

# GREENING RURAL DEVELOPMENT APPROACHES AND CHALLENGES WITH REFERENCE TO INDIA

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**Abstract-** Greening the rural economy is central to increasing decent employment opportunities, enhancing resource and labour productivity, and fostering poverty eradication and social inclusion. This paper deals with greening rural development approaches and challenges with reference to India. It outlines the general greening rural development approaches with reference to renewable clean energy, sustainable farming practices, promoting sustainable tourism, ecological restoration in rural areas, social protection measures and dialogues on promotion of rural green economy. This paper makes a special note on greening approaches in Indian rural development schemes and outcome of greening approaches in Indian rural development schemes. This paper concludes with some interesting findings along with policy suggestions.

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## Introduction

Greening rural development refers to five broad green outcomes: improved natural resource conservation; increased efficiency of resource use; reduced negative environmental impacts; strengthened climate resilience of communities; and contribution to climate change mitigation. Greening the rural economy is central to enhancing resource and labour productivity, boosting poverty eradication, increasing income opportunities and improving human wellbeing in rural areas. Rural populations often depend directly on the environment and natural resources for their livelihoods, such as in agriculture, forestry, mining and tourism. As per the report by ILO/IOE/ITUC/UNEP (2012), some 410 million indigenous people and communities depend on forests for their livelihood, and more than 180 million people on fisheries, many in coastal and rural communities.

ILO (2012), notes that ecosystems and the services or benefits they provide, often referred to as “natural capital”, are increasingly threatened by excessive use of natural resources and their degradation, as well as environmental changes caused by climate change. Those rural communities that depend most on natural capital such as soil, forests, fish stocks and ecosystem services for their livelihoods, are often also poor and lack adequate social protection, and thus bear the highest costs of environmental degradation and climate change. According to IPCC,( 2007), women are more likely to be affected by environmental degradation, and climate change. ILO, (2009), reports that women are more likely to be affected by environmental degradation, and climate change. Further ILO, (2008): argues that women predominate among the poorest and are disproportionately concentrated in agriculture and tourism, sectors which depend on natural resources and are often characterized by poor pay and other decent work challenges. The consequences are growing risks to rural livelihoods, declining productivity, poverty and insecurity, conflicts over access to resources and rural to urban migration.

To address these challenges, it is important to develop interventions aimed at preserving, restoring and enhancing the quality of the environment across rural areas. One intervention is to create green employment – such employment that are attractive and generate good returns and income, and that reduce consumption of energy, raw materials and natural resources, reduce emissions of greenhouse gases, minimize the production of waste and pollution, protect and restore ecosystems and biodiversity, and help adapt to climate change. Examples of such employment are those related to reforestation, land and water management, organic agriculture, the development of clean sources of energy, eco-tourism, and recycling of agricultural waste. Because those most affected are the poor whose livelihoods depend on the environment.

## Green Employment

Employment opportunities are green when they help reduce negative environmental impact, ultimately leading to environmentally, economically and socially sustainable enterprises and economies. More precisely, green employment opportunities are decent employment avenues that: improve energy and raw materials efficiency, limit greenhouse gas emissions, minimize waste and pollution, protect and restore ecosystems and support adaptation to the effects of climate change.

## Renewable Clean Energy

Lack of access to modern sources of energy is widespread in rural areas of developing countries and hampers economic growth, employment opportunities and livelihoods. Most of the 1.5 billion people lacking access to electricity are in rural areas, and the job creation potential through the production and supply of clean energy systems is significant in rural economies.

As per the report by UNCTAD (2010), the sources of renewable energy, such as sun, wind, biomass or geothermal sources, are often widely available in rural areas. As such energy may be produced both on a large or small scale using locally available resources; it is well adapted to rural areas. It can mean good revenues for producers, land rents for installations in the case of wind turbines, and employment avenues in construction, operation, maintenance and distribution of the systems. More importantly,

access to energy enables a range of other productive activities, in particular food processing, storage, and transport of agricultural products with the development of bioenergy based transport fuels.

Many of those employment opportunities are can be attractive to youth as they require advanced skills and offer relatively better income opportunities. According to ILO (2013), early experience suggests that young people can benefits from opportunities to set up or engage in new energy service companies serving rural communities. ILO (2013), points out those cooperatives can be a vehicle to promote clean energy access in rural areas. Locally produced energy provides a solution to the key problem of insufficient energy supply in the rural economy.

### **Sustainable farming practices**

With over 1 billion people employed in the sector, agriculture is the second greatest source of employment worldwide after services. ILO (1996), brings to attention that the sector faces serious challenges to sustainable growth and has the highest concentration of the working poor in developing countries. Agricultural activities are both adversely affected by and contribute to climate change and environmental degradation. ILO/IOE/ITUC/UNEP: (2012), emphasize that agriculture can be highly resource intensive, using over 70 per cent of fresh water available globally and contributing to 13 per cent of greenhouse gas emissions. As per the report by FAO and ILO, (2008), and Safety and Health (2009), conventional farming practices depend on intensive use of pesticides are also a major health hazard for workers, causing some 70,000 poisoning deaths each year and at least 7 million cases of acute and long-term non-fatal illness.

