

# A Perspective Study of Natural Resource Management and Its Major Impact on Rural Livelihood in Bahraich District, Uttar Pradesh

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## ABSTRACT

Natural resource management (NRM) plays a pivotal role in shaping rural livelihoods, particularly in ecologically sensitive regions of India. This paper presents a perspective study of NRM interventions and their impact on rural livelihoods in Bahraich District, Uttar Pradesh—a region characterized by fertile riverine plains, significant forest cover, and predominantly agrarian communities. Through analysis of recent initiatives in solar-powered irrigation, community-based water management, organic input production, and digital market linkages, the study examines how integrated NRM approaches are transforming rural livelihoods. The findings reveal that collective action in water management has reduced farming costs, women's self-help groups have emerged as bio-input entrepreneurs, and technological platforms are creating new market opportunities. However, challenges persist regarding crop diversification away from water-intensive varieties, tenurial security in forest-fringe villages, and the scalability of successful interventions. The study concludes that participatory NRM, when combined with institutional support and technological innovation, can significantly enhance rural livelihood security while promoting environmental sustainability.

**Keywords:** Natural resource management, rural livelihood, solar irrigation, watershed development, self-help groups, Bahraich, Uttar Pradesh

## INTRODUCTION

The intricate relationship between natural resources and rural livelihoods has long been recognized as central to sustainable development discourse. In India, where approximately 65% of the population resides in rural areas and depends directly or indirectly on natural resources for their sustenance, the management of land, water, forests, and biodiversity assumes critical importance. The concept of natural resource management (NRM) encompasses the sustainable utilization of major natural resources, providing a foundation for livelihood security, poverty alleviation, and environmental conservation. Uttar Pradesh, India's most populous state, presents a diverse landscape of agricultural potential and ecological vulnerability. Within this context, Bahraich District occupies a unique position. Located in the Terai region along the Indo-Nepal border, the district is endowed with fertile alluvial soils, abundant groundwater resources, and proximity to forest ecosystems. However, it also faces challenges characteristic of developing regions: dependence on rain-fed agriculture, limited institutional capacity, and socioeconomic marginalization of rural communities. The imperative for sustainable NRM in Bahraich stems from multiple factors. Climate change has rendered monsoon patterns increasingly unpredictable, affecting agricultural planning and productivity. Rising input costs, particularly for energy and fertilizers, have squeezed farm incomes. Simultaneously, policy frameworks at national and state levels—including the Pradhan Mantri Krishi Sinchayee Yojana (PMKSY), Mission Amrit Sarovar, and various livelihood missions—have created enabling conditions for innovative NRM approaches. This study adopts a perspective approach to examine how NRM interventions in Bahraich District are reshaping rural livelihoods.

Rather than presenting quantitative survey data, it synthesizes evidence from recent initiatives, analyzing the mechanisms through which natural resource governance influences livelihood outcomes.

### **The study addresses three primary research questions:**

1. What NRM interventions have been implemented in Bahraich District, and what institutional arrangements characterize them?
2. How do these interventions impact various dimensions of rural livelihood—economic, social, and environmental?
3. What challenges and opportunities exist for scaling up successful NRM approaches in the district and similar ecologies?

The significance of this study lies in its potential to inform policy and practice. As governments and development agencies invest substantial resources in NRM programs, understanding their on-the-ground impacts becomes essential for evidence-based decision-making. By documenting experiences from Bahraich, this paper contributes to broader discussions on sustainable rural development in India's agrarian heartland.

### **Conceptual Framework: Natural Resource Management and Livelihood Security**

The analytical framework for this study draws upon the sustainable livelihoods approach, which conceptualizes livelihood in terms of assets or capitals—human, social, natural, physical, and financial. Natural resource management intersects with each of these capitals, creating pathways for livelihood enhancement.

Natural capital—comprising water, land, soil, forests, and biodiversity—forms the most direct link between NRM and livelihoods. Interventions that enhance the quality and availability of natural resources directly benefit households dependent on agriculture, livestock, and forest produce. In Bahraich, groundwater management, soil conservation, and the promotion of organic inputs exemplify investments in natural capital.

Physical capital includes infrastructure, tools, and technology that enable productive use of natural resources. Solar-powered irrigation systems, underground pipe networks, and biogas units represent physical capital investments that mediate the relationship between natural resources and livelihood outcomes.

