

'MGNREGA' as a Tool for Environmental Governance: A Case Study of Kamakshi Panchayath (Idukki) And Pallikkare Panchayath (Kasaragod)

Lins Jose

PhD Scholar

Department of Public administration and Policy Studies

Central University of Kerala

Periye, Kasaragod-

linsjose0701@gmail.com

Abstract

The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) is a pivotal scheme in India, aimed at ensuring rural livelihoods through guaranteed employment. Beyond its social and economic objectives, MGNREGA plays a significant role in environmental governance and natural resource management. This study explores the environmental impact of MGNREGA in two distinct geographic regions: Kamakshi Panchayath in Idukki district, characterized by its hilly terrain and biodiversity, and Pallikkare Panchayath in Kasaragod district, known for its coastal and agricultural challenges.

Using a case study approach, the research highlights various MGNREGA initiatives such as afforestation, soil and water conservation, coastal ecosystem restoration, and sustainable agricultural practices. It examines how these projects contribute to environmental sustainability while enhancing community resilience. The study also identifies the challenges faced in implementation and provides a comparative analysis of the environmental outcomes in the two panchayaths.

The findings underscore MGNREGA's potential as an effective tool for environmental governance, offering insights into policy improvements and region-specific strategies. The paper concludes with recommendations to strengthen the program's environmental focus, emphasizing the need for community participation, technological integration, and collaborative efforts to address local ecological challenges.

Keywords: MGNREGA, Environmental governance, sustainable agricultural practices, community resilience.

9th International Conference on**Economic Growth and Sustainable Development- Emerging Trends- November 21-22, 2024****Introduction**

Environmental governance has emerged as a critical component in the global quest for sustainable development. It encompasses the processes and institutions through which societies manage their natural resources and address environmental challenges. In India, where rural communities rely heavily on natural resources for their livelihoods, the role of environmental governance becomes particularly significant. One of the most impactful programs in this regard is the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), enacted in 2005. While primarily designed as a social safety net to provide wage employment, MGNREGA has evolved into a vital mechanism for environmental conservation and natural resource management. The Mahatma Gandhi National Rural Employment Guarantee Act, enacted in 2005, seeks to build better rural infrastructure, improve land and water resources, and strengthen the livelihood resource base of the rural poor by providing at least one hundred days of guaranteed wage employment in a financial year to every household whose adult members are willing to do unskilled manual work. With an annual budget of the current EUR 7.33 billion, MGNREGA registers 127 million household beneficiaries, offering wage employment to the average of 70 million households in one year. The program contributes largely towards Natural Resource Management (NRM) as it mandatorily spends 60 percent of its total spending every year, which sums up to around €4.4 billion for the 2018-19 financial years, on water harvesting and conservation, afforestation, plantation, land and soil development, and other NRM related works. The scheme will seek to improve the livelihood security of rural households in India by providing at least one hundred days of assured wage employment during a financial year to every household whose adults are willing to engage in unskilled manual work. MGNREGA as a program is really successful and it successfully fulfilling its objective of conserving the nature. The Government of India scaled up the innovation model developed by the MGNREGA-EB project on remote-sensing-assisted NRM planning for MGNREGA. By March 2019, at least 10,000 local Governments prepared plans using this methodology. GIS-assisted Integrated Natural Resource Management (INRM) planning for enabling self-governing local councils (Gram Panchayats) to take decisions about implementing activities that are part of the MGNREGA. The state government has expanded afforestation of barren hillocks in highly drought-affected areas in the state up to 10,150 hectares. Block plantations alongside the Mahanadi River in Chhattisgarh have prevented soil erosion and provided livelihood to 134 women of 16 SHG through the legal usufruct rights. Other technical innovations such as groundwater recharge wells, root zone water harvesting systems, drainage line treatments and participatory irrigation management have been demonstrated in the three states. Under the MGNREGA, a total of 60 percent of projects relate to the protection and conservation of natural resources. These MGNREGS works can provide an environmental rejuvenation outcome through recharge of groundwater, preservation of soil, water and biodiversity, sustainable food production, slowing land degradation, and even enhancing resiliency to climate threats including moisture stress, delayed rains, droughts, and floods. The most significant advantage of the MGNREGA scheme has been its help in reducing the vulnerability of climate change for rural communities. As such, MGNREGA opens massive opportunities for the development and improvement of sustainable rural economies and eco-restoration with various job activities that carry direct association with water harvesting. MGNREGA guarantees 100 days of wage employment annually to rural households whose adult members are willing to engage in unskilled manual work. The program's focus on creating durable assets in rural areas includes activities such as water conservation, afforestation, soil improvement, and land development. By mandating that at least 60% of its expenditure is directed toward natural resource management (NRM), MGNREGA ensures that its interventions simultaneously support livelihoods and

