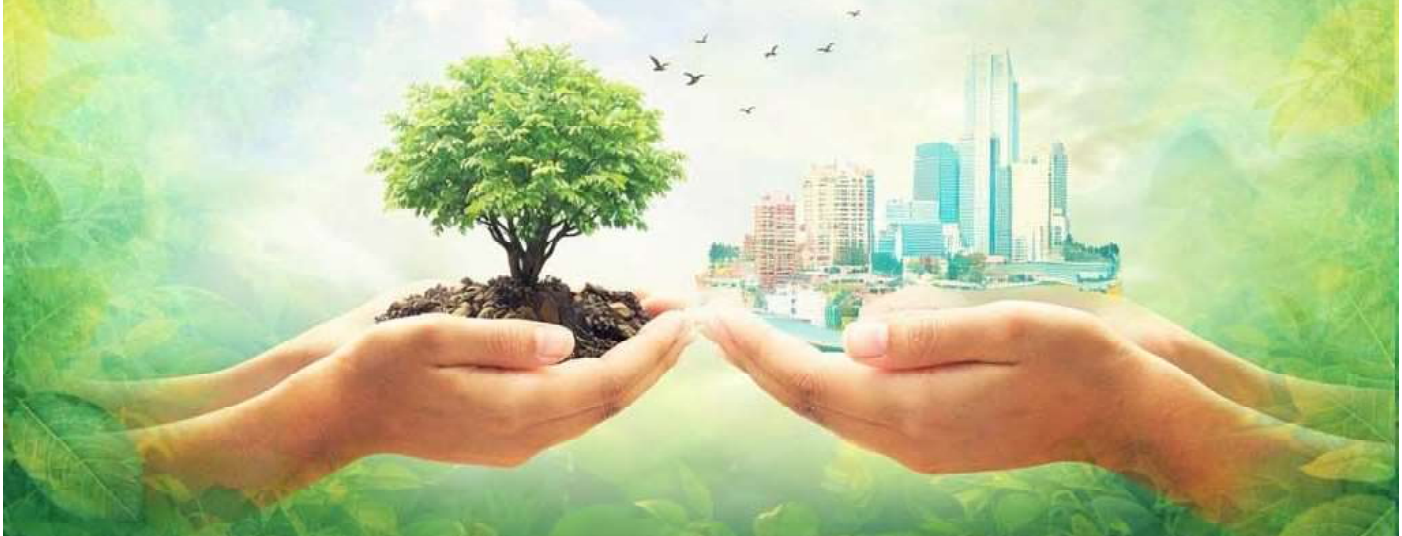
NATIONAL SEMINAR

ON

Environmental Issues and Sustainable Development Towards Atmanirbhar Bharat

(Hybrid Mode)

ABSTRACT VOLUME



27th & 28th March, 2026

Organised by

IQAC, Kakojan College, Jorhat, Assam

In Collaboration with

Assam down town University, Guwahati

and

A book of Abstracts of the Two Day National Seminar on Environmental Issues and Sustainable Development Towards Atmanirbhar Bharat Organised by IQAC, Kakojan College, Jorhat, Assam in collaboration with Assam down town University, Guwahati and ICFRE - Rain Forest Research Institute, Jorhat, Assam

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NAAC A+ Accredited & UGC 12(B) Status Holder

Assam down town University

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Promoted by: down town Charity Trust

Prof. (Dr.) Narayan Chandra Talukdar

Vice Chancellor

Goodwill Message

First of all a warm greetings to the Principal, IQAC Cell and faculty members of Kakojan College, Kakojan for their ground work to bring this current state of holding the National Seminar on a very relevant topic "Environmental Issues and Sustainable Development towards Atmanirbhar Bharat" which will be held from 27th to 28th March, 2026.

Building an "Atmanirbhar Bharat" is a collective effort of stakeholders at every level and contribution from our intellectuals, teachers, and scholars towards this goal has to be much more. I sincerely appreciate the efforts of the organising team of Kakojan College for creating this important platform that brings together scholars, researchers, practitioners, and policymakers from different fields. Such discussions are essential to generate new ideas, promote research, and to explore for relevant technologies towards mitigation of climate change, prevention of biodiversity loss, and sustainable use of earth's limited resources.

I am very delighted to know that Assam down town University, Guwahati is also associated with this significant academic endeavour as a joint activities under the MoU signed between our two institutes. Our university firmly believes in promoting collaborative research, knowledge exchange, and community engagement that contribute to sustainable and inclusive development. This partnership reflects our shared commitment to nurturing intellectual discourse and building solutions that align with the larger national vision of a self-reliant and environmentally responsible India.

The diverse sub-themes covering environmental science, agriculture, biotechnology, social sciences, humanities, management, and emerging technologies reflect the broad scope of this seminar. By promoting discussions on climate change, environmental ethics, sustainable resource management, technological innovation, and social empowerment, it aims to encourage meaningful academic exchange and practical ideas for sustainable development. I am confident that this gathering will promote insightful discussions, knowledge sharing, and collaborative research that can support both policy development and positive social change. I encourage all participants to engage actively, share their ideas, and work together towards innovative and sustainable solutions that strengthen the vision of Atmanirbhar Bharat. I hope the seminar achieves its goals and opens avenues for future collaboration between Kakojan College and Assam down town University in promoting research, innovation, and sustainable development.

I am delighted to note that a Seminar Abstract Book, showcasing the scholarly contributions of the participants, will be released during the inaugural session. This publication will serve as a valuable resource for stakeholders, offering deeper insights into the research carried out in these important areas.

With best wishes and warm regards,

N. C. Talukdar
Vice Chancellor
Assam down town University
Panikhaiti, Guwahati-26

Assam down town University ★ Guwahati-26 ★ Panikhaiti

भा. वा. अ. शि. प.- वर्षा वन अनुसंधान संस्थान
ICFRE-RAIN FOREST RESEARCH INSTITUTE
भारतीय वानिकी अनुसंधान एवं शिक्षा परिषद
Indian Council of Forestry Research and Education
पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय, भारत सरकार
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Dr. Nitin Kulkarni
Director

Message

It gives me immense pleasure to extend my heartfelt greetings and best wishes to **Kakojan College, Jorhat,** on the occasion of the two-day **National Seminar on "Environmental Issues and Sustainable Development Towards *Atmanirbhar* Bharat"** scheduled for 27–28 March 2026, organized in collaboration with ICFRE-Rain Forest Research Institute, Jorhat and Assam Down Town University, Guwahati.

India today faces several critical ecological and environmental challenges that demand immediate attention, including rapid deforestation and habitat fragmentation, loss of biodiversity, land degradation, invasive alien species, declining soil health, and increasing frequency of climate-induced extreme events such as floods and droughts, particularly in ecologically sensitive regions like Northeast India. Additionally, unsustainable extraction of natural resources and changing land-use patterns continue to threaten ecological stability and rural livelihoods.

In this context, environmental sustainability becomes central to achieving the vision of *Atmanirbhar*Bharat. As a premier research institute under the Ministry of Environment, Forest & Climate Change, Govt. of India, ICFRE-RFRI remains committed to addressing these challenges through scientific research, sustainable forest management, restoration ecology, and promotion of ecosystem-based livelihoods. Our efforts emphasize developing nature-based solutions that balance conservation with economic growth. Collaborations with academic institutions like Kakojan College are crucial in strengthening research, awareness, and capacity building at the grassroots level. Such partnerships foster knowledge exchange and empower young minds to contribute meaningfully towards environmental stewardship.

I am confident that this seminar will serve as a vital platform for deliberation and actionable solutions towards a sustainable and self-reliant India.

I convey my best wishes for the grand success of this academic endeavour.

(डॉ. नितिन कुलकर्णी /Dr. Nitin Kulkarni)
निदेशक / Director

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Welcome Address

Respected inaugurator of the National Seminar Dr. Nitin Kulkarni, Director of ICFRE – Rain Forest Research Institute, Jorhat, Keynote Speaker Dr. Latongila Jamir, Associate Professor, Department of Environmental Science, Nagaland University, Dr. Gonesh Chandra Borah, Former Principal, Jorhat Kendriya Mahavidyalaya and President of Governing Body, Kakojan College, Jorhat, Prof. Lakhi Nandan Kakoti, Chairperson, Faculty of Science, Assam down town University, Guwahati, Prof. Suresh Deka, Adviser, Faculty of Science, Assam down town University Guwahati, Dr. Dhurbajyoti Das, Scientist F and Head, Silviculture and Forest Management Division, ICFRE – Rain Forest Research Institute, Jorhat, Dr. Abdul Wakid, Project Scientist, Wildlife Institute of India, Dehradun, Dr Mausomi Madhab, Scientist B, Mycology & Microbiology Department, Tocklai Tea Research Institute, Tea Research Association, Jorhat, Distinguished Speakers, Esteemed Colleagues and participants.

On behalf of the National Seminar Organizing Committee and family members of Kakojan College, I extend a warm and heartfelt welcome to all of you to this National Seminar on ***Environmental Issues and Sustainable Development Towards Atmanirbhar Bharat*** organised by the Internal Quality Assurance Cell (IQAC), Kakojan College in collaboration with Assam down town University, Guwahati and ICFRE – Rain Forest Research Institute, Jorhat.

The alarming changes in the Indian Higher Education system have thrown a plethora of challenges for the system in general. To keep pace with the changing scenario in the academic sphere, the college has been organizing various academic exercises for both academic and institutional

enhancement. This Two-Day National Seminar on ***Environmental Issues and Sustainable Development Towards Atmanirbhar Bharat*** is also a part of this exercise.

Rapid industrialization, urbanization and technological advancement have significantly enhanced human development in modern era. At the same time have also posed serious threats to our environment including climate change, biodiversity loss, pollution, exhaustion of natural resources. They are realities we confront every day. Therefore, the theme of the seminar is both timely and relevant.

Across the globe, we are witnessing alarming environmental challenges. Environmental challenges have led to a serious ecological crisis by disrupting the natural balance of the Earth. This requires addressing critical environmental challenges that threatened long term growth and human well-being. We cannot dream of *Atmanirbhar Bharat* without ensuring ecological balance and sustainable practices. Sustainable development therefore becomes the cornerstone of this vision. As we aspire to build a *Atmanirbhar Bharat*, we must recognise that true development cannot be achieved at the cost of our environment, instead it should harmonize economic growth with environmental protection and social well-being. Development needs to be inclusive, responsible and future oriented. For building *Atmanirbhar Bharat*, we must prioritize sustainable practices. India is already taking steps in this direction. Each one of us has a role to play. The goal of a developed India will be realized only if all the sections of the society will work together without compromising the health of our planet.

I offer my sincere thanks and gratitude to the Honorable Vice Chancellor of Assam down town University, Guwahati and Director, ICFRE – Rain Forest Research Institute for collaborating with us and providing a grand beginning to this seminar. On behalf of Kakojan College fraternity, I once again warmly welcome all the dignitaries, distinguished speakers, researchers, faculty members of various institution and participants to this Two-Day National Seminar. I am hopeful that the deliberations over the course of the seminar will generate insightful perspectives and recommendations that will contribute to policy-making, academic research and community awareness. I wish the seminar a great success and hope that it will contribute significantly to the vision of a sustainable and developed India.

Thanking you,

(Dr. Rashmi Rekha Saikia)
Principal
Kakojan College, Jorhat, Assam
27/03/2026

Editorial

As the world grapples with the twin crises of climate disruption and resource depletion, India stands at a pivotal crossroads where environmental stewardship and national self-reliance must walk hand in hand. The National Seminar on *Environmental Issues and Sustainable Development Towards Atmanirbhar Bharat*, scheduled for 27 and 28 March 2026 at Kakojan College, comes at a moment when India stands at a critical crossroads. Organised by the Internal Quality Assurance Cell (IQAC) of Kakojan College in collaboration with Assam Down Town University, Guwahati, and the ICFRE-Rain Forest Research Institute, Jorhat, the event is more than an academic gathering. It is a collective call to examine how we can secure our natural heritage while marching confidently towards true self-reliance. In the lush landscapes of Assam, where the Brahmaputra weaves through tea gardens and rainforests, the theme feels immediate and deeply personal.

Environmental challenges in our country are no longer distant warnings; they are daily realities. Erratic monsoons, rising temperatures, polluted rivers, shrinking wetlands, and the steady loss of biodiversity have become part of the lived experience of millions. In Northeast India, these problems wear a distinct face. The region is one of the world's richest biodiversity hotspots, yet it is also among the most vulnerable to climate change. Frequent floods in the Brahmaputra and Barak valley, landslides in the hills, and the gradual degradation of tropical rainforests are not mere statistics. They threaten the very foundation of local economies that depend on agriculture, forestry, and traditional knowledge systems. At the same time, rapid urbanisation and infrastructure projects sometimes push fragile ecosystems to the brink. The question before us is not whether development is necessary; it is how to make development genuinely sustainable without mortgaging the future of our children.

Sustainable development, as understood in the Indian context, is not a borrowed Western concept. It is deeply rooted in our civilisational ethos of living in harmony with nature. The ancient principle of ***Vasudhaiva Kutumbakam*** reminds us that the earth is one family. Yet translating this ideal into practice requires deliberate policy, scientific innovation, and community participation. India's commitment to the Sustainable Development Goals (SDGs) and its Nationally Determined Contributions (NDC) under the Paris Agreement reflect a serious intent. Programmes such as the National Solar Mission, Namami Gange, the Green India Mission, and the recent focus on circular economy show that the country is moving beyond rhetoric. However, the real test lies in implementation at the grassroots level - especially in regions like Assam where geography, culture, and economy present unique opportunities and constraints.

