Progyan
Foundation for Research & Innovation

ANNUAL REPORT

2023 - 2024

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PREFACE

Progyan Foundation for Research & Innovation (PFRI), an independent policy science research organization headquartered in Kolkata, India. Established as a non-profit organization under Section 8 of the Companies Act in West Bengal, PFRI is dedicated to addressing critical global challenges through research, innovation, and sustainable practices. The mission of PFRI is driven by a commitment to fostering environmental sustainability, social equity, and economic development. With a focus on four key dimensions – Climate Action, Biodiversity and Wildlife Conservation, Sustainable Livelihood Generation, and Eco-friendly Green Energy Generation – PFRI strives to contribute to the holistic well-being of communities and ecosystems.

Today, PFRI stands as a testament to our evolution as a global hub for policy science research and innovation. With a diverse team of experts from over twelve countries in the Global South and a wide range of academic backgrounds, PFRI is equipped with the expertise and resources to excel in our endeavours.

To achieve the objectives, PFRI employs a multifaceted approach that encompasses policy research, strategic analysis, publishing, and convening stakeholders from various sectors. Through these efforts, PFRI aims to manage risks, build resilience, and promote peace, security, and sustainable development

ABOUT **PROGYAN**

Progyan Foundation for Research & Innovation (PFRI) an independent policy science research Kolkata-based nonprofit organization registered in West Bengal as Section 8 Company (CIN U80301WB2022NPL251470) is a certified organization working towards four dimensions (1. Climate Action, 2. Biodiversity & Wildlife Conservation, 3. Sustainable Livelihood Generation, 4. Ecofriendly Green Energy Generation) to Sustain Environmental, Social, Economic Development and Poverty Alleviation.

Progyan (PFRI) is committed to advancing scientific knowledge across socio-economies and socio-ecologies, in developing adaptive guidelines and operational frameworks, sustainable solutions for resource optimization and climate change, water security, community resilience, and preparedness, as well as sustainable lifestyle education in both rural and urban settings through innovation and knowledge economy. As a not-for-profit think tank, PFRI is dedicated to managing risk and building resilience to promote peace, security, and sustainable development. To achieve its purpose, PFRI employs a mix of policy research, strategic analysis, publishing, and convening. With experts from more than twelve countries of the global south and a broad range of academia from a global resource pool, PFRI has ensued the expertise to excel

Our History

For more than two decades, while facing the climate impacts, the South Asian Forum for Environment (SAFE) a regional CSO working towards accomplishing SDGs in the Indian ecoregion, has been examining the root causes of some of the world's most pressing problems. Research and innovation have been the key to elucidating adaptive solutions and acceptable paradigms at the climate-community interface. It was us with SAFE. Through our groundbreaking research and science, we were continually exploring innovative ideas and championing solutions that make a real difference. Definitely, we owe it to our comprehensive reach, as we learned how to get things done and thereby make an impact in countries across Asia and the Pacific. The Research and Innovation wing of SAFE thus evolved as a Global Gurukul to lead the 'action for innovation' and to earn freedom from the fear of failure. The Global Gurukul is today the 'Progyan Foundation for Research and Innovation (PFRI)', an independent policy-science research organization

VISION, MISSION & OBJECTIVES

Our Vision

Progyan is a dynamic environmental research-based organization that conceptualizes a sustainable and safe environment through innovative and transdisciplinary research and capacity-building activities as well as a province where employees and employers are supported to achieve a healthy safe and productive workplace.

Our Mission

The Progyan is committed to maintaining ecological balance, solving environmental problems through various environmental activities for a sustainable future and improving social, economic and environmental well–being of the community.

Our Objectives

PFRI is committed to advancing scientific knowledge across socio-economies and socio-ecologies, in developing adaptive guidelines and operational frameworks, sustainable solutions for resource optimization and climate change, water security, community resilience and preparedness, as well as sustainable lifestyle education in both rural and urban settings through innovation and knowledge economy as a not-for-profit think tank, PFRI is dedicated to managing risk and building resilience to promote peace, security, and sustainable development. To achieve its purpose, PFRI employs a mix of policy research, strategic analysis, publishing, and convening. With experts from more than twelve countries of the global south and a broad range of academia from a global resource pool, PFRI has ensued the expertise to excel.

RESEARCH

1. Ecosystems And Environment

Coastal and Marine Ecosystem

PFRI has been actively involved in safeguarding coastal and marine ecosystems. Our efforts over the past year have been concentrated on comprehending, protecting, and advancing sustainable methods to guarantee these essential ecosystems' improved resilience and health. Our research aimed to identify the vulnerable species, pinpointing point and nonpoint sources of pollution sources, and assessment of the impact of human activities as well as the level of anthropogenic stresses on these ecosystems. The work was mainly conducted in different regions of the Indian Sundarbans.