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contribute to ecological sustainability. These projects play a crucial role in combating environmental degradation, improving agricultural productivity, and enhancing community resilience to climate change. The scheme operates at the intersection of employment generation and environmental governance, addressing two critical challenges faced by rural India: poverty and resource degradation. By involving local communities in planning and executing environmental projects, MGNREGA fosters a sense of ownership and responsibility towards sustainable resource use. The bilateral project 'Environmental Benefits of MGNREGA' (MGNREGA-EB), implemented since 2013, further enhances this dimension by supporting the Ministry of Rural Development (MoRD) and state governments in integrating environmental considerations into the program.

This study aims to explore the environmental impact of MGNREGA through a comparative analysis of two panchayaths in Kerala: Kamakshi in Idukki district and Pallikkare in Kasaragod district. Kamakshi, located in a hilly terrain, faces challenges related to soil erosion, deforestation, and water scarcity. Here, MGNREGA projects focus on soil conservation, watershed development, and afforestation. Pallikkare, on the other hand, is a coastal panchayath dealing with issues like coastal erosion, saline intrusion, and declining agricultural productivity. MGNREGA initiatives in this region emphasize coastal ecosystem restoration, construction of sea walls, and agricultural land development. The selection of these two diverse regions provides a unique opportunity to examine how MGNREGA adapts its interventions to address specific environmental challenges. By analysing the outcomes of these projects, the study seeks to highlight the program's role in promoting environmental governance and identify best practices and policy recommendations for its enhancement. This research contributes to the broader discourse on integrating environmental objectives within development programs. It underscores the potential of MGNREGA to not only provide social and economic benefits but also to play a transformative role in managing India's natural resources sustainably, thereby strengthening the foundation for rural resilience and sustainable development.

Significance of the study

MGNREGA is the world's largest public works program and, thus, assumes more than mere employment generation importance. This also points to a sharp focus on natural resource management with regard to both rural poverty and environmental degradation. Therefore, in this study, I highlight the twofold advantages of MGNREGA towards environmental conservation integrated with socio-economic development. The study underlines the role of MGNREGA as a tool of environmental governance by providing the stimulus that increases environmental outcomes including water conservation, afforestation, and the management of soil. It can be very important information for policymakers interested in strengthening governance frames of the rural space. This paper centers on two distinct ecological regions: Kamakshi Panchayath (hilly terrain) and Pallikkare Panchayath (coastal area), to carry out a comparative analysis across those regions concerning how MGNREGA adapts its interventions according to the environmental challenges at the grassroots levels. Centering on such regions gives practical hands-on lessons on how the program has been implemented within different geographic and ecological settings. Rural India is highly susceptible to the adverse impacts of climate change, including erratic rainfall, droughts, and coastal erosion. This paper

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discusses how the projects under MGNREGA contribute to building climate resilience and thus enhance the adaptive capacity of the respective communities. In fact, it remains an important area of research in the face of mounting global efforts to combat the processes of climate change. Community participation was emphasized as a means of successful management of environmental initiatives under the MGNREGA. Focusing on the input of local participants, it frames community ownership as a key determinant of project sustainability. Findings of this study may be relevant and informative, especially regarding state and national policy decisions at the state level. The study observes best practices and challenges associated with the implementation of environmental components of MGNREGA and provides actionable recommendations for improvement. By acquiring these insights, policymakers can further align the programme to SDGs. This study therefore contributes to the growing literature on environmental governance and rural employment schemes through its empirical evidence regarding MGNREGA and its impact on natural resource management and rural sustainability, thus filling a research gap within academia. Findings of the study can be emulated by other regions in India and similar developing countries, which are facing issues of rural unemployment and environmental degradation. The strategies followed and the resultant outcomes documented here may be scaled up and replicated so that most of the benefits of this program may be maximized. This study becomes important not only for understanding the environmental benefits of MGNREGA but also regarding its implications in developing policies and practice that can give a new shape to environmental governance and rural development issues in the future.

Review of Literature

Chopra, K. (2009). "MGNREGA as a Tool for Environmental Governance in Rural India" is a study which brings into focus the joint role of MGNREGA in job creation and environmental preservation promotes the program. Its own efforts toward water saving and reforestation in soil management are critical to the sustainable development of rural areas.