The vision of *Atmanirbhar Bharat* acquires profound relevance. Launched with the aim of reducing dependence on external resources and strengthening indigenous capacities, the *Atmanirbhar* vision must now fully embrace environmental stewardship. Self-reliance cannot be achieved by exploiting nature; it must be built upon the sustainable use of natural resources. Think of the immense potential that lies in Assam's rainforests. The Rain Forest Research Institute in Jorhat has been quietly demonstrating how bamboo, medicinal plants, and indigenous tree species can become the backbone of green entrepreneurship. Local communities already possess traditional knowledge of sustainable harvesting, agroforestry, and natural pest management. When this knowledge is blended with modern science—through value addition, eco-friendly packaging, and market linkages—rural youth gain dignified livelihoods without destroying the environment. This is *Atmanirbhar Bharat* in its truest sense: not merely import substitution, but the creation of resilient, locally rooted economic models.

Energy self-reliance offers another compelling example. Northeast India receives abundant sunshine and rainfall, yet many villages still depend on diesel generators or face frequent power cuts. Solar mini-grids, micro-hydel projects, and community-managed biomass energy systems can change this picture dramatically. Kakojan College, with its strong academic base and proximity to rural areas, is ideally placed to pilot such models. When students and researchers work hand in hand with villagers to install solar-powered irrigation pumps or biogas plants using agricultural waste, they are not just generating electricity; they are fostering a new generation of environmentally conscious citizens who understand that self-reliance begins with self-discipline in resource use.

Waste management presents yet another frontier. Assam generates enormous quantities of organic waste from tea estates, paddy fields, and households. Instead of allowing this waste to choke wetlands or emit methane in landfills, we can convert it into bio-compost, biogas, and even bio-plastics through appropriate technology. The collaboration between Kakojan College, Assam Down Town University, and the Rain Forest Research Institute can play a pivotal role in developing low-cost, scalable solutions tailored to local conditions. Such initiatives reduce environmental pollution, create green jobs, and strengthen the rural economy—all essential pillars of *Atmanirbhar Bharat.*

One cannot ignore the human dimension either. Environmental conservation succeeds only when local communities are equal partners, not passive beneficiaries. The seminar must therefore give adequate space to indigenous voices - whether they are Mishing, Karbi, Bodo, or tea-tribe women who have protected sacred groves and community forests for generations. Their traditional ecological

knowledge is a living laboratory that modern science can learn from. At the same time, young researchers and students from colleges and universities bring fresh perspectives, innovative ideas, and the energy of youth. When these two streams meet, magic happens. The abstracts that will be presented over the next two days are expected to reflect precisely this beautiful convergence of tradition and modernity, of local wisdom and global science.

The timing of the seminar is significant. The world is preparing for the post-2030 development agenda, and India is positioning itself as a leader in climate action. Yet leadership cannot be claimed through international speeches alone; it must be earned through concrete action on the ground. By hosting this national seminar in a relatively modest yet academically vibrant college like Kakojan, the organisers trying to send a powerful message i.e. environmental consciousness and sustainable development are not the preserve of metropolitan institutions or elite think-tanks. They belong equally to the mofussil areas where the real battle for ecological balance is being fought.

As we gather at Kakojan College on 27 & 28 March 2026, let us remember that every paper presented, every discussion held, and every resolution adopted carries the potential to influence policy and practice far beyond the seminar hall. The abstracts compiled in this volume represent not only the intellectual labour of scholars but also their hope for a better tomorrow. Some may focus on climate-smart agriculture, others on wetland restoration, forest carbon sequestration, eco-tourism, or environmental education. Whatever the specific theme, the underlying current remains the same: how to make India truly self-reliant without compromising the health of Mother Earth.

The collaboration between IQAC Kakojan College, Assam Down Town University, and ICFRE-Rain Forest Research Institute is itself a model worth emulating. It demonstrates that when institutions of higher education join hands with specialised research bodies, the outcomes are far richer than what any single entity could achieve alone. Assam Down Town University brings multidisciplinary expertise and a strong urban outreach, while the Rain Forest Research Institute offers decades of specialised knowledge on tropical ecosystems. Kakojan College, rooted in the heart of rural Jorhat district, ensures that the discourse remains grounded in local realities. This synergy is the true spirit of *Atmanirbhar Bharat*—collective strength built on mutual respect and shared purpose.

In conclusion, the National Seminar *"Environmental Issues and Sustainable Development Towards Atmanirbhar Bharat"* is not merely an event; it is a commitment. A commitment to look at environmental problems with honesty, to seek solutions with creativity, and to implement them with determination. As the abstracts in this volume unfold before us, may they inspire each one of us - academicians, researchers, policymakers, students, and community members - to carry forward the message that sustainable development and self-reliance are not contradictory goals but two sides of the same coin. The road ahead is challenging, yet the path is illuminated by the collective wisdom of our people and the richness of our natural heritage. Let us walk this path together, with courage, compassion, and unwavering faith in India's capacity to lead the world by example.

Lakhya Protim Nirmolia
Utpal Sadhonider
Joint Coordinator
National Seminar Organizing Committee

About the College

Kakojan College is one of the leading institutions of higher education located in Jorhat district of Upper Assam. This pioneer institution of higher education was established with the initiative of the benevolent public, a few distinguished educationists and social workers of the locality. The College is situated in an ideal place which is 16 km away from the city of Jorhat. Established in the year 1967 and affiliated to Dibrugarh University, the college since its inception has been providing quality education for the all-round development of the students with progressive futuristic vision. The college has been assessed and accredited with A grade during its 3rd cycle of NAAC Assessment in 2023. The institution upholds the highest standards for instruction in Arts and Science with career-oriented programmes. The college also offers various courses through Open and Distance Learning (ODL) mode under Dibrugarh University. The college has a study centre of Krishna Kanta Handique State Open University (KKHSOU).

Key-Note Address

Linking Environmental Sustainability with Self-Reliant Development: Bio-Waste to Wastewater Solutions

Dr. Latonglila Jamir
Associate Professor
Department of Environmental Science
Nagaland University

Sustainable wastewater management is essential for addressing escalating environmental challenges while advancing the vision of a self-reliant India. Rapid industrialization, urban expansion, and resource-intensive development have significantly increased water pollution and pressure on freshwater reserves. In this context, sustainable treatment technologies that enable water reuse, pollution control, and resource recovery are critical for balancing development with environmental protection. This study highlights eco-friendly and circular approaches to wastewater treatment through the valorization of biowaste into functional carbon-based adsorbents. Emphasis is made on the adoption of low-cost, energy-efficient, and locally adaptable technologies which strengthens community participation and reduces dependence on external resources. Such innovations reduce dependence on fossil-based materials, promote waste-to-wealth strategies, and support sustainable manufacturing. Overall, sustainable wastewater treatment integrated with resource recovery and green material development contributes significantly to environmental protection, water security, and the realization of Atmanirbhar Bharat.

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Invited Talk

Insect Farming for Climate-Resilient, Sustainable, and Self-Reliant India: A Pathway to Food Security and Environmental Sustainability

Prof. Lakhmi Nandan Kakati
Chairperson, Faculty of Science
Assam down town University
Panikhaity, Guwahati-781026

Climate change, environmental degradation, and rising food insecurity pose significant challenges to sustainable development, particularly in developing countries like India. Increasing temperatures, extreme weather events, water scarcity, biodiversity loss, and land degradation—affecting nearly 30% of India's land—threaten agricultural productivity, livelihoods, and long-term economic stability. Addressing these challenges requires an integrated approach that balances economic growth, environmental sustainability, and social inclusion. The Atmanirbhar Bharat (Self-Reliant India) initiative provides a strategic framework to align development with sustainability by promoting domestic production, technological innovation, resilient supply chains, and inclusive growth. Within this framework, practices such as renewable energy adoption, climate-smart agriculture, crop diversification, organic farming, and efficient water management are essential for enhancing climate resilience. Edible insect farming (entomophagy) emerges as a promising solution, offering a climate-resilient, resource-efficient, and nutritionally rich alternative to conventional livestock. Insects demonstrate high feed conversion efficiency, requiring only 1–2 kg of feed per kg of protein compared to 6–10 kg for traditional livestock. They require minimal land and water, emit negligible greenhouse gases, and adapt well to diverse environmental conditions. Nutritionally, edible insects are rich in protein, essential amino acids, vitamins, and minerals, providing a viable solution to malnutrition. In India's north-eastern regions, entomophagy is a traditional practice, though increasing reliance on wild harvesting raises concerns about biodiversity, emphasizing the need for sustainable mass-rearing systems. Edible insect farming supports Atmanirbhar Bharat by promoting decentralized protein production, reducing import dependence, and enhancing rural livelihoods through MSMEs. It also contributes to circular economy models, and integration with systems such as dairy, poultry, aquaculture, sericulture, and vermiculture that further strengthens resilience and income diversification. Technological innovations, including vertical farming and automated rearing, enable scalable and year-round production. Social factors such as gender inclusion, community participation, and environmental awareness are critical for adoption. Despite its potential, challenges such as cultural acceptance, regulatory gaps, and limited awareness persist, requiring policy support and research investment. Integrating edible insect farming within climate resilience and Atmanirbhar Bharat offers a transformative pathway toward a sustainable, self-reliant, and nutritionally secure future for India.

Invited Talk

ROLE OF BIOTECHNOLOGY IN CONTROLLING OIL POLLUTION

Suresh Deka
Former Professor, DST-IASST
Adviser, Assam down town University,
Panikhaity, Guwahati -26, Assam

Upper Assam hosts several oil fields operated primarily by the **Oil and Natural Gas Corporation (ONGC)** and **Indian Oil Corporation Limited (IOCL).** Each organization manages multiple oil fields comprising numerous oil wells. Crude oil extracted from these wells is transported via pipelines to **Oil Collecting Stations (OCS)** or **Group Gathering Stations (GGS)** for temporary storage before being sent to refineries for further processing. However, due to high internal pressure, ageing infrastructure, or operational failures, pipeline ruptures occasionally occur, resulting in crude oil leakage and spillage. As many of these pipelines traverse agricultural landscapes, particularly rice fields, such incidents cause severe crop damage and lead to hydrocarbon contamination of agricultural soils. The accumulation of petroleum hydrocarbons degrades soil quality, disrupts microbial activity, and renders the land unsuitable for future cultivation. Despite the long history of oil exploration in Assam, research on biotechnological remediation of hydrocarbon-contaminated sites in this region remains limited. Therefore, the present study aims to develop an effective hydrocarbon remediation strategy tailored to the oil-polluted soils of Assam, with particular emphasis on plant–microbe interactions, thereby contributing to environmental restoration and sustainable land management.
Keywords: Oil pollution, Remediation, Biotechnology, Plant-microbe interaction

Invited Talk

Smart Forestry: Geoinformatics-Driven Solutions for Sustainability and Climate Resilience in North East India

Dr. Dhruba J. Das
Scientist F and Head, Silviculture and Forest Management
ICFRE-Rain Forest Research Institute, Jorhat

Geoinformatics has evolved into a vital scientific approach for addressing contemporary ecological and environmental challenges while advancing the Sustainable Development Goals (SDGs), particularly in the ecologically sensitive and biodiversity-rich landscapes of North East India. Recent initiatives undertaken highlight the diverse applications of geospatial technologies in forest and environmental management. Geoinformatics-based interventions have also supported the rejuvenation of the Brahmaputra River through forestry measures aimed at bank stabilization and landscape restoration. Advanced spatial mapping and monitoring of invasive alien species, notably *Mikania micrantha* in Assam, have facilitated precise and need-based management strategies. Long-term ecological monitoring in Dihing Patkai National Park has generated valuable insights into forest structure, dynamics, and biodiversity conservation. In addition, ecosystem carbon assessment in protected Forests contributes to climate change mitigation efforts. Studies on Trees Outside Forests (TOF) in Assam, along with bamboo resource assessment in Assam and Nagaland, have enhanced resource evaluation and informed livelihood planning. Together, these initiatives demonstrate the transformative potential of geoinformatics in strengthening sustainable forest management, enhancing climate resilience, and promoting an environmentally secure and self-reliant (*Atmanirbhar*) India.
Key words: Remote Sensing and GIS, Invasive Alien Plant Species, Carbon Sequestration, Bamboo Resource Inventory

Invited Talk

Status and Conservation of the Endangered Ganges River Dolphin in the Brahmaputra River System

Dr. Abdul Wakid
Dr. Vishnupriya Kolipakam
Wildlife Institute of India, Dehradun

The Ganges River Dolphin (Platanista gangetica gangetica), an Endangered freshwater cetacean endemic to the Indian subcontinent, occurs across the Ganges–Brahmaputra-Meghna and Karnaphuli river systems of India, Nepal, and Bangladesh. Recent estimates suggest that about 6,324 individuals persist in India, indicating that while the species continues to survive across its range, it remains under considerable pressure.“In Assam, the Brahmaputra river system serves as one of the most important habitats for the species, supporting an estimated population of around 635 individuals. Dolphins are found along the Brahmaputra mainstream as well as in major tributaries such as the Kulsi, Subansiri, Beki, and Kapili rivers. They are typically associated with deep river stretches, confluences, and meandering sections, which provide favourable conditions for feeding and movement.“However, dolphins in this system are increasingly exposed to a range of human-induced threats. Accidental entanglement in fishing nets continues to be a major cause of mortality. The use of dolphin oil as bait is another threats. At the same time, habitat changes resulting from river modification, sediment dynamics, and declining fish availability are affecting their long-term survival. The growing use of mechanized boats has also introduced higher levels of underwater noise, which may interfere with the species echolocation-dependent behaviour.“Current conservation efforts in Assam combine regular population monitoring with assessments of habitat and threats. Increasing emphasis is being placed on working closely with local communities, especially fishermen, to promote awareness and more sustainable practices. Continued strengthening of conservation measures, supported by coordinated institutional efforts, will be essential to ensure the long-term survival of this unique freshwater dolphin in the Brahmaputra system.