Financial capital encompasses savings, credit, and income. NRM interventions affect financial capital through multiple channels: reduced input costs (as with solar irrigation replacing diesel pumps), enhanced productivity (through improved water availability and soil health), and new income streams (from sale of bio-inputs or value-added products).

Human capital—the skills, knowledge, and health of individuals—is both a precondition for and outcome of effective NRM. Training programs in organic farming, water management, and entrepreneurship build human capital, while improved nutrition from diversified agricultural production enhances health outcomes.

Social capital refers to networks, norms, and trust that facilitate collective action. Farmers' collectives, water user associations, and women's self-help groups (SHGs) in Bahraich exemplify social capital formation that enables collaborative NRM.

The livelihood security framework employed by Silpa and Mercykutty in their analysis of watershed program beneficiaries in Kerala provides a useful methodological reference. Their construction of a livelihood security index, aggregating the five capital assets, offers a template for assessing NRM impacts. While the present study does not compute such an index, it draws upon this conceptualization to organize qualitative evidence from Bahraich.

### Study Area: Bahraich District Profile

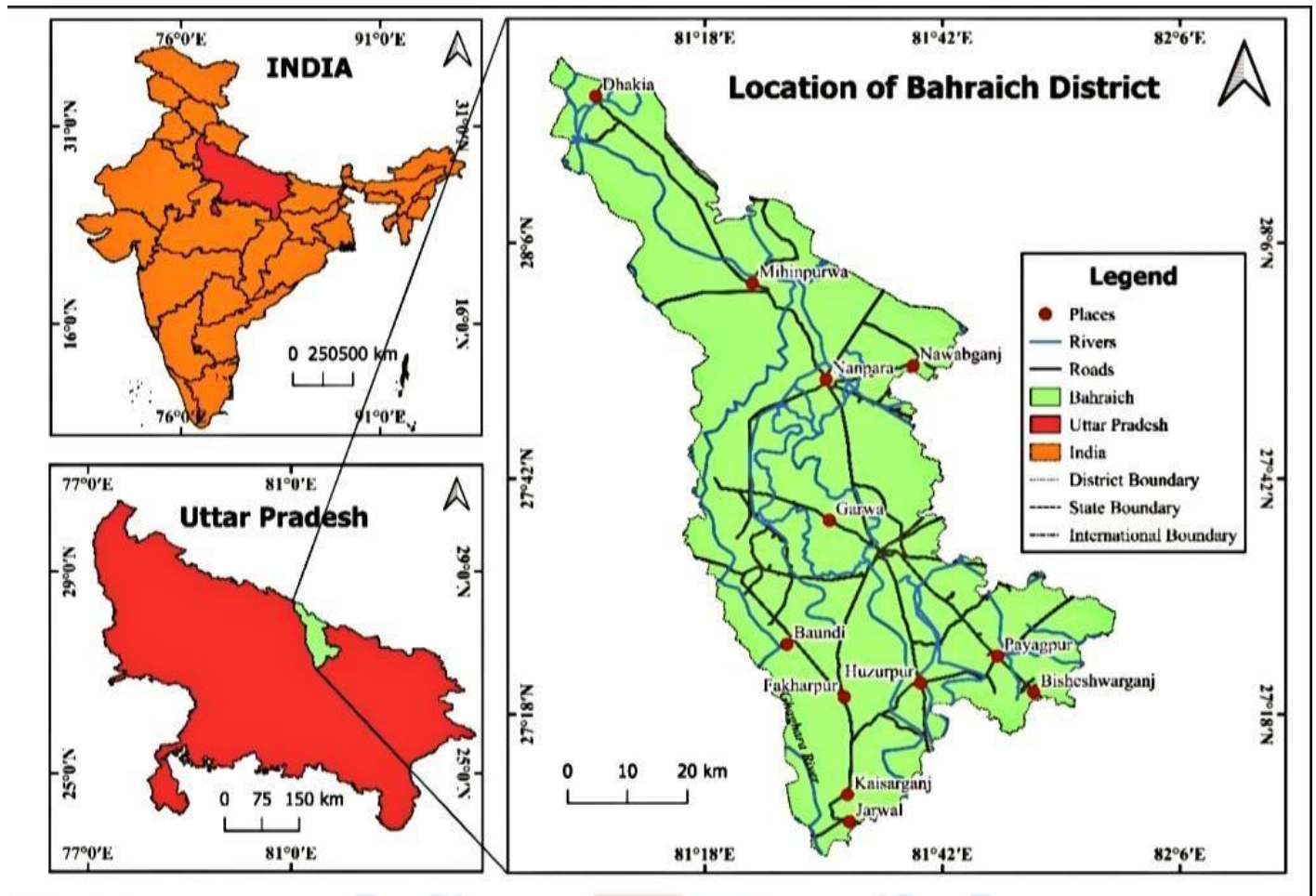


Fig :- Location of Study Area

(source – <https://www.jetir.org/papers/JETIR2406A66.pdf>)

Bahraich District, situated in the Devipatan Division of Uttar Pradesh, extends between 27°20' and 28°25' north latitudes and 81°35' and 82°35' east longitudes. The district shares an international border with Nepal to the north and is bounded by Sitapur, Lakhimpur Kheri, Gonda, and Shravasti districts. Physiographically, Bahraich forms part of the Terai region—a belt of marshy plains and tropical forests at the base of the Himalayas. The district is drained by several rivers, including the Ghaghara, Saryu, Rapti, and Kuwana, which deposit fertile alluvium during floods.

This alluvial character makes the soil highly productive, supporting intensive agriculture. The district's groundwater resources are notably abundant, with the water table lying at depths of only 20 to 30 feet in many areas. This hydrological endowment has historically supported rice-wheat cropping systems and, more recently, expansion of sugarcane cultivation. However, the same abundance has also encouraged cultivation of water-intensive crops, raising concerns about longterm sustainability. Administratively, Bahraich comprises six tehsils and 13 community development blocks. Agriculture remains the dominant livelihood, with the majority of households engaged in cultivation or agricultural labor. Landholding patterns reveal significant inequality: marginal and small farmers (holding less