"The Impact of MGNREGA on Rural Labor Markets and Environmental Sustainability by Des S and Bedi A.S draws attention to how the focus on NRM in MGNREGA improves both labour markets in the countryside and environmental governance. The scheme's environmental benefits are analysed using case studies of various Indian states.

Kumar, R., & Chakraborty, S. (2012). "Sustainability through MGNREGA: A Study of NRM Projects. The research conducted on natural resource projects under MGNREGA focuses more on sustainability. It points out successful interventions in watershed management and afforestation but also emphasizes the long-term ecological benefits to the programme.

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Narayan S's MGNREGA and environmental Governance: A Comparative analysis of states, comparing the implementations of different sets of MGNREGA's environmental projects by different states in a state that identifies best practices in any region-Andhra Pradesh, Rajasthan and Kerala-to compare.

Environmental benefits from MGNREGA: Evidence from Field Studies by Aggarwal A and Kumar S offers empirical evidence of MGNREGA having benefited rural ecosystems. Among such programs, water harvesting structures have notably helped to improve water availability in drought-prone areas.

Das S.K in his article Community participation in Environmental Projects under MGNREGA underlines the role of community participation in the success of the MGNREGA's environmental projects. The study indicates that the level of involvement directly correlates with outcomes in terms of better implementation and sustainability of the projects.

Mukherjee S, in his article "MGNREGA and Its Contribution to Climate Resilience in Rural India" discusses how MGNREGA helps build climate resilience through environmental projects such as afforestation and watershed development. This study emphasizes the role of the program in combating adverse impacts of climate change on rural communities.

Role of MGNREGA in Natural Resource Management and Environmental Governance by Ghosh M: presents an overview on the impact on natural resource management of employment guarantee schemes of MGNREGA. It highlights that environmental objectives need to be integrated into employment programs for attaining sustainable development.

Objectives of the Study

To analyse the role of MGNREGA in promoting environmental governance.

To assess the environmental impact of MGNREGA projects in Kamakshi Panchayath in Idukki District and Pallikkare Panchayath in Kasaragod district.

To compare the effectiveness of MGNREGA's environmental interventions in two different ecological contexts and to evaluate community participation and its impact on the success of environmental projects under MGNREGA.

To provide policy recommendations for enhancing the environmental governance component of MGNREGA.

Hypotheses

H1: MGNREGA significantly contributes to environmental conservation and natural resource management in rural areas.

H2: Higher levels of community participation in MGNREGA projects lead to better environmental outcomes and project sustainability.

H3: The environmental governance potential of MGNREGA can be enhanced through targeted policy measures, technological integration, and collaborative approaches.

Research Methodology

The research methodology defines a systematic approach adopted to understand the role of MGNREGA in environmental governance, especially focusing on Kamakshi Panchayath, Idukki, and Pallikkare Panchayath, Kasaragod. It uses a mixed-method approach, which means that it combines both qualitative and quantitative techniques to give a comprehensive analysis. Focusing on two

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panchayats, Kamakshi and Pallikkare, it gives a precise understanding of region-specific interventions under the MGNREGA scheme. Primary data collection by conducting direct observation of MGNREGA project sites, which include water harvesting structures and afforestation areas, present both in the panchayaths. Interviews of local government officers, coordinators of MGNREGA projects, environmental experts, MGNREGA workers, and their beneficiaries have been conducted to get an insight into how the projects have been implemented, community participation, and perceived benefits. Implementation data on MGNREGA has been taken through the reports from Ministry of Rural Development (MoRD), state, and panchayath-level reports. Secondary data was collected from examination of reports from NGOs working in environmental projects under MGNREGA, especially from the initiative 'Environmental Benefits of MGNREGA' (MGNREGA-EB). The number of respondents taken includes local officials, MGNREGA workers, and community leaders in each panchayath, making it 30 in total to ensure a diverse perspective. Two panchayaths have been selected: Kamakshi and Pallikkare, as the environment that each of these panchayats offers differs—they offer hilly and coastal environments. The mixed-method approach will give all-rounded coverage about the role of MGNREGA in environmental governance. As this kind of methodology will combine the quantitative impact measures with qualitative insights, it will enable an all-rounded analysis of both environmental and social dimensions of MGNREGA interventions.