Reimagining Atmanirbhar Bharat through Painting: Environmental Consciousness and Sustainable Identity in the Three Selected Paintings of Benu Misra

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The present paper "Reimagining Atmanirbhar Bharat through Painting: Environmental Consciousness and Sustainable Identity in the Three Selected Paintings of Benu Misra" critically investigates the ways in which visual art can be used to express ecological consciousness and sustainable nationalism. The study evaluates three chosen paintings *Rain over the Brickfield*, *Autumn* and *The Sun Sets Over the Brahmaputra* using a qualitative visual-analytical methodology based on eco-criticism and cultural hermeneutics. Rain over the Brickfield represents labor, environmental deterioration and the mute tenacity of nature, reflecting the conflict between industrial growth and ecological fragility. A landscape where seasonal rhythm becomes a paradigm for sustainable cohabitation is presented by autumn, which suggests cyclical regeneration and agrarian peace. When the Sun Sets The River becomes a symbol of civilization across the Brahmaputra, representing memory, continuity and ecological identity that are ingrained in the history of Assam. Misra creates an environmental ethos through this visual storytelling that is consistent with the idea of independent and sustainable development envisioned in modern-day India ***(Barpujari, 1990).***

According to the study, these paintings express a cultural-ecological identity that is essential to the Atmanirbhar Bharat ideology in addition to depicting landscapes. The paper illustrates how art becomes a venue of environmental pedagogy and sustainable reflection by placing Misra's creative imagination within Assam's environmental history and socio-cultural framework. In regional historiography and cultural studies, the Brahmaputra valley has long been studied as a geographical and symbolic basis for identity ***(Guha, 1977).*** The way that land, labor, river and season are visually represented aligns with larger Indian customs of ecological ethics and sustainability that prioritize community ***(Shiva, 2005).*** The study presents painting as an intellectual intervention that connects environmental consciousness with national developmental goals by interacting with interpretive traditions in art scholarship and Indian aesthetic theory ***(Neog, 1980).*** Atmanirbhar Bharat is ultimately reimagined in the article as ecological responsibility and culturally embedded sustainability that emerges from regional artistic expression, rather than just as economic self-reliance.

Keywords: *Environmental Consciousness, Sustainable Development, Atmanirbhar Bharat, Benu Misra, Assam, Painting, Ecological Identity, Sustainability, Eco-criticism*

References

1. Barpujari, H.K. (1990), The Comprehensive History of Assam. Guwahati: Publication Board Assam, p. 214.
2. Guha, A. (1977), Planter Raj to Swaraj: Freedom Struggle and Electoral Politics in Assam 1826–1947. New Delhi: People's Publishing House, p. 32.
3. Neog, M. (1980), Art and Culture of Assam. Guwahati: Publication Board Assam, p. 145.
4. Shiva, V. (2005), Earth Democracy: Justice, Sustainability and Peace. New Delhi: Research Foundation for Science, Technology and Ecology, p. 78.

Bio-Synthesied Silver Nanoparticles Using Curcuma Longa (Haldhi) Leaf Extract Catalyzed Degradation of Methyl Orange in Aqueous Medium

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In this work, a new catalyst (Silvernanoparticle) for the degradation of methyl orange dye was prepared. The synthesis of AgNPs was conducted by the use of a nontoxic, ecofriendly method. Curcuma Longa (Haldhi) Leaf extract was used as a reducing agent to convert silver ions into free AgNPs. Powder XRD, UV-VIS Spectroscopy etc. analysis was carried out to characterized the stable silver nanoparticles. The prepared AgNPs were employed as catalyst for oxidativedegradation of methyl orange in aqueous medium. The effects of various parameters liketime, temperature, initial concentration of dye and catalyst dose on degradation experimentswere investigated. Oxidative degradation reaction followed Eley-Rideal mechanism.

Key Words: *Curcuma Longa (Haldhi) Leaf, Silver Nanoparticle, Elay-Rideal mechanism,methyl orange*

Environmental Ethics in the Teachings of Srimanta Sankardeva: Relevance to Sustainable Development in the Contemporary World

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The present study "Environmental Ethics in the Teachings of Srimanta Sankardeva: Relevance to Sustainable Development in the Contemporary World" uses a socio-historical and interpretive framework to analyze the ecological aspects of Sankardeva's Neo-Vaishnavite philosophy. Sankardeva, who is best known for his work as a religious reformer, poet, and social organizer in Assam in the fifteenth and sixteenth centuries, expressed a philosophy based on harmony, compassion, simplicity and group responsibility values that are highly relevant to modern environmental ethics. His focus on egalitarian practices, satras as socio-cultural institutions, community prayer halls *(namghars)* and *eka-sarana nama dharma* promoted a culture of self-control, moral discipline and harmony with the natural world ***(Sarma, 1999),*** The study contends that Sankardeva's reform movement subtly encouraged sustainable social structure based on moral stewardship rather than exploitative consumption by placing his teachings within the ecological context of the Brahmaputra valley ***(Neog, 1987).***

The philosophy of Sankardeva provides a culturally grounded paradigm for sustainability that incorporates spirituality, communal life, and environmental responsibility in light of the global ecological crisis, climate change discussions, and the Sustainable Development Goals (SDGs). What modern historians refer to as spiritual ecology or religious environmentalism is reflected in his teachings on compassion *(daya),* non-violence, and dedication to a universal divine principle ***(Gadgil & Guha, 1995).*** His socio-cultural establishments still have an impact on Assamese identity and communal togetherness, proving that moral change may result in enduring, sustainable social structures ***(Bora, 2005).*** By highlighting indigenous spiritual traditions as workable pillars for ecological stewardship in the modern world, this study argues that revisiting Sankardeva's environmental ethics not only enhances regional intellectual history but also advances the global sustainability conversation.

Keywords: *Environmental Ethics, Srimanta Sankardeva, Neo-Vaishnavism, Sustainable Development, Spiritual Ecology, Indigenous Knowledge, Assamese Identity, Socio-Historical Study, SDGs, Religious Environmentalism*

References :

1. Bora, M. (2005), Sankardeva: A Study in Social and Cultural Reformation. Guwahati: Bani Mandir, p. 203.
2. Gadgil, M. & Guha, R. (1995), Ecology and Equity: The Use and Abuse of Nature in Contemporary India. New Delhi: Penguin Books, p. 12.
3. Neog, M. (1987), Srimanta Sankaradeva and His Times. Guwahati: Gauhati University Press, p. 156.
4. Sarma, S. (1999), The Neo-Vaishnavite Movement and the Satra Institution of Assam. Guwahati: Publication Board Assam, p. 78.

Promoting Environment-friendly Traditional Handicraft Industry for Sustainable Livelihood and Sustainable Development towards Atmanirbhar Bharat: A Study on the Environment-friendly Sital Pati Handicraft Industry in Assam

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Traditional handicraft industry is considered as the second largest employment-generating sector after agriculture in rural India and is one of the major exporter and supplier of handicraft products to the world market. Traditional handicraft industry has emerged and continues to be a potential sector generating income and employment opportunities, promoting rural entrepreneurship and rural economy, providing sustainable rural livelihood to different marginalized ethnic and tribal communities from generations to generations in different nook and corner of rural India. It has been observed that the traditional handicraft industries as small scale household industry sector operating in different locations among different indigenous rural marginalized ethnic and tribal artisan communities in India, are basically environment friendly based on locally available natural resources like cane, bamboo, jute, silk, etc. which produces different natural utility products, having demand in domestic and international market, combining traditional designs with modern techniques. Despite facing various challenges, the traditional handicraft industry continues to be a prime source of sustainable rural livelihood, promoting rural entrepreneurship and rural economy, empowering rural women, preserving cultural heritage and reducing urban migration, all while using eco-friendly, local natural materials, which also aligns with the United Nations Sustainable Development Goals (SDG's) and the vision of "Viksit Bharat" and "Atmanirbhar Bharat". But, proper skill development and Government and NGO's support, execution of enforceable policies are needed to promote this traditional handicraft sector, ensuring its sustainability to fulfil the vision of "Atmanirbhar Bharat".

This paper tries to explore the environment-friendly traditional rural Sital Pati handicraft industry promoting sustainable livelihood and sustainable development in Assam.

Key Words: Environment-friendly, Traditional handicraft industry, Sital Pati Handicraft, Sustainable livelihood, Sustainable development, Atmanirbhar Bharat

ভূপেন হাজৰিকাৰ গীতত প্ৰকৃতি

ড° পুণ্যপ্ৰভা বৰুৱা
সহকাৰী অধ্যাপক, অসমীয়া বিভাগ
মনোহাৰী দেৱী কানৈ মহিলা মহাবিদ্যালয়

অসমৰ মহান সংগীতসাধক, গীতিকাৰ আৰু সাংস্কৃতিক চিন্তাবিদ ড° ভূপেন হাজৰিকাৰ গীতসমূহ অসমীয়াৰ জীৱন-জগত, সমাজ আৰু সংস্কৃতিৰ এক জীৱন্ত প্ৰতিফলন। তেওঁৰ সংগীতত প্ৰকৃতি এক গুৰুত্বপূৰ্ণ নান্দনিক আৰু ভাবগত উপাদান হিচাপে উদ্ভাসিত হৈছে। অসমৰ নদী, পাহাৰ, গাঁও তথা প্ৰাকৃতিক পৰিবেশৰ সৈতে মানুহৰ জীৱনৰ অন্তৰংগ সম্পৰ্ক তেওঁৰ গীতত গভীৰ অনুভূতিৰে প্ৰতিফলিত হয়। বিশেষকৈ ব্ৰহ্মপুত্ৰ নদীয়ে তেওঁৰ বহু গীতত কেৱল প্ৰকৃতিৰ উপাদান হিচাপে নহয়, বৰং অসমৰ ইতিহাস, সংস্কৃতি আৰু সামাজিক জীৱনৰ প্ৰতীক হিচাপে ৰূপায়িত হৈছে।

ভূপেন হাজৰিকাৰ গীতত প্ৰকৃতিৰ চিত্ৰণ কেৱল দৃশ্যমান সৌন্দৰ্যৰ বৰ্ণনাত সীমাবদ্ধ নহয়; ইয়াত প্ৰকৃতি মানৱ জীৱনৰ দুখ-সুখ, আশা-আকাংক্ষা আৰু সামাজিক চেতনাৰ এক গভীৰ প্ৰতীক ৰূপে প্ৰকাশ পাইছে। নদী, আকাশ, মাটি, বৰষুণ আদি প্ৰাকৃতিক উপাদানৰ জৰিয়তে তেওঁ সমাজৰ বৈষম্য, মানবতা, ঐক্য আৰু সাম্যতাৰ গভীৰ বোধ সুন্দৰভাৱে প্ৰতিফলিত কৰিছে।

এই অধ্যয়নত ভূপেন হাজৰিকাৰ নিৰ্বাচিত গীতসমূহত প্ৰকৃতিৰ উপস্থাপন, তাৰ নান্দনিক সৌন্দৰ্য আৰু সামাজিক তাৎপৰ্য গৱেষণামূলক দৃষ্টিৰে বিশ্লেষণ কৰিবলৈ চেষ্টা কৰা হ'ব। আশা কৰা হৈছে যে বিষয়ৰ বিশ্লেষণে ভূপেন হাজৰিকাৰ গীতত প্ৰকৃতি যে কেৱল পটভূমি নহয়; বৰঞ্চ ই অসমীয়াৰ জীৱনদৰ্শন, সাংস্কৃতিক চেতনা আৰু মানৱতাবাদী চিন্তাধাৰাৰ এক শক্তিশালী প্ৰকাশমাধ্যম সেই কথা উন্মোচিত হ'ব।

বীজ শব্দঃ ভূপেন হাজৰিকা, গীত, প্ৰকৃতি

The Equity, Forms of Welfare and the Issues of Sustainable Development in India : An Analysis of the Intricacies of the Balance in Nature

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It is very difficult to imagine the balanced environmental juncture without the particular equanimity with the objectives of everyday lives of the human species being and which is again determined by the egalitarian conspectus of the realm of distribution of the resources both in aspects of rights and foundation of true welfare state. When we are going to bring into discourse the features of the environment and the ecological spectrum in its effects of shocking impacts upon the continuous flow of development in various parts of the world whether in terms of the developed or developing nations one thing is becoming very much clear that the worst consequences of the deterioration in balance in nature has brought untold miseries to the common masses . In India, the issues and problems of environmental context has highly significant in leading the prospects and opportunities of a developed and equal society based upon normative goals of development .For the India of the twenty first century , the development of the economy , industrialization and social welfare has been quite indispensable and which is going to impossible in achieving without the balance in the environment. In the post-globalized and post-democratic liberal phenomena of this world political-economy , the goals of maintaining the features of sustainable development has turned itself a chief characteristic of the development in holistic terms but it has primarily been important where the true practices of democracy in a certain social equities would enhance the spatial configuration of natural harmony and the cause of development in proper perspectives.