than two hectares) constitute the majority but control a disproportionately small share of agricultural land. This fragmentation has implications for NRM, as smallholders often lack the resources and incentives for long-term investments in natural capital. The district also contains significant forest area, including the Katarniaghat Wildlife Division, part of the Dudhwa Tiger Reserve landscape. Forest-fringe villages face unique challenges related to land tenure, human-wildlife conflict, and restricted access to forest resources. Kailashnagar village, located near Katarniaghat, exemplifies these challenges: despite being settled for generations, it lacks revenue village status, rendering residents ineligible for government schemes and limiting their rights to land. Socioeconomic indicators place Bahraich among the

relatively less developed districts of Uttar Pradesh. While recent years have seen improvements in infrastructure and service delivery, challenges persist in education, healthcare, and employment generation. It is within this context that NRM interventions assume particular significance, offering pathways for livelihood enhancement that leverage the district's natural resource endowments.

## **Major NRM Interventions in Bahraich District**

### **Solar-Powered Irrigation Systems**

The most transformative NRM intervention in Bahraich in recent years has been the introduction of solar-powered irrigation systems, initiated by the Aga Khan Foundation (AKF) under its Low Carbon Agriculture Programme in 2020-2021. As of late 2023, the district hosts 97 solar irrigation systems benefiting 8,700 farmers and irrigating 1,872 acres of agricultural land. The model adopted in Bahraich is noteworthy for its collective approach. Rather than individual solar pumps, the intervention establishes group-based systems where farmers share water through networks of underground pipes. The Unnat Sichai Solar Vikas Samiti in Imamnagar Village, Balbhaddrapur, exemplifies this approach: a collective of 17 small farmers managing five solar irrigation units across 83 bighas (approximately 16.6 acres).

The financial implications have been substantial. Farmers in Imamnagar report immediate savings of Rs 5 lakh in farming costs after discarding diesel pump sets. The payment mechanism—Rs 2 per unit of power consumed, providing approximately 1,000 liters of water—ensures cost recovery while maintaining affordability. Over two years, the Samiti collected Rs 1,28,000 from 64,000 units of power used, with accumulated savings of Rs 36,000 after expenses. Beyond cost savings, the solar systems have enhanced agricultural resilience. Farmers no longer wait anxiously for monsoon rains; should rains fail, solar irrigation enables timely flooding of fields, maintaining crop cycles. This reliability has enabled productivity gains, with some farmers reporting five quintals of rice per acre.