A major challenge is to produce food in more efficient and sustainable ways, reducing resource use and food waste and food loss, while improving productivity, incomes and working conditions. FAO (2009) estimated that 70 per cent more food is required by 2050 to feed an anticipated 9.2 billion people. As per the report by ILO (2008), yields in rain-fed agriculture are predicted to be reduced by up to 50 per cent in some parts of the world already by 2020. Understanding the environmental impact of agriculture and promoting climate-smart agricultural practices, which address the interlinked challenges of food security and climate change, is vital to achieving sustainable rural development.

### **Promoting sustainable tourism**

Tourism is one of the fastest growing sectors, and rural destinations are gaining popularity due to their slower pace of life, locally-grown foods and natural environment. Tourism has significant economic and employment potential for rural areas, both directly, through jobs in the sector, and indirectly, through supportive sourcing industries like construction, agriculture, fishing, food processing, furniture, handicraft, transport, utilities, and other services. These jobs can be highly attractive to youth, as the sector and many of its activities and occupations may be viewed as “modern”, entailing social “status”, requiring advanced skills, and constituting a good source of income.

### **Ecological restoration in rural areas**

Green works in the form of infrastructure and related work that have direct environmental benefits or respond to specific environmental contexts such as changes in climate and extreme weather events in rural areas can be an effective strategy for job creation, protection of vulnerable livelihoods and restoration of natural capital.<sup>16</sup> The local resource based approach to infrastructure-related work in the form of water and soil conservation, flood protection infrastructure and rural transport improvement and maintenance and the greening of rural enterprises promotes local job creation, and by employing local people, it encourages responsible use of local resources.

A combination of market-based instruments that have immediate impact on land and resource use decisions by the ways of taxes, emission trading schemes, carbon sequestration, watershed protection, etc. with broader environmental policy instruments can yield gains.

### **Social protection measures**

Policies to green the rural economy, including measures to control and limit timber extraction, may have unexpected impacts on jobs, costs of production, incomes and social security. To offset such potential negative effects, flanking policies and programmes are required to create income replacement opportunities, to provide social protection and to help build rural productive capacity.

### **Greening approaches in Indian rural development schemes**

The major schemes on rural development in India can potentially make a significant contribution to sustaining natural resources and ecosystem services. Some examples are:

A vast majority of the works under Mahatma Gandhi National Rural Employment Guarantee Scheme are linked to water, soil and land. The list of ‘permissible’ works provide environmental services such as conservation of water, groundwater recharge, reduced soil erosion, increased soil fertility, conservation of biodiversity, reclamation of degraded crop and grazing lands, enhanced leaf manure, fuel wood and non-wood forest products supply among others.

The Integrated Watershed Development Programme aims to restore ecological balance in a watershed by harnessing, conserving and developing degraded natural resources such as soil, water and vegetative cover and thereby help provide sustainable livelihoods to the local people. The scheme’s potential for green outcomes is also enhanced if it supports the adoption of “green agronomy” practices and promotion of use patterns that sustain natural resources including groundwater and soil fertility.

Under NRLM the guidelines for non-timber forest produce-based livelihoods under the Mahila Kisan Sashaktikaran Pariyojana identify regeneration and sustainable harvesting of NTFP species as key objectives; similarly, promotion of organic

and low-chemical agriculture and increased soil health and fertility to sustain agriculture-based livelihoods is an objective under the sustainable agriculture component of Mahila Kisan Sashaktikaran Pariyojana; increased availability of green inputs and advisory services to farmers and livestock herders and use of renewables-based energy services for processing activities have immense potential for green outcomes

Under Indira Aawas Yojana, green results include efficient use of resources, including water, energy and construction material. Further, Indira Aawas Yojana can encourage greater use of renewable and locally available construction material, and reduced use of water and energy. Nirmal Bharat Abhiyan – formerly the Total Sanitation Campaign - has recently expanded its scope from eradication of open defecation to comprehensive sanitation in rural areas. Ten percent of the project funds is earmarked for solid and liquid wastes management. NBA can ensure safe disposal of solid and liquid waste, and prevent untreated wastewater from re-entering the water system. These results can substantially improve the quality of water.

### **Outcome of greening approaches in Indian rural development schemes**

Greening rural development refers to a variety of activities that regenerate and conserve the natural resource base, innovate and use clean materials, technologies and processes to create environment-friendly products, livelihoods, enterprises and jobs. Greening Rural Development uses green indicators and metrics for monitoring and evaluation of rural development projects and schemes. The outcome of the greening rural development programme is discussed here.

#### **Improved resource conservation:**

Rural development schemes especially Mahatma Gandhi National Rural Employment Guarantee Scheme and Integrated Watershed Development Programme focus on regeneration of natural resources. Conserving and regenerating land and water resources enhances their productivity, leading to increased agriculture outputs and improved livelihoods derived from agriculture, forests and pastures. These schemes can assist in reducing run-off and soil losses, recharge groundwater, increase vegetative cover and improve biodiversity, and thereby, augment the productivity of natural resources and ecosystems.