Key words:*Environmental, human species, egalitarian, resources, rights , welfare state, ecological, sustainable etc.*

বহনক্ষম গ্ৰাম্য উন্নয়নত বেচৰকাৰী সংস্থাৰ ভূমিকাঃ এক পৰ্যালোচনা

মানৱজ্যোতি শইকীয়া
সহকাৰী অধ্যাপক, ৰাজনীতি বিজ্ঞান বিভাগ
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গ্ৰাম্য শব্দটোৱে নগৰীকৰণৰ পৰ্যায়ত উপনীত নোহোৱা, কৃষি নিৰ্ভৰশীল জীৱন-শৈলী অৱলম্বন কৰা, সামাজিক প্ৰমূল্য, পৰম্পৰা, লোকাচাৰৰ ব্যাপক প্ৰচলন থকা পৰস্পৰ নিৰ্ভৰশীল আৰু সামাজিকভাৱে সংঘবদ্ধ লোক বাস কৰা অঞ্চলক বুজায়। ঠিক সেইদৰে উন্নয়ন বুলি কলে পৰিমাণগত আৰু গুণগত দুয়োধৰণৰ পৰিৱৰ্তনক বুজায়।অৰ্থাৎ গ্ৰাম্যাঞ্চলৰ বাবে আৱশ্যকীয় গুণগত আৰু পৰিমাণগত পৰিৱৰ্তনক গ্ৰাম্য উন্নয়নে সামৰি লয়।গতিকে, যি সময়ত ভাৰতৰ প্ৰায় ৬২ শতাংশ (ৱৰ্ল্ড মিটাৰ ১ মিটাৰ, ২০২৬ মাৰ্চ ৰ তথ্য অনুসৰি) লোক গ্ৰাম্যাঞ্চলত বাস কৰে, তেনেস্থলত গ্ৰাম্য সমাজৰ সামগ্ৰিক উন্নয়ন অতীব প্ৰয়োজন। সেয়েহে ইয়াৰ উন্নয়নৰ ধাৰাটোত বহনক্ষম দিশটোকো সমানে গুৰুত্ব প্ৰদান কৰাটো জৰুৰী। কাৰণ ভৱিষ্যৎ প্ৰজন্মৰ প্ৰয়োজনীয়তা আৰু উপকাৰিতাক অগ্ৰাধিকাৰ দি গ্ৰাম্য উন্নয়নৰ আচঁনি বা পদক্ষেপসমূহ আগবঢ়াই নিয়া উচিত। ইয়াৰ বাবে চৰকাৰী অনুষ্ঠানৰ লগতে বেচৰকাৰী সংগঠনসমূহেও ভূমিকা গ্ৰহণ কৰে। এই গৱেষণা পত্ৰত বহনক্ষম গ্ৰাম্য উন্নয়নত বেচৰকাৰী সংগঠনৰ ভূমিকা সম্পৰ্কে আলোচনা কৰা হ'ব। গৌণ তথ্যৰ আধাৰত প্ৰস্তুত কৰা গৱেষণা পত্ৰখনৰ তথ্য সমূহ বৰ্ণনাত্মক আৰু বিশ্লেষণাত্মক পদ্ধতিৰ আধাৰত ব্যাখ্যা কৰা হ'ব।

বীজ শব্দঃ বহনক্ষমতা, সামাজিক উন্নয়ন, গ্ৰাম্য পৰিৱেশ সচেতনতা

The Future Survival of Human Beings on Earth Is Directly Linked with the Availability of Trees and Green Forests Around Us

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The future of human beings on this planet is closely linked with the presence of trees and green cover. For centuries, trees have quietly supported life by producing oxygen, cleaning the air, stopping soil from being washed away, and giving shelter to many animals and insects that help keep nature in balance. These days, however, forests are disappearing quickly because of new construction, farming, and other human activities, which is causing problems like unpredictable weather, breathing difficulties, and shortage of natural resources. In this research, I studied different forest zones and talked with local villagers who depend on nature to understand the real impact of losing trees. The results show that as tree numbers keep falling, the earth becomes a tougher place for people to live healthy and peaceful lives. Simple efforts like saving old forests and planting more trees around towns and villages can make a big difference. This work reminds us of one basic truth – human beings can only continue to exist comfortably on Earth if trees are also available in plenty.

Keywords: Trees, Human Survival, Deforestation, Forest Conservation, Environmental Balance, Nature Protection

Earth's Priceless Ledger : Environmental Economics and the Vision for Sustainable Development

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Environmental economics serves as a vital bridge between economic prosperity and planetary health, offering analytical frameworks essential for achieving sustainable development. By internalizing environmental externalities and valuing ecosystem services, it transforms how societies account for natural capital in decision-making. Innovative policy tools such as carbon pricing, cap-and-trade mechanisms, and payments for ecosystem services enable the alignment of market incentives with ecological limits. In an age of climate emergency, resource depletion, and biodiversity loss, this discipline promotes circular economy principles, green technological innovation, and equitable resource governance. Ultimately, environmental economics provides the intellectual foundation for building resilient, inclusive economies that respect planetary boundaries and secure intergenerational justice.

Keywords: Environmental Economics, Sustainable Development, Ecosystem Valuation, Circular Economy, Carbon Pricing, Planetary Boundaries

Naga people, 'Taboos', and Ecosystem : A Reading of Selected Works by Easterine Kire

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Easterine Kire's works depict Nagaland with its rich natural bounty and people who carry a vibrant tradition, value system, culture, rituals and beliefs. Her works acutely portray the socio-cultural structures of the Naga society and their traditional practices of transferring knowledge from one generation to another, mostly orally. 'Taboos' are an important component of Naga traditional belief system and also an integral part of the learning imparted to the young generation. These 'taboos' are actually some ways of life forbidden under certain circumstances; which if not followed would bring sickness or ill omen to people's lives. As taboos were considered sacred, people usually abided by them in the traditional societies. However, with changing times and cultural hybridity creeping into the Naga social fabric, these belief systems are also affected. The aim of this paper is to identify various taboos in Naga society as portrayed by Kire in her works. It further aims to understand the effect of these taboos in conservation of the ecosystem and to gauge the probability of appropriating these taboos in the present day to foster ecological sustainability. The works by Kire chosen for this study are – *Don't Run, My Love* (2017), *Son of Thundercloud* (2016) and *When the River Sleeps* (2014).

Keywords: Taboos, Naga society, traditional knowledge, ecology, sustainability

Common Property Resources and Sustainability in Rural India

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Common Property Resources (CPRs) such as forests, grazing lands, water resources, and fisheries play an important role in supporting rural livelihoods. These resources are jointly owned and managed by rural communities. They provide critical resources, such as fuelwood, fodder, water, and food, for rural populations, particularly marginalized and landless groups. However, these resources have deteriorated over time due to population growth in rural areas, overexploitation, inadequate management institutions, and low community participation. This has resulted in environmental degradation and has an adverse impact on rural livelihoods.

This paper attempts to examine the importance of CPRs for rural livelihoods and assess the challenges faced during their management. The paper also highlights how the absence of effective property rights and management often leads to the "tragedy of the commons." The paper also attempts to highlight some of the best practices for community management and initiatives by governments for the conservation of these resources. The paper also attempts to highlight how these resources play an important role in achieving other objectives of sustainability and how these resources help in achieving these objectives. The paper also attempts to highlight some of the best practices for community management and initiatives

Keywords: Common Property Resources, Sustainability, Rural Livelihoods, Community Management, Natural Resource Conservation

Erratic Floods and Their Threats to Kaziranga Wetland Biodiversity

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The Kaziranga National Park, a UNESCO World Heritage Site, represents one of the most significant wetland ecosystems in the Brahmaputra floodplain. While seasonal flooding has historically sustained its rich biodiversity, recent patterns of erratic and intensified floods—driven by climate change, altered rainfall regimes, and upstream hydrological modifications—cause serious ecological threats. These unpredictable floods disrupt the natural balance of habitats, affecting species distribution, breeding cycles, and food availability.

Erratic flooding increases mortality among key species such as the one-horned rhinoceros, swamp deer, and various ground-nesting birds due to sudden inundation and reduced time for migration to higher grounds. Prolonged waterlogging also degrades grasslands, which causes serious problems for herbivores, while excessive sediment deposition alters wetland hydrology and vegetation structure. Additionally, displaced wildlife often moves toward human settlements, and causing man-wildlife conflicts.

Aquatic biodiversity is equally affected, as fluctuating water levels disturb fish spawning cycles and nutrient dynamics. Invasive species may also gain an advantage under such unstable conditions, further threatening native flora and fauna. These cumulative impacts weaken the resilience of the wetland ecosystem.

Addressing these challenges requires integrated flood management, habitat restoration, and the development of elevated refuges for wildlife. Continuous monitoring and climate-adaptive conservation strategies are essential to safeguard the ecological integrity of Kaziranga in the face of increasing hydrological uncertainty.

Key words: Wetland, biodiversity, wildlife ,Kaziranga

Environmental Ethics

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Environmental ethics has emerged during the past 25 years as a response both to new experiences of environmental degradation. Environmental ethics is not limited to ethical inquiry, but also is embedded in a larger matrix of aesthetic, religious, scientific, economic, and political considerations. Environmental ethics encompasses a surprising richness and diversity of responses to the concerns raised by the environmental crisis. It deals with global subject matter in a world that is just beginning to develop the ability to engage in global operation. The environmental crisis is international. It no longer is possible for any one society to live without having a significant impact on others. Because environmental ethics has emerged in response to a global environmental crisis, many proposals address the need for a transformation of human experience.The word ethics comes from the Greek 'ethos', meaning custom, usage, or character. Custom and usage are related to action, and it is actions that are judged as ethical or unethical. All ethics seeks an appropriate respect for life. Respect for life does demand an ethic concerned about human welfare, and now applied to the environment. Environmental ethics seeks to escape relativism in ethics, to discover a way past culturally based ethics. Humans interact with nature. Environmental ethics is the only ethics that breaks out of culture. It has to evaluate nature, both wild nature and the nature that mixes with culture and to judge duty thereby. Logically and psychologically, the easiest breakthroughs past traditional boundaries of inter-human ethics are made when confronting higher animals. Animals defend their lives, they have a good of their own and suffer pains and pleasures like ourselves. Human moral concern should at least cross over the domain of animal experience.

Keywords: Environmental, Ethics, Culture, Crisis, Humans

Women empowerment for sustainable development - A Sociological study

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Women's empowerment is an act of giving women equal rights and opportunities to participate in society. In today's world women are still not given enough power and respect. There are many reasons for this, including illiteracy, poverty, social customs, child marriage. Women continue to be among the world's most vulnerable groups, as access to resources and power remains highly skewed toward men. Women play a pivotal role in sustainable development by managing natural resources, enhancing food security, and driving household - level consumption changes. They act as catalysts for environmental conservation through traditional knowledge, yet their contributions are often limited by unequal access to education, land and economic decision making.

Sustainable development for women empowerment involves ensuring gender, equality to faster economic growth, reduce poverty, and enhance climate resilience. Key strategies include investing in education facilitating financial independence, improving legal rights and promoting leadership roles.

Key words: Women, Women's empowerment, sustainable development, gender equality.

একবিংশ শতিকাৰ অসমীয়া উপন্যাসত পৰিৱেশৰ প্ৰসংগ
(অনুৰাধা শৰ্মা পূজাৰীৰ 'ইয়াত এখন অৰণ্য আছিল' উপন্যাসৰ বিশেষ উল্লেখেৰে)

ড° মিনাক্ষী হাজৰিকা
সহকাৰী অধ্যাপক
অসমীয়া বিভাগ, কাকজান মহাবিদ্যালয়

সাহিত্যৰ সৈতে পৰিৱেশৰ এক পুৰাতন আৰু চিৰন্তন সম্বন্ধ আছে। সেই সূত্ৰেই সম্প্ৰতি পৰিৱেশ সমালোচনাৰ এটি ধাৰা সাহিত্য আলোচনাৰ পৰিধিৰ ভিতৰলৈ আহিছে। অসমীয়া সাহিত্যত পাৰিপাৰ্শ্বিক সমালোচনা এটা নতুন বিষয়। একবিংশ শতিকাত অসমীয়া সাহিত্যত পাৰিপাৰ্শ্বিক চেতনাৰ ওপৰত গুৰুত্ব আৰোপ কৰি ঔপন্যাসিকসকলে উপন্যাস ৰচনা কৰিছে। একবিংশ শতিকাৰ অসমীয়া উপন্যাসত পৰিৱেশৰ অৱক্ষয়, সংৰক্ষণ, মানুহ আৰু বন্যপ্ৰাণীৰ সংঘাত আদি বিষয়সমূহে স্থান লাভ কৰিছে। তদুপৰি সাম্প্ৰতিক কালত মানৱসৃষ্ট বিভিন্ন কাৰকে পৰিৱেশৰ প্ৰতি যি ভাবুকি আনিছে তাৰ উপস্থাপন অসমীয়া উপন্যাস সাহিত্যৰ এক উল্লেখযোগ্য দিশ। পৰিৱেশৰ অৱক্ষয় অথবা পাৰিপাৰ্শ্বিক সমালোচনাক বিষয়বস্তু হিচাপে লিখা অনুৰাধা শৰ্মা পূজাৰীৰ 'ইয়াত এখন অৰণ্য আছিল' এখন উল্লেখযোগ্য উপন্যাস। ঔপন্যাসিকে একবিংশ শতিকাত অসমৰ পৰিৱেশ, পৰিৱেশৰ অৱক্ষয়, মানৱ সমাজত পৰিৱেশৰ অৱক্ষয়ৰ ফলত সৃষ্টি হোৱা সমস্যা আদি দিশসমূহৰ কিদৰে উপস্থাপন কৰিছে সেই সম্পৰ্কে এই আলোচনাপত্ৰত বিশ্লেষণ কৰা হ'ব।

