core of national efforts to eradicate poverty.

It is further reported that many opportunities exist to reduce poverty by improving the environment – but there are significant and often deeply entrenched policy and institutional barriers to their widespread adoption. The following areas identified by DFID, EC, UNDP and the World Bank are key to preserving livelihoods, and can be useful tools for environmental extension agents' action include:

Strengthen resource rights of the poor

Extension service agents working with the poor should focus on improving the natural resource asset base of the poor. These assets include natural capital (land, forests, water, fish, energy resources, and minerals); social capital (relationships of trust and reciprocity, groups, networks, customary law), human capital (skills, knowledge, beliefs, attitudes, labour ability, and good health); physical capital (basic infrastructure such as water supply and sanitation services); and financial capital (monetary resources). In carrying out this function, they will need the support of governments in the form of supportive policies and institutional arrangements to create more flexible and secure livelihood options for the poor.

Enhance the poor's capacity to manage the environment

In both rural and urban areas, a wide range of innovative approaches can be applied by extension agents to empower local environmental management and to improve livelihood options for the poor.

Expand access to environmentally sound and locally appropriate technology

Adopting cost-effective renewable technology that contributes to reducing air pollution will greatly enhance environmental health. Similarly, the integrated pest management (IPM), an alternative to chemical pesticides provides the poor farmers with a pest's management technology that is sustainable, and they can afford.

Reduce the environmental vulnerability of the poor

Since the poor live in areas prone to disasters such as floods, tsunami, drought, earthquakes, landslides, locust attacks etc., and are unable to cope with these disasters, make them vulnerable. The extension agents working with government agencies and NGOs can help to ensure that the massive impacts of these disasters are significantly reduced.

It is expected that the extension agents in helping to preserve the livelihoods of the poor would find niches that are affordable, sustainable and cost-effective in implementing pro-poor environmental management.

Building Conservation Efforts through Environmental Extension education

The forests have many benefits (tangible and intangible), and these benefits are of many uses to man. FAD (2016) in assessing environmental conservation and forestry and its role in the economy of Myanmar, has identified some of these benefits to include animal products, fisheries, wood, medicinal plants, minerals, support to soil systems, quality and quantity of water, influence of rainfall and its distribution, moderating effect on temperature, pollination services etc.

To conserve forest resources, forestry extension methods are required to disseminate the necessary knowledge and technology to desired target groups. Extension as a non-formal education process is an important tool for forest conservation and development. A participatory planning process, in which the people are actively involved in a bottom-up approach is important in planning and managing conservation programme. Ahmed (1991) ^[1] advocates for development support communication (DSC) resources to support local and national development efforts on forestry extension. The DSC consists of manpower trained in communication, communication facilities and equipment, communication materials, communication budget, and mass media generation. Planning conservation efforts in this way is important for a successful forestry development programme that is efficient, timely and cost-effective driven. To ensure effective planning of extension programme, institutional capacity building, DSC, and continuous extension training programmes should be integrated into the entire work plan. Extension is defined as an important tool to expand forest resources, to protect the dwindling forest resources, and to ensure optimum use of forest resources. It is the means of transferring information and technologies seen as the means to an end for the adoption of forestry technologies by community members for their socio-economic improvement (Ahmed, 1991) ^[1].

The bottom-up extension training programme is one in which the felt-needs, aspirations, problems and cultural transitions of the participants as perceived by them are reflected (Clark, 1982) ^[5]. As opposed to the top-down approach, the bottom-up approach is characterized by the following elements:

- Involvement of local participants in the early stages of planning and development;
- The role of the extension agent is as a facilitator rather than a teacher;
- It is a two-way information flow system; and
- Participants and agents are actively involved in learning, and participants are involved in the selection of programme content.
- To conserve forests, a number of methods have been suggested by Chand (2018) ^[3] to include:
 - Regulated and planned cutting of trees through clear-cutting – and then marked for replantation; selective cutting in this case only mature trees are selected for cutting; shelterwood cutting.
 - Control over forest fires
 - Reforestation and afforestation
 - Check over forest clearance for agricultural and flabitation purposes.
 - Protection of forests
 - Proper utilization of forest products and forests.