### **Water Conservation and Recharge**

Complementing solar irrigation are initiatives for water conservation and groundwater recharge. Under the central government's Mission Amrit Sarovar scheme, AKF rejuvenated 16 ponds in Bahraich District during 2022-2023. The intervention involves desilting existing ponds, strengthening percolation, and in some cases constructing new water bodies to capture rainwater for aquifer recharge. This dual approach—extracting groundwater efficiently through solar pumps while simultaneously recharging aquifers through pond rejuvenation—reflects an integrated understanding of water resource management. It acknowledges that sustainable extraction requires corresponding investments in recharge, particularly in areas facing climate variability.

### **Promotion of Water-Efficient Crops**

An important dimension of AKF's intervention involves crop diversification away from water-intensive varieties. While farmers have traditionally cultivated paddy and sugarcane, the Foundation has been motivating them toward mustard, millets, pulses, and other crops requiring less water. The results are promising: from 30 farmers cultivating millet in the first year, participation grew to 282 farmers the following year. This shift addresses both environmental and economic considerations. Water-efficient crops reduce pressure on groundwater resources while potentially offering better price realization. However, the transition requires addressing farmers' familiarity with traditional crops, market linkages for alternative produce, and food security considerations at household level.

### **Community-Based Bio-Input Production**

A distinctive feature of Bahraich's NRM landscape is the emergence of women-led enterprises producing organic fertilizers and pesticides. Two Bio-Input Resource Centres (BRCs) operate in the district—one in Nibiya Begumpur Village (Risya Block) and another in Bichhala Village (Chittaura Block)—established by the Unnati Jaivik Ikai self-help group with AKF support.

### **These centers produce three main products:**

Mrida Sanjeevani, a biofertilizer manufactured from cow dung through a three-month decomposition process involving eggshells or lime, sand, and biodynamic preparations. From approximately 60 kilograms of cow dung, 25 kilograms of manure is produced.

Paudh Rakshak, a biopesticide available in seed extract and leaf extract variants. The seed extract combines neem, karanj, and mahua seeds soaked in cow urine and water, while the leaf extract uses leaves of neem, karanj, datura, and other plants.

GGOC Paste, a bioinsecticide prepared from ginger, garlic, onion, and chillies, effective against various crop pests.

The economic impact has been significant. Within approximately 15 months, the two units collectively sold bio-inputs worth Rs 3,30,000 to farmers. Each of the 22 women members earns approximately Rs 1,500 per month from the enterprise—modest but meaningful income in the rural context. For women like Ram Pyari, Munnaka Devi, and her daughter-in-law Sughri Devi, this income has transformed household economies and social standing. Farmers adopting these bio-inputs report positive outcomes. Narendra Kumar of Nibiya Begumpur, the first farmer to use the products, achieved rice yields of five quintals from two acres—significantly higher than the previous two to two-and-a-half quintals. Azhar Husain of Unnat Sechai Solar Vikas Samiti observes reduced pest incidence and improving soil quality among user farmers. An ancillary benefit involves biogas generation. The decomposition process produces methane, which women collect and use for cooking, reducing dependence on firewood and improving indoor air quality.

### **Digital Market Linkages: The E-Shakti Platform**

Recognizing that production gains must be complemented by market access, the Bahraich district administration has developed E-Shakti, a technology platform connecting rural producers with broader markets. Created in collaboration with the National Informatics Centre and developed by a Class 12 student, the platform is designed to onboard local women entrepreneurs, enabling them to showcase and sell products including bio-fertilizers, wheat stem crafts, and banana fiber items. District Magistrate Monika Rani emphasizes the platform's inclusive design: unlike major ecommerce sites requiring branded products, E-Shakti accommodates non-branded items from early-stage entrepreneurs. The platform aligns with the National Rural Livelihood Mission, National Urban Livelihood Mission, and One District One Product initiatives, potentially benefiting over 50,000 women through 20,197 self-help groups in the district.