বীজ শব্দ ঃ পৰিৱেশ, পৰিৱেশৰ অৱক্ষয়, পাৰিপাৰ্শ্বিক সমালোচনা, পৰিৱেশ সচেতনতা

পংকজ গোবিন্দ মেধিৰ ‘চৰাই চুবুৰী’ উপন্যাসত প্ৰতিফলিত পৰিৱেশ প্ৰসংগ

নৱনিতা নাথ
সহকাৰী অধ্যাপক
অসমীয়া বিভাগ, কাকজান মহাবিদ্যালয়

অসমীয়া সাহিত্যত প্ৰাচীন কালৰপৰাই পৰিৱেশৰ বিভিন্ন প্ৰসংগই স্থান পাই আহিছে। আধুনিক অসমীয়া সাহিত্যৰ এক বিধা উপন্যাসতো আৰম্ভণিৰ স্তৰৰপৰাই পৰিৱেশ সম্পৰ্কীয় চিন্তা-চৰ্চাৰ প্ৰতিফলন দেখা পোৱা যায়। পৰিৱেশৰ পৰিৱৰ্তনৰ লগে লগে সাহিত্যৰ বিভিন্ন বিধাসমূহতো পৰিৱেশ প্ৰসংগৰ উপস্থাপনৰ সৌন্দৰ্যৰ বন্দনামূলক উপস্থাপনৰ পৰা প্ৰাকৃতিক সম্পদৰ অৱক্ষয়, মানুহ আৰু প্ৰকৃতিৰ সংঘাত, পৰিৱেশ প্ৰদূষণ আদি প্ৰসংগলৈ সাহিত্যৰ বিষয়বস্তুৰ পৰিৱৰ্তন হৈছে। একবিংশ শতিকৰা অসমীয়া উপন্যাসত পৰিৱেশত অৱক্ষয়, পৰিৱেশ সংৰক্ষণ, মানুহ আৰু বন্যপ্ৰাণী সংঘাত আদি প্ৰসংগসমূহৰ উপস্থাপন পৰিলক্ষিত হয়। পংকজ গোবিন্দ মেধিৰ ‘চৰাই চুবুৰী’ বিষয়বস্তু আৰু উপস্থাপনৰ দিশৰপৰা এখন উল্লেখযোগ্য উপন্যাস। এই উপন্যাসখনত ভ্ৰমণ বৃত্তান্তৰ আৰ্হিত পৰিৱেশৰ বিভিন্ন প্ৰসংগসমূহ বৰ্ণনা কৰিছে। পৰিৱেশৰ অৱক্ষয়, পৰিৱেশ সংৰক্ষণৰ বাবে ল’ব পৰা ব্যৱস্থা, পৰ্যটনৰ সম্ভাৱনীয়তা, প্ৰাকৃতিক সম্পদৰ অৱক্ষৰ প্ৰতি উদ্বিগ্নতা আদি প্ৰসংগৰ সাৱলীল বৰ্ণনা উপন্যাসখনত দাঙি ধৰা হৈছে। বাস্তৱধৰ্মী বৰ্ণনাৰে ঔপন্যাসিকে পৰিৱেশ সম্পৰ্কীয় স্পৰ্শকাতৰ প্ৰসংগসমূহ বৰ্ণনা কৰিছে। এই গৱেষণাপত্ৰত ‘চৰাই চুবুৰী’ উপন্যাসত পৰিৱেশ প্ৰসংগৰ উপস্থাপন সম্পৰ্কে বিশ্লেষণাত্মক পদ্ধতিৰে আলোচনা কৰা হ’ব।

বীজ শব্দ ঃ পৰিৱেশ, পৰিৱেশৰ অৱক্ষয়, পৰিৱেশ সংৰক্ষণ, পৰিৱেশ শিক্ষা

A Study On Rabindranath Tagore's Environmental Philosophy

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In the proposed paper an attempt has been made to analyze Rabindranath Tagore's Philosophy of environment. Tagore has a keen philosophical insight on environment. Man-nature relationship is the key points of his Philosophy of environment. He realized the intuitive and mutual bond between him and nature. He Valued nature intrinsically. He considered himself as a part and parcel of the entire environment. Here discussion is carried on concentrating his attitude towards environment and the measure taken by him to protect and preserve the natural environment.

This paper is completely an analytical Study based on both primary and secondary data's.

Keywords: Environmental Philosophy, Tagore,intrinsically value,man- nature relationship.

Impact of Climate Change on Bio-Resources

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Climate change is a major environmental challenge that significantly affects bio-resources, including plant, animals and microorganisms. It is mainly caused by human activities such as deforestation, industrialization, and the burning of fossil fuels, leading to increase greenhouse gas emissions and global warming. These changes result in irregular rainfall, rising temperature, and extreme weather events which negatively impact agriculture productivity, forest resources and biodiversity. Plant growth is disturbed, animal habitats are altered, reducing soil fertility. Climate change also leads to the loss of biodiversity, threating many species with extinction. To minimize these impact, sustainable practices such as reducing emissions, conserving, forests and promoting eco-friendly agriculture are essential. Protecting bio-resources is crucial for maintaining ecological balance and ensuring future sustainability.

Keywords: Climate change, Bio-resources, Global warming, Greenhouse Gases, Sustainable Development.

Impact of Climate Change on Soil Health and Sustainability

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Climate change has emerged as one of the most critical environmental challenges, significantly affecting soil health and its long-term sustainability. Changes in temperature, rainfall patterns, and the increasing frequency of extreme weather events such as droughts and floods have led to soil degradation, erosion, and loss of organic matter. These changes disturb the physical, chemical, and biological properties of soil, ultimately reducing its fertility and productivity. Additionally, climate change impacts soil biodiversity and disrupts the natural carbon cycle, contributing further to global warming. The decline in soil quality poses serious threats to agriculture, food security, and ecosystem stability. This study highlights the major impacts of climate change on soil systems and emphasizes the importance of sustainable soil management practices, including conservation techniques, improved water management, and reduction of greenhouse gas emissions. Protecting soil health is essential for maintaining environmental balance and ensuring a sustainable future for coming generations.

Keywords: Climate Change, Soil Health, Soil Erosion, Sustainability, Soil Fertility, Global Warming.

Biodiversity Conservation

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Biodiversity conservation refers to the protection, preservation, and management of the variety of living organisms, including plants, animals, and microorganisms, along with their natural habitats. It aims to maintain ecological balance and ensure that future generations can enjoy a healthy and sustainable environment. Biodiversity plays a crucial role in maintaining environmental stability by regulating oxygen and carbon dioxide levels, providing food and medicinal resources, and supporting economic sectors such as agriculture, forestry, and tourism.

There are two main methods of biodiversity conservation: in-situ and ex-situ. In-situ conservation involves protecting species within their natural habitats, such as in national parks like Kaziranga National Park, wildlife sanctuaries, and biosphere reserves. Ex-situ conservation, on the other hand, focuses on preserving species outside their natural environments through zoological parks, botanical gardens, and seed banks.

Individuals can also contribute to biodiversity conservation by reducing pollution, planting trees, using sustainable products, and spreading awareness. Protecting biodiversity is essential for maintaining life on Earth and ensuring long-term ecological and human well-being.

Keywords: Biodiversity, Conservation, Ecosystem, In-situ Conservation, Ex-situ Conservation, Environmental Balance, Sustainability

Silent Threat : Disease Caused By Industrial Pollution

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Industrial development has significantly improved modern life, but it has also created serious environmental and health problems. One of the most concerning issues is industrial pollution, which releases harmful chemicals, gases, and toxic wastes into the air, water, and soil. These pollutants often remain unnoticed, silently affecting human health over time. The presentation "Silent Threat: Diseases Caused by Industrial Pollution" focuses on how industrial activities contribute to the spread of various diseases. Continuous exposure to polluted air and contaminated water can lead to respiratory diseases, skin disorders, eye irritation, and even long-term illnesses such as cancer and organ damage. Communities living near factories and industrial areas are particularly vulnerable to these health risks. This presentation highlights the major sources of industrial pollution, the types of diseases associated with it, and the importance of environmental protection. It also emphasizes the need for stricter regulations, cleaner technologies, and greater public awareness to reduce pollution and protect human health.

Keywords:Pollution, Toxicity , Human health, Respiratory diseases, Cancer,Skin disorder, Pollution Control, Environment protection.

The role of NSS volunteers in environmental protection : A case study of Jorhat District in Assam

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The National Service Scheme, under the Ministry of Youth Affairs and Sports, Government of India, popularly also known as NSS was launched in 1969. The main aim of NSS is to develop personality of students through community service. NSS volunteers also plays a vital role in environmental protection and environmental related issues by organizing plantation programme, Swacchata, awareness programme, awareness about avoiding plastic use in daily life, health and hygiene etc. The paper examines the role of the NSS volunteers in environmental protection with reference to Jorhat District of Assam. To understand the role of NSS volunteers in environmental protection, three NSS Units namely, NSS Unit of Cinnamara College, NSS Unit of Nakachari College and NSS Unit of DIET, Titabar under Jorhat district of Assam have been selected for the study. The study explores that NSS volunteers plays an important role in environment protection through organising various programmes such as - plantation, Cleanness at village and roadside etc.

Keywords: Environment, Environmental Protection, NSS, Jorhat, Assam

Cultural Landscapes of Water: Folk Beliefs, Rituals and Cultural Traditions Associated With The Brahmaputra River and its Tributaries of the Upper Brahmaputra Valley

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Since the beginning of Civilization, rivers have served as dynamic cultural landscape where human identities, practices, and beliefs are entwined with ecological processes. Water sources serve as the basis for intricate systems of folk beliefs, rituals, and customs that have developed over the ages in the context of the Brahmaputra River and its many tributaries flowing through the culturally rich province of Assam. These customs shape cultural identities, seasonal rhythms, and social structures by reflecting the close links that local groups have with the riverine environment. The rivers have served as a source of life and sustenance for civilizations, providing water for drinking, irrigation, and transportation. Many ancient civilizations, such as the Egyptians and Mesopotamians, settled along the banks of rivers like the Nile and the Tigris-Euphrates. The beauty and majesty of rivers have long been a source of inspiration for artists, writers, and musicians. Rivers have always held a special place in mythology and folklore. In many cultures, rivers are believed to be sacred and inhabited by powerful deities or spirits. They are often associated with creation, fertility, and purification. Rivers have become cultural symbols and icons in various societies around the world. They represent not only the physical presence of flowing water but also the values and identity of a community. This paper tries to understand the cultural interaction between rivers and the society of the upper Brahmaputra valley throughout history.

Key words – Brahmaputra, Tributaries, Folk Beliefs, Literature, Traditions.

Environmental Ethics With Reference to Indian Knowledge System

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Environmental ethics examines the moral relationship between human beings and nature and emphasizes the responsibility to protect and preserve the natural environment . Within the framework of Indian Knowledge System Environmental ethics is deeply rooted in philosophical, cultural and spiritual traditions that view nature as sacred and interconnected with human life.The Indian worldview perceives the earth as a nurturing mother which encourages sustainable living and responsible consumption. By integrating spirituality . ecology and social responsibility ,the Indian knowledge system offers a holistic approach to environmental conservation.This paper deals with the relevance of Indian environmental ethics in addressing modern ecological challenges through sustainable practices in consumption, textiles and daily life.

Keywords : Ethics , sustainable , consumption , textiles

Global Warming : A Growing Threat To Our Planet And Future Generation

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Global warming has emerged as one of the most significant environmental threats of the 21st century. It refers to the gradual increase in the earth's average temperature mainly caused by human activities such as burning fossil fuels, deforestation, industrialization and excessive greenhouse gas emissions. These activities trap heat in the atmosphere, leading to climate change and disturbing the natural balance of the planet. The impacts of global warming are already visible in the form of rising sea levels, melting glaciers, extreme weather events, loss of biodiversity and changes in ecosystems. These changes threaten not only the environment but also human health, agriculture and the global economy. This presentation highlights the causes, effects and possible solutions to global warming. It emphasizes the importance of sustainable practices, renewable energy, conservation of forests and collective global efforts to reduce greenhouse gas emissions. Addressing global warming is essential to protect our planet and ensure a safe and sustainable future for upcoming generations.

Keywords: Global warming, climate change, greenhouse gas, fossil fuel, carbon emission, renewable energy, deforestation, sustainability, climate policy

Role of NGOs in Promoting Sustainable Development

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This is to submit the abstract of my seminar paper titled "Role of NGOs in Promoting Sustainable Development." The paper focuses on the significant contribution of Non-Governmental Organizations (NGOs) in addressing environmental, social, and economic challenges. It highlights how NGOs promote sustainable practices through awareness, community participation, and development initiatives in areas such as education, health, and environmental conservation. The study also emphasizes the importance of collaboration between NGOs, government, and society to achieve long-term sustainable development.

Reflection of Ecofeminism in North East India English Literature With Special Reference to Select Works of Dr. Indira Goswami, Easterine Kire and Mamang Dai

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Ecofeminism emerged as a social and political movement in the mid 1970's. It is a branch of feminism and political ideology. It is a movement which sees a connection between the exploitation and degradation of the natural world and the dominance and oppression of women. It dealt with the increasing consciousness of the relations between women and nature. French feminist Françoise d'Eaubonne first coined the term "Ecofeminism" in her book Feminism or Death (1974). It links the oppression of women to environmental degradation. In the book, she urges the women to take part in ecological revolution to save the planet Earth and form new relationships between humanity and nature as well as man and woman. The theme of ecofeminism is the bonding of women with nature. Vandana Shiva,Bina Agarwal and Vrinda Karart are famous ecofeminism thinkers of India who believes that in patriarchy women and the environment,both are subordinated by men.

In this paper, an attempt has been made to prepare an ecofeminist reading of the select works of noted authors of North East India literature **Dr Indira Goswami,Eastern Kire and Mamang Dai** namely ***The Moth Eaten Howdah of Tusker,When the river sleeps and The Legends of Pensam*.**

The methodology used to prepare this paper is purely descriptive and analytical.A detailed study and critical analysis of the original texts has been made to prepare this study.