In following the above steps, the government also has its role to play through appropriate laws and regulatory functions to ensure compliance by members of the community, and for creating awareness amongst the people and changing their behaviour by informing and educating them through appropriate media.

Sustaining the Environment through Environmental Extension Education

Environmental extension is a non-formal education process which Akinbile (2000) describes as “the propagation of sustained natural resource use involves dissemination of products of interaction between an entity and its surrounding in a manner of the mutual relationship among its component”. It, therefore, involves the interaction of all actors in environmental concerns, that is, between its users, researchers and change agents by way of horizontal dissemination of information to foster a common understanding of the environment and its management.

Environmental sustainability, one of the three pillars of sustainable development, refers to the capacity of the natural environment to remain productive and resilient to support human life. Mensah (2019) ^[11] citing Brodhag and Taliere, (2006) sees environmental sustainability as relating to ecosystem integrity and carrying capacity of the natural environment. It requires that natural capital be sustainably used as a source of economic inputs as a sink for waste. The implication of this according to Diesendorf (2000) ^[7], is that natural resources must be harvested no faster than they can be regenerated while waste must be emitted no faster than they can be assimilated by the environment. This is explained by the fact that the earth systems have limits for maintaining equilibrium.

In an elaborate study Francis (1994) ^[9] has provided a significant integration of environmental and sustainable development in extension education. The study shows how environmental-related education has been integrated into

extension programmes. Surveys conducted show that farmers change practices for economic, safety, environmental and philosophical reasons. With the increasing publicity about health problems associated with agricultural chemicals and with nitrate in water supplies, there is a growing awareness of the need for alternatives.

Francis (1994) ^[9] report that environmental dimensions have always been part of the extension, including concerns about soil erosion, recommendations for legume cover crops and rotations, and most efficient use of fertilizers; promotion of increased resource use efficiency has become more focused since the energy crisis of the 1970s and the environmental awareness including air, water, and soil quality in the 1980s. Decisions to develop materials and incorporate an environmental message have come from specialists and agents in the field, with support and encouragement from key actors accelerating the process since the late 1980s.

The strategy of integrating environmental dimensions into extension programmes has developed in response to concerns of some farmers and rural residents, pressures from environmental groups, and especially federal regulations directed at pesticide use, safety and protection of ground and surface waters. The approach has been to use these issues as introductory comments to convince clients of the importance and relevance of new practices and systems, and to include economic, health and stewardship incentives among the reasons to consider changing to more environmentally benign practices.

Extension agents having been trained for sustainable agriculture, erosion control, waste management, and pesticide safety through in-service training sessions, undertake the monitoring and evaluation of environmental aspects of programmes that follow the classical reporting and evaluation procedure of extension.

Prof. Chuck Francis admits that substantial connections of environmental and natural resource issues have been made with the production of educational activities in extension. In general, the environmental education activities of extension form an integral part of the mainstream programme of meetings and publications. Based on current practice, there is great potential for the pooling of ideas and resources with environmental groups, educational institutions and private sources to further the incorporation of environmental and natural resource information in future programme.

The integration of environmental and sustainable development in all extension institutions would greatly enhance the reduction of poverty, and the overall achievement of environmental sustainability.

Conclusions

Poverty-environment issues need to be integrated into mainstream planning and resource allocation processes – including national development plans and budgets. The mainstreaming of environmental issues into the production of training and educational materials in extension is important to disseminate environmental knowledge and skills needed by farmers and community members. This would promote an all-integrated effort aimed at communal management of natural resources for sustainable development.

It is pertinent that the mandate to integrate environmental education in the programmes of learning institutions be a policy regulation of governments. This will make environmental education a basic education and a right of all

as global citizens who will be making individual and collective contributions to the attainment of sustainable environment and development – a core goal in the MDGs.

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