### **Integrated Watershed Management Approaches**

While specific data on watershed programs in Bahraich is limited, the experience of Kerala's Integrated Watershed Management Programme (IWMP) offers comparative insights relevant to the district. IWMP adopts a participatory approach involving local self-governments and communities in all stages of watershed development. The livelihood security analysis of IWMP beneficiaries in Kerala revealed medium levels of capital asset possession, with human capital and financial capital emerging as key determinants of livelihood security. For Bahraich, watershed development assumes importance given its location in the rain-fed Terai region. Integrated approaches combining soil conservation, water harvesting, and agricultural diversification could complement ongoing solar irrigation and bio-input initiatives.

### **Impact on Rural Livelihoods**

#### **Economic Impacts**

The economic dimensions of livelihood transformation in Bahraich are most evident in reduced production costs and enhanced incomes. The shift from diesel to solar-powered irrigation has generated substantial savings: farmers in Imannagar saved Rs 5 lakh collectively by eliminating diesel purchases. At the individual level, these savings translate into improved farm profitability and, in some cases, asset accumulation. Shahjad Ali, a farmer managing 65 bighas, used his savings to purchase four additional bighas of land. For women in bio-input

enterprises, the economic impact extends beyond immediate income. The Rs 1,500 monthly earnings, while modest, provide financial autonomy and contribute to household food security. The enterprise model also builds financial literacy and management skills among SHG members, creating human capital for future economic activities. Market linkages through E-Shakti promise to amplify these economic benefits by reducing intermediation and expanding customer reach. For artisans producing wheat stem crafts and banana fiber products, digital platforms offer access to urban consumers willing to pay premium prices for handmade, eco-friendly products.

### **Social Impacts**

Social transformations accompanying NRM interventions are equally significant. The participation of women in solar irrigation collectives and bio-input enterprises challenges traditional gender roles in agriculture. Praveen, a woman farmer in the Unnat Samiti, notes that solar-powered irrigation and mechanization have made farming more accessible for women, enabling her to manage two acres while her sons work in cities. The bio-input centers have created spaces for women's collective action and leadership. Ram Pyari, the 42-year-old SHG leader from Nibiya Begumpur, exemplifies how NRM interventions can nurture grassroots leadership. Her exposure visit to Indore for training in biofertilizer production equipped her with technical knowledge and confidence to guide other women. Perhaps most striking is the social transformation in Kailashnagar village, where NRM interventions intersected with community mobilization to address alcohol addiction. Jitendra Chaturvedi of DEHAT, an NGO working with vulnerable communities, used data on alcohol expenditure to catalyze collective action. The revelation that five villages spent approximately Rs 22 lakh annually on alcohol shocked residents into action. Geeta Prasad, once notorious for his drinking, became the first to give up alcohol, inspiring others to follow. This social capital—manifested in collective resolve, mutual monitoring, and shared commitment—enabled the agricultural transformation that followed. With alcohol consumption eliminated, villagers could invest time and resources in learning System of Rice Intensification (SRI) techniques and organic farming methods. The result: a village once characterized by poverty and addiction now hosts visitors from the UN Development Programme and American universities studying its farming practices.

### **Environmental Impacts**

Environmental benefits constitute the third pillar of livelihood impacts. The shift from diesel to solar pumps reduces atmospheric emissions of toxins, contributing to local air quality and global climate mitigation. Each diesel pump eliminated represents reduced carbon footprint and improved environmental health for farming communities. Water conservation measures—including laser sprays, sprinklers, and drip irrigation—reduce groundwater extraction while maintaining productivity. Farmers report that these techniques keep soil soft and productive, enhancing long-term agricultural sustainability. The rejuvenation of ponds under Mission Amrit Sarovar similarly contributes to aquifer recharge, maintaining the water table for future generations. The promotion of organic inputs yields environmental benefits through reduced chemical runoff. Biofertilizers like Mrida Sanjeevani enhance soil organic matter and microbial activity, while biopesticides like Paudh Rakshak control pests without harming beneficial insects or contaminating water bodies. Farmers using these products report improving soil quality over time—a classic example of natural capital regeneration. Crop diversification toward millets, pulses, and mustard reduces pressure on water resources while potentially enhancing biodiversity in agricultural landscapes. These crops also tend to be more climate-resilient, providing adaptation benefits in an era of increasing climate variability.