Keywords:Ecolgy, Ecofeminism, women and nature, Bonding, Indigenous Knowledge, Exploitation

Quantitative Screening of Some Heavy Metals Present in Selected Aroids of Jorhat District of Assam

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The aroids are from Araceae family of monocotyledonous flowering plants. The size of the aroids are ranges from small to large as several meters in width and length and the plants are different in colours. The family comprises more than 100 genera and over 3,000 species worldwide, many of which are economically important as food, ornamental, and medicinal plants.

Edible aroids play a significant role in the livelihood of millions of relatively poor people in the developing countries (Sharma et al., 2016)

Iron, copper, zinc, and nickel are essential heavy metals that living things require in minute amounts for critical growth (Wuana and Okieimen, 2011; Chaiyarat et al., 2011; Khoramnejadian and Saeb, 2015; Marrugo-Negrete et al., 2015; Donkor, 2016). The presence of potassium (K) and magnesium (Mg) in leaves has been documented in numerous studies (Alcantara, 2013; Ozenç et al., 2014; Temesgen and Retta, 2015; Azubuike et al., 2018; Cruz et al., 2018; Mulugeta and Tebeka, 2017; Gerrano et al., 2021; Beato et al., 2024).

Wild edible aroids in Jorhat district of Assam indicate that these plants are rich in Potassium(K), Iron (Fe), Calcium (Ca) and Magnesium (Mg). These metals acting as essential micronutrients for growth at low concentrations and are also known for their potential to bioaccumulate heavy metals. The metal accumulation can be high in the leaves and petioles as compared to the tubers. Due to their aquatic or wetland habitats, aroids may absorb and accumulate high levels of heavy metals like Arsenic (As), Cadmium (Cd) and Lead (Pb) from polluted soil and water

Wild edible aroids have played an important role in human lives from ancient times. They are consumed by ethnic people of Jorhat as traditional vegetables and also used for medicinal purposes.

Key words: Aroids, Heavy metals, Jorhat district.

A Systematic study on some medicinally important aquatic flora of Sivasagar Subdivision, Assam

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Aquatic flora are plants in which the roots, when present and a part or whole of the shoot are submerged in liquid water (Kochar 19940).Water conditions being uniform, there are fewer adaptations in aquatic plants than in xerophytes which grow in most varied conditions. The aquatic plants are readily fall in to following categories –free floating, Anchored floating, Anchored emerged, Submerged, Suspended and Semi aquatic. The anchored plants are better adapted as they easily obtain mineral supply from the mud at the bottom of water.

Phytogeographycally, the sivasagar sub-division of Assam is considered as a part of the foot hill region of the Eastern Himalaya. This district is situated in the sub tropical zone of the Northern Hemisphere. The sub tropical climate as well as the influence of the Himalaya encouraged in accumulating a high diversity of floristic elements in the district as well as entire North East India. The flora of Assam is getting a separate identity amongst the flora of entire North East India mostly because of lower altitudinal swampy elements. Henceforth, it is proposed to explore the aquatic flora of sivasagar sub division, Assam. From the above study we got a total of 60 different species of aquatic flora belonging to Monocot, Dicot, Fern and Algae. These species are belonging to 42 different aquatic genera and 26 different aquatic families. Some of them are economically important specially medicinal. Some medicinally important aquatic flora are *Eleocharis dulcis, Monochoria hastata, Ipomoea aquatic, Hydrolea zeylanica, Murdania nudiflora, Pistia stratiotes, Polygonum hydropiper, Ludwigia adscendens* etc.

Key words – Aquatic Flora, Medicinal.

Bamboo Charcoal Production And Its Role In Sustainable Environmental Management In Northeast, India

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The environment is getting worse. We are running out of natural resources that will not last forever. This has made people look for ways to live that do not harm the earth. Bamboo is a good option because it grows quickly and can be replaced easily. It can be used in ways to help the environment. This paper is about making charcoal from bamboo and how it can help people live in a sustainable way especially in Northeast India where there is a lot of bamboo. We looked at what other people have written about using bamboo turning biomass into carbon and taking care of the environment. To make bamboo charcoal you heat up the bamboo in a way that does not let oxygen in. This makes the charcoal very good at absorbing things, which's useful for making water clean filtering the air making the soil better and keeping carbon out of the air. Bamboo charcoal is also important for the people and the environment. It helps get rid of waste creates jobs for people in areas and reduces the effects of climate change. Our study shows that using ways of working with bamboo along with new technology can really help make the world a better place. So bamboo charcoal is an exciting area of study that can really help take care of the environment and make peoples lives better especially in places, like Northeast India where there is a lot of bamboo.

Keywords- Bamboo Charcoal, Sustainable Development, Biochar, Environmental Management, Northeast India

Role of Environmental Ethics in Sustainable Development: A Gandhian Approach

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The role of Environmental Ethics in the context of sustainable development and conservation of nature is undeniable. In modern world, it is high time to analyse the impact of Environmental Ethics in the protection, preservation and conservation of nature. Environmental Ethics focuses on the moral relationship between human beings and their natural environment. It implies the fact that human beings should maintain a standard to view issues pertaining to the environment and efficiently using resources that the nature provides. Environmental Ethics can be considered as a part of environmental philosophy which considers reaching out even to non-human world and concentrate on how we utilise and distribute resources. Regarding it, the involvement of Mahatma Gandhi is notable as he established his philosophy on the assumption that human beings were not masters of other forms of life. Rather they are the trustees of the lower animal kingdom. Gandhi believed that the means does not become good merely upon the pretence that the end is good (Sharma, 1993). Hence, for him, nature is enough for human need but not for human greed. Gandhi was always dreaming of a green future – a sustained world for the coming generation. His environmental ethics was rooted in *ahimsa* or non-violence where he did not only oppose the killing of all living beings but also trees and plants, as they are the integral part of the nature. In order to sustain the environment he emphasised on reducing high-carbon lifestyle. His principles regarding environment even inspired movements like '*chipko* movement' where villagers protected trees through non-violent resistance. My paper tries to analysis the impact of environmental ethics in sustainable development through the lenses of Mahatma Gandhi where he was able to contribute towards a progressive and developed India.

Keywords: Sustainable development, Environmental philosophy, non-violence, green future, natural resources etc

Building A Greener Future Through Education

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Buiding a greener future through education is a powerful approach to achieving long term environmental sustainability. Education helps individuals develop awareness about critical environmental issues such as, climate change, deforestation, pollution and loss of biodiversity it fosters responsible attitude, values and skills needed to protect and conserve natural resources. By promoting sustainable lifestyle and encouraging eco-friendly practices, education empowers people to make informed decisions that benefit both society and the environment. Furthermore, it plays a vital role in shaping future leaders, innovators and responsible citizens who can contribute to solving environmental challenges. Integrating environmental education into all levels of learning is therefore essential to create a balanced relationship between humans and nature. Collective efforts through education can lead to a cleaner, heatlthier and more sustainable planet for present and future generation.

Keywords: Environmental education, sustainability, green future, awareness, conservation, eco-friendly practices

Environmental Education

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Environmental education is a multidisciplinary, applied field focusing on the interrelationship between natural systems and human activities.It is the process of fostering environmental awareness,concern and knowledge in individuals.Environmental education focuses on topics such as how the natural environment functions and how human should manage the ecosystem to sustain the environment.The primary objective of environmental education is to impart knowledge,raise awareness,instill a caring attitude, and impart the skills required to manage the environment and environmental challenges.Environmental study is founded on a holistic perspective of diverse environmental systems.It aims to equip citizens with the knowledge the knowledge and skills necessary to conduct scientific research and identify practical solutions to pressing environmental issues.The citizens gain the ability to analyse environmental parameters such as aquatic, terrestrial and atmospheric systems as well as their interactions with the biosphere and astrosphere.

Keywords: Awareness,Concern,knowledge,holistic perspective,biosphere

NGO's And Sustainable Development

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Non-Governmental Organizations (NGOs) are independent, non-profit institutions that operate outside government control to address social, economic, and environmental issues. Sustainable development refers to development that meets present needs without compromising the ability of future generations to meet their own needs and is based on three key pillars: economic sustainability, social equity, and environmental protection. NGOs play a crucial role in promoting sustainable development by bridging the gap between policymakers and communities through awareness, advocacy, and grassroots initiatives. In environmental protection, NGOs contribute to biodiversity conservation, climate action, and sustainable resource management. In social development, they work to improve education, healthcare, gender equality, and poverty alleviation, thereby empowering marginalized populations. Despite their significant contributions, NGOs face challenges such as limited funding, lack of skilled manpower, political interference, and issues of transparency and accountability, which can affect their efficiency. Nevertheless, NGOs remain essential in achieving the Sustainable Development Goals (SDGs) by encouraging inclusive participation, strengthening community resilience, and promoting sustainable practices. Their active involvement makes them key agents of change in building a more equitable and sustainable society.

Keywords: NGOs, Sustainable Development, Environmental Protection, Social Development, SDGs, Community Empowerment

The Role of Environmental Education on Improving Environmental Awareness Among Youth

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Environmental degradation, climate change, and unsustainable resource consumption have created urgent global environmental challenges. Developing environmental awareness among youth has become essential for achieving sustainable development and ecological balance. Environmental education serves as an effective mechanism for fostering environmental knowledge, values, attitudes, and responsible behaviour. The present study examines the role of environmental education in improving environmental awareness among youth using secondary data sources. The study is descriptive in nature and relies on scholarly articles, policy reports, books, and empirical research findings related to environmental education and youth awareness. The analysis indicates that environmental education significantly enhances ecological literacy, promotes pro-environmental attitudes, and encourages sustainable behavioural practices among young learners. Experiential learning methods, interdisciplinary curriculum integration, and community engagement activities play a crucial role in strengthening environmental consciousness. However, challenges such as theoretical teaching approaches, lack of teacher training, and inadequate institutional support limit effective implementation. The study concludes that strengthening environmental education through participatory pedagogy and policy initiatives can cultivate environmentally responsible youth capable of contributing to sustainable development and the vision of environmentally responsible self-reliant societies.

Keywords: Environmental Education, Environmental Awareness, Youth, Sustainability.

A Study On Environmental Awareness Among Primary School Students Under Dhalajan Cluster, Jorhat-Assam

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The present study investigates the level of environmental awareness among primary school students under the Dhalajan Cluster in Jorhat district of Assam. Environmental awareness is essential for fostering responsible behavior toward sustainable development from an early age. A descriptive survey method was employed for the study, and a sample of 100 students (50 boys and 50 girls) from Classes III to V was selected using a purposive sampling technique. A self standardized questionnaire consisting of 20 multiple-choice items was used to collect data. The findings reveal that the overall level of environmental awareness among students is moderate, with a mean score of 15.67. Further analysis indicates no significant difference in environmental awareness between male and female students, as the calculated 't' value was found to be statistically not significant. The study highlights the need for strengthening environmental education at the primary level to promote awareness, sensitivity, and responsible environmental behavior among young learners.

Key words: Environmental Awareness, Primary School, Student, Sensitivity and Responsible Environmental Behavior

Environmental Ethics: Our Moral Responsibilities to the Planet

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This presentation provides a comprehensive introduction to environmental ethics — the philosophical discipline concerned with the moral relationship between human beings and the natural world. Beginning with the foundational question of who and what deserves moral consideration, it surveys the major ethical frameworks — anthropocentrism, biocentrism, ecocentrism, and deep ecology — and examines how each assigns value to living beings, species, and ecosystems. The presentation then applies these frameworks to four pressing contemporary challenges: climate change and intergenerational justice, the global biodiversity crisis, environmental injustice across lines of race, class, and geography, and the ethical tensions embedded in modern food and agricultural systems. It further explores the double-edged role of technology, from geoengineering and biotechnology to artificial intelligence, in both threatening and potentially restoring ecological balance. Drawing on key principles of international environmental law — including the precautionary principle and the polluter pays principle — the presentation situates ethical theory within the landscape of global governance. A case study on Amazon deforestation illustrates how multiple ethical lenses illuminate the same crisis in different and complementary ways. The presentation concludes by arguing that no single framework is sufficient, and that addressing the environmental challenges of our time requires pluralism, dialogue, and a shared sense of responsibility proportionate to capacity and historical impact.

Keywords: *Environmental Ethics, Anthropocentrism, Ecocentrism, Biocentrism, Climate Justice, Biodiversity,*

Role Of Physics In Environmental Science: Principles, Applications, And Future Perspectives

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Environmental science is an interdisciplinary field that seeks to understand and solve complex environmental challenges affecting Earth's ecosystems and human society. Physics plays a foundational role in explaining environmental processes through quantitative laws governing energy, matter, motion, and radiation. From climate modelling and atmospheric dynamics to renewable energy systems and pollution monitoring, physical principles enable accurate measurement, prediction, and technological innovation. This research paper examines the role of physics in environmental science by analyzing key applications such as climate change studies, renewable energy technologies, environmental monitoring, hydrological systems, and ecological modelling. The study highlights how physical laws contribute to sustainable development and environmental protection while emphasizing emerging technologies based on physics that can address future environmental crises. The paper concludes that physics is not merely supportive but central to understanding environmental systems and designing scientifically sound solutions.

Keywords: Environmental Physics, Climate Change, Renewable Energy, Sustainability, Environmental Monitoring.

Impact of Climate Change and Floods on Agriculture and Rural Livelihoods in Assam

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Climate change has become a major global challenge, significantly affecting agricultural systems and rural livelihoods, especially in vulnerable regions like Assam. This study examines the impact of climate change–induced floods on agriculture and the socio-economic conditions of rural communities in the state. Assam frequently experiences severe flooding due to erratic monsoon rainfall, rising temperatures, and the overflow of the Brahmaputra River, which disrupts traditional farming systems and damages crops, soil, and livestock.