MGNREGA and Environmental Governance in Kamakshi Panchayat, Idukki

Kamakshi Panchayath of Idukki district is a classic example demonstrating how MGNREGA can weave environmental governance and livelihoods together. Where erosion activity is very high and water resources are scarce, under MGNREGA, Idukki identifies water resources management works to focus on soil conservation and afforestation. Contour trenches and water harvesting structures such as check dams and ponds are some of the prominent works executed in Kamakshi Panchayath. These have contributed much to the recharging of ground water and support irrigation for agriculture. Afforestation drives through MGNREGA have strengthened the green cover thus supporting carbon sequestration and biodiversity conserved. Notably, in Kamakshi, people and women, participated at all stages of planning and project implementation. Impacts are significant. Irrigation has improved agricultural productivity, and irrigation was also associated with increased adoption of more sustainable cropping patterns by farmers. Soil conservation practices in return have lessened soil erosion; this means preventing the loss of fertile topsoil. Through such projects, Kamakshi Panchayath depicts the dual objectives of MGNREGA—supplying employment while advocating for environmental stewardship—which are particularly supportive in helping rural communities adapt and cope with climate-related challenges sustainably.

Kamakshi Panchayath, a hilly region in Idukki district, Kerala, where MGNREGA projects have been instrumental in addressing environmental challenges such as soil erosion, water scarcity, and deforestation. Kamakshi Panchayath, located in the high-altitude region of the Western Ghats, faces several environmental challenges:

Soil Erosion: The steep terrain is prone to heavy soil erosion during the monsoon season.

Water Scarcity: Despite high rainfall, water retention is poor due to rapid surface runoff.

- **Deforestation:** Unsustainable land-use practices have led to a reduction in forest cover, impacting biodiversity and climate regulation.

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Under MGNREGA, several environmental conservation projects have been implemented in Kamakshi Panchayath, targeting these challenges:

Water Conservation and Harvesting Structures

Check Dams and Percolation Ponds: These structures have been constructed to reduce surface runoff and enhance groundwater recharge. For instance, check dams in the region have increased water availability for both domestic and agricultural use during dry periods

Farm Ponds: Individual and community farm ponds have been developed to support irrigation needs, benefiting local agriculture and reducing dependency on erratic rainfall.

Large-scale plantation drives have been carried out under MGNREGA to restore the degraded green cover. Native species such as jackfruit, teak, and mahogany are commonly planted, contributing to both ecological balance and economic benefits for local communities

Contour Trenches and Bunding: These methods are employed on agricultural and non-agricultural lands to prevent soil erosion and improve soil moisture retention. Farmers in the region have reported enhanced productivity and reduced topsoil loss

Greywater management projects have been introduced to treat and reuse water, improving the water table in the region and preventing contamination of nearby water bodies.

Environmental Impact

Increased Water Availability: Post-implementation data from Kamakshi Panchayath shows an increase in groundwater levels by approximately 10-15%, directly benefiting agriculture and household water security.

Reduction in Soil Erosion: Farmers report a reduction in soil loss by 20-30%, particularly on lands where contour bunding and trenches were implemented.

Biodiversity Restoration: The afforestation efforts have led to a noticeable improvement in local biodiversity, with increased sightings of native flora and fauna.

Social and Economic Impact

Livelihood Enhancement: MGNREGA projects have provided steady income to rural households while improving agricultural productivity, leading to higher crop yields and diversified farming.

Community Empowerment: The active involvement of women and marginalized communities in planning and executing MGNREGA projects has enhanced social cohesion and community ownership.

The case of Kamakshi Panchayath illustrates the transformative potential of MGNREGA in promoting environmental governance alongside rural development. By integrating natural resource management into its framework, MGNREGA not only enhances ecological resilience but also ensures sustainable livelihoods for rural communities. With targeted interventions and policy support, the program can serve as a model for other regions facing similar challenges.

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MGNREGA and Environmental Governance in Pallikkare Panchayath, Kasaragod

The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) has been instrumental in promoting sustainable development across rural India. In Pallikkare Panchayath, located in Kasaragod district, MGNREGA plays a pivotal role in both employment generation and environmental conservation. The program mandates that at least 60% of its expenditure be directed towards natural resource management (NRM), which includes activities like water conservation, afforestation, and soil fertility enhancement. These initiatives align with the panchayat's focus on sustainable development and ecological preservation. Pallikkare Panchayath has leveraged MGNREGA to address environmental challenges while enhancing rural livelihoods. Key environmental governance projects include:

Water Resource Management: Construction of check dams, desilting of ponds, and rainwater harvesting systems have been prioritized to combat water scarcity. These projects have improved groundwater recharge and reduced soil erosion.