### **Integrated Livelihood Security**

The convergence of economic, social, and environmental impacts suggests progress toward integrated livelihood security—the condition where households possess adequate capital assets across all five dimensions to withstand shocks and pursue sustainable livelihoods. In Kailashnagar, former alcoholics have become award-winning farmers. Geeta Prasad received state government recognition in 2014 for cultivating 118 quintals of organic rice through SRI farming on one hectare; Dwarika Prasad was similarly honored in 2017 for organic banana cultivation. Their enhanced human capital (farming skills), natural capital (improved soil), financial capital (higher incomes), social capital (community recognition), and physical capital (farm infrastructure) exemplify the multi-dimensional nature of livelihood transformation. In Nibiya Begumpur and Bichhala, women bio-input

entrepreneurs have accumulated financial capital through enterprise earnings, human capital through technical training, social capital through SHG networks, and natural capital through regenerative agricultural practices. The biogas units attached to decomposition pits add physical capital in the form of clean energy infrastructure. In Imamnagar, solar irrigation collectives have built social capital through monthly meetings and conflict resolution mechanisms, physical capital through underground pipe networks, financial capital through collective savings, and natural capital through water conservation.

**Challenges and Constraints:** Despite these successes, NRM interventions in Bahraich face significant challenges that limit their scalability and sustainability.

### **Institutional and Governance Challenges**

The case of Kailashnagar village dramatically illustrates how institutional barriers can constrain livelihood transformation. Despite its agricultural achievements and national recognition, Kailashnagar remains classified as a Vanatangiya (forest community) settlement rather than a revenue village. Located near the Katarniaghat Wildlife Division, the village lacks pucca construction, schools, water tanks, panchayat buildings, and hospitals. Without revenue village status, residents lack complete land rights and remain ineligible for government schemes and bank loans. This institutional exclusion represents a fundamental constraint on sustainable livelihoods. Even as farmers master organic techniques and achieve productivity gains, their inability to access credit, insurance, and development programs limits their long-term security and upward mobility. **Crop Diversification Dilemma**

While AKF promotes diversification toward water-efficient crops, farmer preferences often favor water-intensive but profitable crops like paddy and sugarcane. The success of solar irrigation has, paradoxically, enabled expansion of paddy cultivation—some farmers achieved five quintals per acre—contrary to diversification objectives. This tension between immediate farmer interests and long-term sustainability goals requires nuanced resolution. Complete prohibition of water-intensive crops is neither feasible nor desirable; rather, strategies must combine pricing incentives, market development for alternative crops, and gradual behavior change through demonstration effects.

### **Scalability Constraints**

The impressive results from solar irrigation collectives and bio-input centers have been achieved with substantial NGO support. AKF provided funds for irrigation pipes, solar panel systems, and bio-input center establishment. The question of how to scale such models without comparable external support remains unanswered. Government schemes like PMKSY and Mission Amrit Sarovar provide potential scaling pathways, but their implementation quality varies. The participatory, community-led approach characteristic of AKF's interventions may be difficult to replicate through conventional government machinery.

### **Market Development Gaps**

While E-Shakti promises digital market linkages, its effectiveness remains to be demonstrated. The platform launched with cash-on-delivery as the only payment option, with online payments to be integrated later. For rural producers, challenges of logistics, quality consistency, and customer acquisition persist even with digital platforms. For bio-inputs, market development requires convincing farmers of their efficacy relative to chemical alternatives. While early adopters report positive results, widespread adoption demands sustained extension efforts and trust-building.

### **Resource Sustainability Concerns**

The shallow water table in Bahraich (20-30 feet) has enabled solar irrigation expansion without immediate depletion concerns. However, increased extraction without corresponding recharge investments could eventually strain groundwater resources. The rejuvenation of 16 ponds represents progress, but comprehensive aquifer management requires systematic attention to recharge across the district. Similarly, the bio-input model depends on cow dung availability, which in turn depends on cattle populations. As agricultural mechanization reduces the utility of draft animals, maintaining cattle for dung becomes economically challenging. Alternative feedstock sources may be needed for long-term sustainability.

**Policy Implications and Recommendations:** The Bagraich experience offers several lessons for policy and practice in natural resource management and rural livelihood enhancement.

### **Strengthen Collective Action Institutions**

The success of farmer collectives in managing solar irrigation demonstrates the value of social capital in NRM. Policies should incentivize formation of water user associations, farmer producer organizations, and similar institutions, providing them with technical support and financial autonomy. The monthly meetings and conflict resolution mechanisms developed by Unnat Samiti offer operational models for replication.