The study highlights that small and marginal farmers are the most vulnerable, as their dependence on rain-fed agriculture and limited access to resources reduce their ability to cope with climatic uncertainties. Floods not only lead to declining agricultural productivity but also threaten food security, income stability, and employment opportunities, thereby increasing poverty and forcing migration in rural areas. In addition, recurrent floods cause displacement of households and damage to infrastructure, further deepening socio-economic instability.

Based on secondary data from government reports, research studies, and case analyses, the paper explores the relationship between climate variability and agricultural decline in Assam. It also examines adaptive strategies such as crop diversification, use of flood-resistant crop varieties, improved water management, and community-based resilience practices.

The study concludes that an integrated approach involving policy support, sustainable agricultural practices, technological innovation, and community participation is essential to enhance resilience and ensure long-term rural development in Assam.

Keywords : Climate Change , Floods in Assam, Agricultural Sustainability, Rural Livelihoods .

Environmental Ethics in Ancient Indian Philosophy and its Relevance

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Environmental ethics is the philosophical approach to the conservation of environment. It centered round the moral duty of man to protect the environment. Environmental ethics, as a branch of applied ethics recognizes the moral status and dignity of environment. Environmental awareness is not a new concept in India. Since time immemorial, ancient Indian thought has been showing great respect to environment. Ancient Indian thought is enriched with the ideas of harmonious living with Nature. In Vedic period, supernatural powers were ascribed to natural things. Worship of Nature was not only primitive man's fear to the forces of Nature but it also represented the deep reverence to Nature. Hindu tradition acknowledged the divinity of Nature and equality of all living beings. Human beings, animals and trees are considered to be sacred and equal. Hindu scriptures emphasized on tree plantation, conservation of forests, Wildlife protection, and purification of water and so on. Ancient Indian thought centered round the concept of Environmental Protection. Indian Philosophy is greatly influenced by the environmental ethics preached by Vedas and Upanishads. Vedic concept of worshipping the Earth as Mother Earth as well as worshipping different forces of nature indicates that it is the social and moral responsibility of mankind to conserve the Environment.

Key words:-Environmental ethics, Vedas, environment, Mother Earth.

Going Green: Implementing Sustainable Strategies in Libraries

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In the 21st century, the "Go Green" principle promotes sustainable development and environmental protection. This increased awareness has played a very important role in the discipline of Library and Information Science, which has introduced the concept of green libraries. Green building and environmental friendliness now play critical roles in library planning, in the quest to minimize ecological footprints and encourage environmental friendliness among patrons. The paper explains the definition and standards of a green library. It discusses major global and Indian initiatives in the green library movement and reviews relevant guidelines. The study also explores the evolving role of librarians in encouraging and instituting environmentally sustainable practices within library systems. The paper highlights that librarians and LIS professionals need to stay abreast of changes in library sustainability, raise environmental awareness, and create library spaces that demonstrate green practices.

Keywords: Green library, Sustainable library, Green library movement, LIS professionals

প্ৰকৃতিৰে সহাৱস্থান আৰু *পৃথিৱীৰ মৰম*

[১]ডঃ মণ্টু কুমাৰ বড়া, [২]ডঃ বিদিশা বুঢ়াগোহাঞি
[১,২]সহকাৰী অধ্যাপক, অসমীয়া বিভাগ
[১]জাঁজী হেমনাথ শৰ্মা মহাবিদ্যালয়
[২]সহকাৰী অধ্যাপক, অসমীয়া বিভাগ
[২]জগন্নাথ বৰুৱা বিশ্ববিদ্যালয়

প্ৰকৃতিক সমল হিচাপে লৈ অনেক সৃষ্টিশীল সাহিত্যৰ সৃষ্টি হৈছে। সৃষ্টিশীল সাহিত্যত স্বাভাৱিকতে প্ৰকৃতি এক আধাৰ হিচাপে প্ৰতিবিম্বিত হৈ উঠে। বিবিধ কাহিনীযুক্ত সাহিত্যৰ লগত প্ৰকৃতিৰ মনোৰম বৰ্ণনা সংযুক্ত হৈ আছে। ইয়াৰ সমান্তৰালকৈ প্ৰকৃতি-পৰিচয়ৰ আধাৰত অনেক কাহিনীযুক্ত সাহিত্য সৃষ্টি হৈছে। অসমীয়া সাহিত্যও ইয়াৰ ব্যতিক্ৰম নহয়। সেই হিচাপেই পাৰিপাৰ্শ্বিক উপাদানৰ অৱলম্বনত সৃষ্ট সাহিত্য হিচাপে অসমীয়া সাহিত্যৰ বিচাৰ-বিশ্লেষণেও সাম্প্ৰতিক সমালোচনাত ঠাই লাভ কৰিছে।

প্ৰকৃতিৰ সান্নিধ্যৰ মনোৰম চিত্ৰ সম্বলিত তেনে এক অসমীয়া সাহিত্যৰ উজ্জ্বল কৃতি হ'ল যতীন্দ্ৰ কুমাৰ বৰগোহাঞিৰ *পৃথিৱীৰ মৰম*। হাইস্কুলীয়া শিক্ষাত একালত দ্ৰুতপাঠ হিচাপে সংযোজিত, *মৌচাক* আলোচনীত ধাৰাবাহিকভাৱে প্ৰকাশিত প্ৰকৃতিবিষয়ক এই উপন্যাস শিশু আৰু কিশোৰৰ বাবে এক প্ৰকৃতিৰে সহাৱস্থানৰ পাঠ। কাহিনীবিন্যাসৰ সমান্তৰালভাৱে প্ৰকৃতিবিষয়ক অভিজ্ঞতা আৰু সাহচৰ্যৰ অনুভৱে গতিশীলতাৰ জীৱন কিদৰে সংৰোপিত কৰে, তাৰ ভিন্ন পাঠ *পৃথিৱীৰ মৰমৰ* পৃষ্ঠাই পৃষ্ঠাই সিঁচৰতি হৈ আছে। ভাৰসাম্য ৰক্ষাৰ জীৱৰ অনুকূলে নিৰ্বহনৰ বাবে প্ৰকৃতিৰে সহাৱস্থানৰ হকে যদি মানুহে জ্ঞান-শিক্ষাক প্ৰোথিত নকৰে, তেনেহ'লে মানুহৰ জীৱন প্ৰত্যাহ্বানৰ সম্মুখৰ পৰা আঁতৰি আহিব নোৱাৰে। শিক্ষণ আৰু বিকাশৰ স্বাৰ্থত শিশু-কিশোৰৰ মনত প্ৰকৃতিৰে সহাৱস্থানৰ বাবে দায়বদ্ধ চিন্তা-চেতনাৰ প্ৰয়াস কিদৰে সাহিত্যৰ মাজত প্ৰতিফলিত হৈছে তাৰ এক সাৰ্থক উদাহৰণ *পৃথিৱীৰ মৰম*। উল্লিখিত বিষয় প্ৰসংগত গুৰুত্বসহকাৰে আলোচনাৰ বাবে আমাৰ এই বিষয় নিৰ্ধাৰণ।

সূচক শব্দ ঃ *পৃথিৱী, প্ৰকৃতি, সহাৱস্থান, পাঠ।*

Green Organic Synthesis Using Heterogeneous Catelyst Zeolite

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Because the environmental and economical concern organic synthesis has reached an interesting stage in its development to affect the construction of target molecules, there is a need to find new strategically important processes which is environmentally cleaner, more efficient and which lead to greater structural variation in a shorter period of time. A key advantage of solid supported reagent is that it is possible to use excess reagent to drive reactions to completion and as work up is by simple filtration to remove product, the chemistry is clean .This filtration also results in isolation of the solid supported species which is a crucial feature in cases either where the reagent act as a catalyst, or where the spent material can be regenerated and recycled. Another attractive aspect is that toxic, noxious or hazardous reagent and their by-products, can be immobilized and therefore not released into the solution thereby improving their general acceptability, utility and safety profile.

Use of heterogeneous catalysts such as zeolite in organic synthesis has received considerable attention in the past few years. Around 1952 when first synthetic was prepared, their utility in chemical transformation was explored. Saturated and unsaturated acids can be converted in to the corresponding amides in the presence of zeolite under microwave irradiation.

Keywords : Heterogeneous, Zeolite , Environment ,Clean , Safety

Conservation of Wetlands:Importance and Challenges

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Wetland are interface between terrestrial and aquatic ecosystem. It is an area of land whose soil is saturated with moisture either permanently or for a long enough season every year to support plants and animals. They have been called the 'nature's kidneys' because they cleans our environment. They are among the most productive ecosystem supporting rich biodiversity and providing essential service like water purification, flood control etc.

Wetland are disappear rapidly 35% in the last 50 years due to urgent theats including agricultural conversion, urban expansion, pollution and climate change. These factors drive biodiversity loss, water scarcity, increased flood risk and habitat destruction etc.

Key words:- Wetland, Biodiversity, Ecosystem, Conservation.

Indian Knowledge Systems and Environmental Sustainability

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India's rich biological and cultural diversity has given rise to numerous Indigenous Knowledge Systems that have developed over ages as a result of constant interaction with the natural world. These systems are intricately linked to the social, economic, and spiritual lives of rural and indigenous populations, making them more than merely repositories of ecological knowledge. These include resource-sharing customs, traditional farming methods, biodiversity conservation strategies, and spiritual principles that prioritize peace with the natural world. Indian Knowledge Systems (IKS) preserve centuries of wisdom based on direct contact with nature and give a foundation for long-term growth based on centuries of understanding and practice. This paper focuses on the real relevance of these knowledge frameworks in the process of promoting sustainable environmental practices, taking ideas from tribal traditions throughout India.

Keywords: Indian Knowledge Systems, Environment, Sustainable Development.

Women's Role in Sustainable Development Practices in Tribal Societies of Assam

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Empowering women through sustainable development involves promoting economic independence and environmental sustainability. Women through their indigenous knowledges promotes resources management as well as economic opportunities. Women act as key agent of change in achieving global sustainable future. Especially in tribal societies of Assam women preserves sustainability. Women's practices from household agricultural farming to muga silk rearing on the one hand conserve environment and on the other hand leads their financial benefit. In a family health decisions and nutrition making practices tribal women advocate sustainable living. However, there is a need of transition the traditional environment practices of women to modern sustainable practices. In this paper attempt has been made to analyse the transformation processes of sustainable development practices of women in tribal societies of Assam.

Keyword: women, environment, sustainable development

Modified montmorillonite clay supported Bi (0)-Nanoparticles as a highly efficient catalyst for the acceptorless dehydrogenation of alcohols to acids/acid salts under aerobic conditions

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Stable Bi(0) nanoparticles were generated into the nanopores of activated montmorillonite clay and evaluated their catalytic activity towards dehydrogenation of primary alcohols to corresponding acids under aerobic conditions in refluxing toluene. Synthesis of Bi(0) nanoparticles was accomplished by incipient wetness impregnation of bismuth chloride into the nanopores of the acid-activated montmorillonite followed by reduction with sodium borohydride. The activation of montmorillonite was carried out by treating with H_3PO_4 under controlled conditions at 80°c to generate nanopores and high surface area. Powder–XRD, XPS, SEM-EDX etc. analysis was carried out to characterize the stabilized Bi(0) nanoparticles as well as the support. The synthesized Bi(0) catalyzes the acceptorless dehydrogenation of alcohols to acids/acid salts under aerobic conditions in moderate to excellent yileds.

Keywords: Nanoparticles, acceptorless dehydrogenation, Bi(0)-Mont, Heterogeneous catalyst.

Empowering women and marginalized communities : A Pathway for Sustainable Development

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Empowering women and marginalized communities is widely recognized as a fundamental pathway to achieving sustainable development. Despite significant global progress, deep-rooted inequalities based on gender, socioeconomic status, ethnicity, and geography continue to limit access to education, healthcare, economic opportunities, and decision-making processes. This seminar paper explores the multidimensional nature of empowerment and its critical role in fostering inclusive and sustainable societies.

The paper examines how enhancing access to quality education, financial resources, skill development, and political participation can enable women and marginalized groups to become active agents of change. It also highlights the importance of policy frameworks, grassroots initiatives, and community-based approaches in addressing structural barriers and promoting social equity.

Furthermore, the paper discusses the link between empowerment and key sustainable development outcomes, including poverty reduction, improved health, gender equality, and environmental sustainability. Case studies and examples are used to demonstrate how inclusive development practices contribute to long-term resilience and economic growth.

The study concludes that sustainable development cannot be achieved without the active inclusion and empowerment of women and marginalized communities. It calls for coordinated efforts from governments, civil society, and international organizations to create enabling environments that ensure equal opportunities and uphold human rights for all.

Objectives

To examine the concept and dimensions of empowerment among women and marginalized communities.

To identify the key barriers that hinder their social, economic, and political participation.

To analyze the role of education, policy frameworks, and community initiatives in promoting empowerment.

To explore the relationship between empowerment and sustainable development outcomes.

To suggest strategies for inclusive and equitable development.

Methodology

This seminar paper is based on a qualitative research approach, drawing primarily on secondary sources of data. Relevant information has been collected from academic journals, books, government reports, and publications from international organizations. The study also incorporates case studies and examples to provide practical insights into successful empowerment initiatives. Analytical and descriptive methods have been used to interpret the data and highlight key findings related to empowerment and sustainable development.