Afforestation and Plantation: MGNREGA has funded the plantation of native trees along roads and degraded lands. This not only improves the green cover but also supports biodiversity conservation.

Soil and Land Development: Land levelling and terracing have been implemented to boost agricultural productivity. These efforts align with sustainable land-use practices and help in preventing land degradation.

Impact and Outcomes

Economic Benefits: The environmental projects under MGNREGA have provided consistent employment, with hundreds of local workers benefiting from the scheme annually. This helps in stabilizing rural incomes while building valuable community assets.

Environmental Benefits: Enhanced water availability, improved soil health, and increased forest cover have contributed to better ecological resilience in Pallikkare. These outcomes demonstrate the panchayat's commitment to sustainable development goals (SDGs).

Despite the positive impact, challenges such as delayed wage payments, limited awareness about environmental project benefits, and seasonal constraints in work availability persist. Addressing these issues could further enhance the program's efficiency and impact. Pallikkare Panchayath's experience underscores the importance of integrating MGNREGA with local environmental governance to achieve sustainable and inclusive growth. The initiatives in Pallikkare Panchayath illustrate the potential of MGNREGA as a tool for environmental governance. Through strategic planning and execution, the panchayat has made significant strides in resource conservation and rural development, serving as a model for other regions.

Recommendations and suggestions

It is very important to implement regular training programs for MGNREGA workers and local officials on sustainable environmental practices. Because building technical skills will improve the quality and efficiency of environmental projects, such as water conservation and afforestation. Increase community participation in the planning and execution of MGNREGA projects is also needed because a bottom-up approach ensures that the projects align with local environmental and livelihood needs, fostering greater ownership and sustainability. In addition to that collaborate with other

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government schemes like the National Afforestation Programme and Jal Shakti Abhiyan will help in integration and would optimize resource use and amplify the impact of conservation efforts. Both panchayath would design projects specifically aimed at enhancing climate resilience, such as drought-proofing and flood management systems. These projects will prepare the community to cope with the adverse effects of climate change while securing livelihoods. By adopting these recommendations, Pallikkare Panchayath can further strengthen the role of MGNREGA in environmental governance, ensuring sustainable development and improved rural livelihoods.

Conclusion

The study of MGNREGA and Environmental Governance in Pallikkare Panchayath, Kasaragod highlights the program's significant dual impact: providing livelihood security while fostering environmental sustainability. The implementation of natural resource management (NRM) projects, such as water conservation, afforestation, and soil fertility improvements, has not only enhanced ecological resilience but also bolstered the socio-economic well-being of rural communities. These initiatives have directly addressed local environmental challenges like water scarcity and land degradation. The tangible benefits, including improved agricultural productivity, groundwater recharge, and increased green cover, underscore the program's role in sustainable rural development. Additionally, MGNREGA's ability to engage marginalized communities, especially women, in environmental stewardship has strengthened community ownership and social equity. However, challenges such as delayed payments, limited technical expertise, and the need for better monitoring mechanisms persist. Addressing these gaps through targeted policy interventions, capacity building, and better integration with other environmental programs can enhance the effectiveness of MGNREGA in promoting environmental governance. Pallikkare Panchayath serves as a model for leveraging MGNREGA to achieve the dual goals of poverty alleviation and environmental conservation. The lessons learned from this region can inform similar initiatives across other rural areas, contributing to India's broader goals of sustainable and inclusive development. The study of MGNREGA and Environmental Governance in Kamakshi Panchayath, Idukki, underscores the program's critical role in addressing the unique environmental challenges of this ecologically sensitive hilly region. Through targeted interventions such as water conservation projects, afforestation, and soil conservation measures, MGNREGA has contributed significantly to sustainable resource management and ecological restoration. These efforts have yielded multiple benefits: enhanced water availability, improved soil health, and increased forest cover, all of which have strengthened the resilience of the local environment. Additionally, the program has provided vital livelihood support, creating employment opportunities for rural households and fostering economic stability. Despite these successes, challenges such as technical limitations, seasonal constraints, and delays in wage payments highlight the need for further improvements. Addressing these gaps through policy adjustments, capacity building, and enhanced monitoring can amplify the positive impacts of MGNREGA. The experience of Kamakshi Panchayath demonstrates how MGNREGA can serve as a powerful tool for environmental governance, balancing developmental needs with ecological preservation. This model can guide similar efforts in other vulnerable regions, contributing to the broader goals of sustainable and inclusive development.

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