### **Address Tenurial Insecurity**

Kailashnagar's exclusion from revenue village status represents a policy failure that perpetuates poverty despite local initiative. Recognizing customary rights and regularizing forest-fringe settlements, consistent with the Forest Rights Act, 2006, would unlock development access for such communities. The agricultural achievements of Kailashnagar residents argue compellingly for their inclusion in mainstream development programs.

### **Integrate Water Management Approaches**

Solar irrigation expansion must be accompanied by commensurate investments in water conservation and recharge. The combination of extraction efficiency (solar pumps) and recharge infrastructure (pond rejuvenation) exemplified in Bagraich should inform water policy design. Regulatory mechanisms may be needed to prevent over-extraction, even as renewable energy reduces pumping costs.

### **Support Women's Enterprise Development**

The bio-input centers demonstrate women's potential as NRM entrepreneurs. Policy support should include: **(a)** technical training in product development and quality control, **(b)** startup capital and working capital access, **(c)** market linkages through platforms like E-Shakti, and **(d)** mentorship networks connecting new entrepreneurs with experienced peers.

### **Promote Crop Diversification Strategically**

Transitioning from water-intensive crops requires more than extension advice. Policies should support: **(a)** development of value chains for millets, pulses, and oilseeds, **(b)** price stabilization mechanisms for diversification crops, **(c)** processing infrastructure at cluster level, and **(d)** consumer awareness campaigns to build demand for nutritious, climate-resilient crops.

### **Leverage Technology for Inclusion**

E-Shakti's design—accommodating non-branded products from early-stage entrepreneurs—offers lessons for digital inclusion. Technology platforms for rural producers should prioritize usability, trust-building, and progressive feature addition (starting with cash-on-delivery, adding online payments as comfort grows). Integration with SHG federations and livelihood missions can accelerate adoption.

### **Invest in Human Capital**

The exposure visits that enabled Ram Pyari to learn biofertilizer production in Indore, and the training that equipped Kailashnagar farmers with SRI techniques, underscore human capital's importance in NRM. Extension systems should incorporate peer learning, demonstration plots, and farmer-to-farmer diffusion alongside conventional training.

## **CONCLUSION**

This perspective study of natural resource management in Bagraich District reveals a complex landscape of innovation, impact, and institutional constraint. Solar-powered irrigation collectives have reduced costs and

enhanced resilience; women's self-help groups have emerged as bio-input entrepreneurs; pond rejuvenation has strengthened groundwater recharge; and digital platforms promise expanded market access. These interventions, individually and collectively, are transforming rural livelihoods across multiple dimensions—economic, social, and environmental. Yet the study also reveals persistent challenges. Crop diversification toward sustainability remains incomplete; institutional barriers exclude deserving communities from development access; scalability of successful models depends on continued external support; and long-term resource sustainability demands ongoing attention to recharge and conservation. The theoretical implication for livelihood security frameworks is clear: natural capital enhancement, when combined with investments in physical, human, social, and financial capital, can catalyze virtuous cycles of rural development. However, the sequencing and integration of interventions matter—solar irrigation without recharge investments may prove unsustainable; bio-input enterprises without market linkages may remain marginal; agricultural productivity without tenurial security may not translate into lasting wellbeing.

For policy, the Bahraich experience suggests that NRM interventions are most effective when they: **(a)** build on collective action institutions, **(b)** integrate women's economic empowerment, **(c)** combine technology with traditional knowledge, **(d)** address market access constraints, and **(e)** advocate for removal of institutional barriers at higher levels.

Future research should quantify the livelihood impacts documented here through rigorous surveys and livelihood security indices of the type developed by Silpa and Mercykutty . Longitudinal studies tracking the same households over time would illuminate how NRM interventions interact with other development programs and external shocks. Comparative research across districts and states would identify context factors that enable or constrain successful NRM.

In conclusion, Bahraich District demonstrates that natural resource management, when pursued through participatory, integrated, and equity-oriented approaches, can indeed transform rural livelihoods. The task ahead lies in scaling these successes, addressing persistent constraints, and ensuring that the benefits of NRM reach the most vulnerable—including landless laborers, forestfringe communities, and women in patriarchal structures. The seeds of transformation have been sown; their flowering into sustainable, inclusive rural development depends on sustained commitment from communities, governments, and development partners alike.

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