Key Words: Women Empowerment, Marginalised Communities, Sustainable Development

Problematics of Sustenance for Man and Nature in the Age of the Anthropocene : A Reading of Anuradha Sharma Pujari's Iyat Ekhan Aranya Asil

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The object of this paper is to have a critical reading of Anuradha Sharma Pujari's novel Iyat Ekhan Aranya Asil from an ecological viewpoint. It attempts to analyse the different environmental issues addressed in the novel and how the novelist has problematises the subject of sustenance for both humans and the natural world in the age of the Anthropocene. As the novel explores the factors that can cause threat to the wildlife it also analyses the different facets of the story of conflict between man and nature. These conflicts result in an ecological imbalance which again creates threats to the sustenance of both the human and the wildlife. However, in the age of the Anthropocene, man himself is the creator of these problems which involve issues like increasing population, influx to the city, encroachment into the natural world etc. These issues have been systematically discussed by Sharma Pujari in her novel and to have a critical examination of those is the major concern of this paper.

Key words: Environment, Ecology, Sustenance, Anthropocene

Role of Self-Help Groups (SHGs) in Women Empowerment: A Case Study on Teok Sonari Mising Gaon, Jorhat District of Assam

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This study examines the role of Self-Help Groups (SHGs) on women empowerment in Teok, Jorhat district of Assam. Teok, Jorhat District of Assam, a region with rich cultural heritage and traditional societal structures. The study investigates how SHGs have contributed to economic and social empowerment of Women in Teok, focusing on income generation, decision – making power, and community participation. Using both primary and secondary data analysis methodology. A mixed methods approach was used, combining surveys and case studies of SHG members. The study reveals that SHGs have played a significant role in enhancing women's livelihoods, increasing their social status and fostering a sense of community participation. The major findings of the study include improved access to credit, increased income levels, and enhanced decision-making power among the SHG members. It plays a crucial role in fostering gender equality and inclusive development in India. The study concludes that SHG networks and capacity -building initiatives to further enhance their impact.

Keywords: Mising, Self Help Group (SHG), Women Empowerment

State, Sustainable Development and the vision of Atmanirbhar Bharat

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The concept of Atmanirbhar Bharat is analysed not merely as economic self-sufficiency but as a multidimensional approach encompassing innovation, decentralization, and capacity-building at the state level. On the other hand, sustainable development at the state level acts as the operational backbone of Atmanirbhar Bharat. While the latter provides a national vision, its realisation depends on how effectively states integrate sustainability into their development strategies, thereby ensuring long-term economic independence, environmental balance, and social well-being. This paper is an attempt to explore the interrelationship between state-led sustainable development and the vision of Atmanirbhar Bharat (self-reliant India) in the contemporary socio-economic context. It also tries to examine how subnational governance structures play a crucial role in advancing sustainability through localized policy interventions, resource management, and inclusive growth strategies. The study concludes that achieving sustainable development within the framework of Atmanirbhar Bharat requires a balanced synergy between state initiatives and national objectives, fostering long-term resilience, inclusive prosperity, and environmental stewardship.

Key Words: Atmanirbhar Bharat, Sustainable Development, State, Decentralisation, Environment

Changes in Agriculture: A Study of Hulungapara

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Agriculture has undergone significant transformations over the centuries, influenced by technological advancements, environmental changes, and socio-economic factors. This paper aims to analyze the key changes in agriculture, focusing on the evolution of farming practices, the impact of technology, and the implications of climate change. Understanding these changes is crucial for developing sustainable agricultural practices that can meet the demands of a growing global population.

This study examines the changes in agriculture in Hulungapara, a rural area experiencing shifts in agricultural practices and outcomes. The research explores the factors driving these changes and their impact on local livelihoods.

Objectives:

The defined objectives of the study are:

1. To identify the changes in agricultural practices in Hulungapara over the past decade.

2. To analyze the socio-economic and environmental impacts of these changes on the local community.

Data will be collected from both primary and secondary sources to provide a comprehensive overview thereby ascertain conclusions.

Keywords: Agriculture, Change, Hulungapara, Livelihoods, Sustainability.

Solid Waste Scenario in Jorhat - Problems, Awareness and Management, A Case Study

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Waste is an inevitable consequence of civilization. Economic growth and improving living standards have led to increases in the quantity and complexity of generated waste. Municipal solid waste (MSW) is generated from households, workplaces, hotels, stores, schools, and other establishments. Jorhat, the Cultural Capital of Assam, currently produces 39 tons of municipal garbage per day (TPD), but by 2035, that number is expected to increase to 58 TPD, posing serious issues for solid waste management. A significant portion is biodegradable, suggesting high potential for composting. The city relies heavily on unscientific open dumping, lacking modern treatment, which causes environmental degradation, including pollution of local water bodies like the Tocklai rivulet. There is a significant lack of awareness regarding the segregation of wet and dry waste at the source, both among residents and at the final disposal site.The existing system lacks sanitary landfill technologies and is based on a single, overflowing open dumpsite. Urgent implementation of scientific, segregated waste collection, composting, development of a sanitary landfill and awareness among the people should be initiated.

Key Words: Solid Waste Management; TDP; Sustainable

INTEGRATION OF MATHEMATICS AND ENVIRONMENTAL EDUCATION

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The integration of mathematics and environmental education represents a powerful interdisciplinary approach to equip students with both quantitative skills and ecological awareness in the face of pressing global challenges such as climate change, resource depletion, and biodiversity loss. By embedding real-world environmental contexts—such as analyzing carbon footprints, modeling population dynamics, interpreting climate data graphs, calculating renewable energy efficiency, or optimizing resource distribution—into mathematics curricula, educators can make abstract concepts more meaningful and relevant while simultaneously fostering sustainability literacy.

This approach not only enhances student motivation and engagement by connecting mathematics to authentic societal issues but also cultivates critical thinking, systems thinking, data interpretation, and problem-solving skills essential for Education for Sustainable Development (ESD). Empirical studies demonstrate that such integration can positively shift students' attitudes toward environmental responsibility, strengthen their sense of personal agency in sustainability actions, and improve conceptual understanding in both domains compared to traditional siloed instruction.

However, successful implementation requires thoughtful curriculum design, teacher professional development, and alignment with educational standards to avoid superficial connections or overburdening either subject. When purposefully designed, the synergy between mathematics and environmental education positions mathematics classrooms as key spaces for developing informed, mathematically capable, and environmentally conscious citizens capable of contributing to a sustainable future.

Keywords: Resource depletion, Carbon footprint, Modeling population.

Rural Enterprises, Women Empowerment and Bio-diversity Conservation An analytical study

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Women in rural areas have numerous opportunities to engage in productive activities that can generate employment and enhance their economic independence. By making effective use of locally available natural resources, they can move towards self reliance. For instance, material like water hyacinth can be creatively transformed into bags, ornaments, doormats, and other useful items. Similarly reeds and other plants growing along pond banks can be used to produce baskets, bags and mats. Even discarded and worn out pieces of clothes can be recycled into attractive products. Paving the way for the development of small scale industries these initiatives not only provide economic benefits but also promote environmental sustainability by supporting the conservation of bio-diversity and plant resources.

Therefore in my paper I would like to discuss the development and scope of cottage industry and analyse how it helps in women empowerment and maintaining bio-diversity.

Key words : Enterprise, ornaments, bio diversity, empowerment.

Ecological Sensitivities in Assamese Literature : Nature, Culture, and Crisis

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Assamese literature, deeply rooted in the lush yet volatile landscape of Assam, has long mirrored the intricate bond between humanity and its environment, evolving from idyllic portrayals of rivers, forests, and wildlife to poignant critiques of ecological degradation. Traditional works like Lakshminath Bezbarua's *Burhi Aair Sadhu* personify nature—rivers as wise elders, trees as sentient guardians—instilling values of harmony and sustainability amid the Brahmaputra's perennial floods and fertile chars. Folktales and Borgeet songs further embed conservation ethics, celebrating Assam's biodiversity while warning against exploitation. In modern prose, eco-fiction such as Sanam Sanki Das's *Maajher Char* and Rajib Borah's *Jalajaah* vividly capture the existential threats to riverine communities in Majuli and sandbars, where erosion, climate change, and displacement disrupt lives, invoking mythical jaladevatas to reclaim elemental agency. Poetry by Soumyadeep Datta and B.D. Nisha confronts deforestation, pollution, and urbanization's toll, employing ecofeminist lenses to link women's vulnerabilities with environmental injustice. Saurabh Kumar Chaliha's stories expose human greed's consequences, shifting from pastoral nostalgia to urgent disquietude. Through ecocritical readings, these narratives not only document Assam's environmental precarity but also advocate resilience, blending indigenous knowledge with contemporary activism to foster ecological consciousness in a globalized world.

Keywords: *Assamese literature, ecocriticism, environment, Brahmaputra floods, eco-fiction, nature writing, Majuli island, chars ecology, ecological crisis, indigenous knowledge*

NUTRITIONAL ANALYSIS OF RICE BEER OF THE KARBIS

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Rice beer preparation and its consumption is a traditional practice among the ethnic communities of North-East India. *Hor* or alcoholic beverage is an integral part of the socio cultural lives of the *Karbis.* This beverage is used as a refreshing drink and also bears significance in many social ceremonies and events. *Hor alank* is rice beer traditionally prepared from rice with starter culture called *Thap* and consumed in undistilled form. These dried starter cultures normally include yeasts, moulds and bacteria and convert starchy materials to fermentable sugars and subsequently to alcohol and organic acids. This research paper explores the quality and characteristics of traditional rice beer produced by the Karbis. The study analyzes three rice beer samples (Hor alank) collected from three different areas of Karbi Anglong, Assam, focusing on their pH, carbohydrate and protein content and antioxidant properties. Carbohydrate and protein content were analysed using phenol-sulphuric acid method and Lowry's method respectively, while antioxidant properties were studied using DPPH method.

Keywords*: Hor, rice beer, Karbis, Thap*

ENVIRONMENTAL CONCERNS IN ARUNDHATI ROY'S *THE GOD OF SMALL THINGS*

Dr. Amiya Saikia
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Arundhati Roy is one of the most influential Post Colonial writers of India. She is not only a writer but also a staunch social activist who speaks for the marginalized section. She speaks for the poor, women, social outcastes and environment and satirizes the socio-economic structures of the society. This paper focusses on her consciousness over environmental issues as reflected on her Booker prize winner novel *The God of Small Things*. She shows how on the pretext of development, nature as well as culture is often exploited and destroyed. Human's continuous negligence, attack on nature has resulted in degradation and devastation. The novel unfolds how the quiet and peaceful atmosphere of Ayemenem is disturbed by the cruel treatment of society.

Key words: *marginalized, environment, society, degradation, women.*

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NATIONAL SEMINAR ON
ENVIRONMENTAL ISSUES AND SUSTAINABLE DEVELOPMENT TOWARDS ATMANIRBHAR BHARAT'
27TH & 28TH MARCH, 2026
KAKOJAN COLLEGE, JORHAT, ASSAM
PROGRAMME SCHEDULE

INAUGURAL SESSION (27TH MARCH 2026)

9.00 AM – 10.15 AM	Registration
10.15 AM	Invitation and Felicitation of Guest
10.30 AM	Lighting the Ceremonial Lamp – **Dr. Nitin Kulkarni**, Director, ICFRE-Rain Forest Research Institute
10.45 AM	Objective of the Seminar – **Utpal Sadhonider**
10.50 AM	Welcome Speech – **Dr. Rashmi Rekha Saikia**, Principal, Kakojan College
11.00 AM	Inaugural Speech – **Dr. Nitin Kulkarni**, Director, ICFRE-Rain Forest Research Institute
11.15 AM	Release of Abstract Volume – **Dr. Gonesh Ch. Borah**, President, Governing Body
11.30 AM – 12.15 PM	Keynote Address – **Dr. Latongila Jamir**, Associate Professor, Department of Environmental Science, Nagaland University
	Chief Guest
	Dr. L. N. Kakoti, Chairperson, Faculty of Science, Assam down town University, Guwahati.
	Prof. Suresh Deka, Adviser, Faculty of Science, Assam down town University Guwahati.
	Dr. Dhrubajyoti Das, Scientist F and Head, Forest Ecology and Climate Change Division, ICFRE-RFRI, Jorhat (Assam)
12.15 PM	Vote of Thanks – **Lakhya Protim Nirmolia**
12.30 PM – 1.30 PM	Lunch Break
1.30 PM – 3.30 PM	**Parallel Technical Session I (Conference Hall), Offline (27-03-2026)**
Invited Speaker	**(a) Dr. Dhrubajyoti Das**, Scientist F and Head, Forest Ecology and Climate Change Division, ICFRE-RFRI, Jorhat (Assam) **(b) Dr. L. N. Kakoti**, Chairperson, Faculty of Science, Assam down town University, Guwahati.
Chairperson	: **Dr. L. N. Kakoti**, Chairperson, Faculty of Science, Assam down town University, Guwahati.
	Paper Presented by the Participants
1.30 PM – 3.30 PM	**Parallel Technical Session II (Digital Room), Offline (27-03-2026)**
Invited Speaker	**Prof. Suresh Deka**, Adviser, Faculty of Science, Assam down town University Guwahati.
Chairperson	: Paper Presented by the Participants

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Day – 2 (28th March 2026)

Technical Session III (Online) 10.00 AM – 12.00 PM (28-03-2026)	
Invited Speaker	: **Dr. Abdul Wakid**, Project Scientist, Wild Life Institute of India, Dehradun, Uttarakhand
Chairperson	**: Dr. Mausomi Madhab**, Scientist B, Mycology & Microbiology Department Tocklai Tea Research Institute, Jorhat, Tea Research Association
	Paper Presented by the Participants
Valedictory Session (1.00 PM – 2.00 PM) 28-03-2026	
Chairperson	: **Dr. Rashmi Rekha Saikia**, Principal, Kakojan College, Jorhat
Speech of Resource Person	**Dr. Mausomi Madhab,** Scientist B, Mycology & Microbiology Department Tocklai Tea Research Institute, Jorhat, Tea Research Association
Speech from the participants	
Certificate Distribution	
Vote of thanks	: **Lakhya Protim Nirmolia**