#### **Improved resource efficiency:**

Rural development schemes can substantially improve the efficiency of natural resource use in rural livelihoods and essential services. Under Integrated Watershed Development Programme, there is opportunity to support farmer groups to adopt practices that improve efficiency of irrigation water. This can be done through appropriate crop choices, farming techniques, drip and sprinkler irrigation systems and improved field irrigation methods. Under NRLM, women's self help groups and farmers can be supported on efficient nutrient management by combining chemical inputs with organic inputs. Under Mahatma Gandhi National Rural Employment Guarantee Scheme, soil erosion can be reduced leading to lower run-off of chemical fertilizers and higher yields per unit of applied chemical fertilizer.

#### **Reduced negative environmental impacts:**

Greening Rural Development schemes can potentially reduce the negative environmental fall-out of economic development with respect to pollution, waste generation etc.. Solid and liquid waste management in the Nirmal Bharat Abhiyan (formerly the Total Sanitation Campaign) improves local sanitation and hygiene and thereby, the well-being and health of local residents. In the Indira Aawas Yojana, the use of locally-available resources such as rice husk ash and fly ash reduces diesel required to transport manufactured materials over long distances, and thereby, environmental pollution. Organic farming and sustainable harvesting of Non Timber Forest Products under National Rural Livelihood Mission and the use of renewable energy for lifting water in National Rural Drinking Water Programme are other examples.

#### **Strengthened climate resilience of communities:**

Greening rural development schemes can potentially enhance the resilience of rural population and production systems, and reduce risks arising from climatic variations and extreme events such as droughts, floods and cyclones. Afforestation, plantations, fodder development and vegetation belts in coastal areas under Mahatma Gandhi National Rural Employment Guarantee Scheme, Integrated Watershed Development Programme or National Rural Livelihood Mission build livelihood resilience and improve local communities' coping capacity to potential impacts of climate change. They also increase biodiversity and make the local ecosystems more resilient. Flood control measures under Mahatma Gandhi National Rural Employment Guarantee Scheme and Integrated Watershed Development Programme enhance resilience in flood-prone areas.

#### **Contribution to climate change mitigation:**

Large-scale forestry and soil conservation measures can sequester carbon and reduce greenhouse gas emissions. For example, afforestation, plantations and vegetation belts under Mahatma Gandhi National Rural Employment Guarantee Scheme and Integrated Watershed Development Programme can help sequester carbon and contribute to national and global efforts to address climate change.

#### **Conclusion**

It could be seen clearly from the above discussion that greening rural development depends on renewable clean energy, sustainable farming practices, promoting sustainable tourism, ecological restoration in rural areas, social protection in respect of utilization of green resources and measures and dialogues on promotion of rural greening economy. In India greening rural development is essential for ensuring the environmental sustainability of economic growth, and rural development schemes can contribute significantly to conserving water resources, soil quality and biodiversity. In the direction of green growth, the

implemented rural development schemes in India such as Mahatma Gandhi National Rural Employment Guarantee Scheme, Integrated Watershed Development Programme and the source sustainability component of National Rural Drinking Water Programme can help arrest and even reverse the decline in groundwater levels in critical regions. This is particularly useful for hard-rock regions where groundwater depletion is at its most acute. Soil conservation works are a large part of Mahatma Gandhi National Rural Employment Guarantee Scheme and Integrated Watershed Development Programme activities. Soil fertility enhancement is a key objective of the Mahila Kisan Sashaktikaran Pariyojana and sustainable agriculture components of National Rural Livelihoods Mission. Mahatma Gandhi National Rural Employment Guarantee Scheme, Integrated Watershed Development Programme and National Rural Livelihood Mission activities can play a major role in conserving India's biodiversity which is so essential for providing the country with ecological and livelihood security.

It is significant from the points highlighted in the paper that green outcomes from rural development schemes can help increase climate resilience of production systems, livelihoods and habitats: rural development schemes can help reduce the impact of meteorological droughts by conserving soil moisture, slowing down water runoff and increasing water storage in surface reservoirs as well as aquifers. It can also improve vegetative cover in common lands, making more fodder and fuel wood available during droughts. Resilience in the face of floods can be provided by improving drainage.

The findings of the present study lead to the following suggestions,

Support district level Building Resource Centres to promote green technologies and designs; link financial support to quantity and effectiveness of green services provided

Specify environmentally sustainable resource management and production systems in the work plan, with convergent support from other schemes, and develop capacities of community institutions to adopt the systems

Strengthen capacities of Gram Panchayats to develop green proposals and monitor green results towards developing and utilizing appropriate toolkits for this purpose

Strengthen block level capacities to support implementing agencies to deliver green results

Set up a Green Innovations Fund to promote and incentivize the development and extension of technologies and social processes to achieve green outcomes

Efforts could be made to promote sustainable green livelihoods for local communities in India

The government should give Occupational training on green jobs in rural areas

There is a need to conduct the Green Jobs demonstration programmes that respond to the different needs of women and men in rural areas

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