Mangrove Ecosystem

The Progyan Foundation for Research and Innovation (PFRI) has been actively engaged in the conservation and restoration of mangrove ecosystems, recognizing their critical role in biodiversity, coastal protection, and sustainable livelihoods. Conducted extensive mangrove planting campaigns in collaboration with local communities. Implemented rigorous monitoring and evaluation processes to ensure the success of reforestation efforts. The work was mainly conducted in different regions of the Indian Sundarbans.

Wetland Ecosystem

In the intricate web of our planet's ecosystems, wetlands stand as

sanctuaries of biodiversity, offering a myriad of ecological services. Progyan Foundation for Research and Innovation, dedicated to environmental preservation, has been at the forefront of safeguarding these vital ecosystems. Through engaging awareness campaigns, we sought to instil a sense of responsibility toward these ecosystems. Community involvement is central to our strategy, recognizing that sustainable conservation requires collaboration and shared commitment. The work was mainly conducted in the Indian Sundarbans, East Kolkata Wetlands, Rabindra Sarovar, Santragachi Jhil in West Bengal; Deepor Beel, Majuli Island in Assam; Urban Wetlands in Bangkok and Tangaur Haor in Bangladesh.

Mountain Ecosystem

The Progyan Foundation for Research and Innovation is playing a pivotal role in West Kameng district, Arunachal Pradesh, particularly in the hilly areas, where the delicate balance of the mountain ecosystem and biodiversity is crucial. The organization's emphasis on preserving and cultivating indigenous rice varieties contributes to the conservation of biodiversity, helping safeguard the rich and diverse plant species that thrive in this challenging terrain. The work was mainly conducted in Arunachal Pradesh; West Kameng district – Sangti Valley and in Lower Dibang Valley district.

Forest

PFRI is engaged in conserving the dynamic forest ecosystems which are home to a staggering variety of flora and fauna. This venture was mainly operated in the Mehao Wildlife Sanctuary, Arunachal Pradesh, and in the Indian Sundarban Biodiversity Reserve, West Bengal.

Plateau

The foundation's dedicated efforts focus on the cultivation of indigenous rice varieties, aiming not only to ensure food security but also to maintain the unique mountain ecosystem of the region. This initiative was mainly operated in the Purulia district of West Bengal.

2. Environmental Economics

Ecosystem services valuation is one such tool; it seeks to put an economic value on natural resources, to allow the policy to be evaluated by monetizing the benefits of the environment in a way that is broadly equivalent to the economic costs/benefits used to inform policy-making.

The Progyan Foundation for Research and Innovation (PFRI) has undertaken a pioneering initiative to assess and quantify the valuation of ecosystem services through dedicated workshops held at strategic locations. This work was done in India, Bangladesh, and Thailand.

3. Climate Change

In the face of unprecedented challenges posed by rising temperatures, erratic rainfall, and extreme weather events in agriculture, traditional farming practices fall short of ensuring long-term food security. Recognizing the profound impact of climate change on conventional farming, the Progyan Foundation for Research and Innovation (PFRI) takes a leading role in advocating for climate-resilient float farming. By integrating climate-smart practices like drought-resistant crops, efficient water management, and eco-friendly pest control, PFRI ensures the resilience and sustainability of float farming. This work was initiated in Indian Sundarban and Purulia in West Bengal, Majuli Island in Assam, Saharsa in Bihar.

4. Environmental and Social Impact Assessment

The environmental and social impact assessment (ESIA) approach for float farming, a distinctive agricultural method involving the cultivation of crops on floating platforms in water bodies, mandates a comprehensive examination of potential effects on the environment and local communities. This includes an analysis of water

quality, biodiversity, and the overall health of aquatic ecosystems. This has been practiced in West Bengal, Bihar, Assam and Arunachal Pradesh.

5. Community Livelihood

This innovative approach is seen as a transformative solution for communities vulnerable to the adverse effects of climate change. PFRI is actively involved in combating the intrusion of saltwater into arable lands, particularly in regions where saline soils threaten food security and livelihoods. The project is initiated in Kultali, Amtoli, Tiplighiri, and Kakdwip, the areas facing seawater inundation and severe storm surges during super cyclones in Sundarban.

6. Policy Research

Acknowledging the intricate factors influencing tobacco consumption and its repercussions on public health, PFRI is dedicated to generating insights that can guide evidence-based policy decisions. Utilizing rigorous research methodologies, data analysis, and collaboration with stakeholders, the organization aims to comprehend smoking behaviour patterns, identify significant challenges, and propose effective policy measures. The policy work is specifically concentrating on the habits of smokers in India, Bangladesh, and Nepal.

7. Biodiversity Conservation

Biodiversity conservation has three main objectives: To preserve the diversity of species. Sustainable utilization of species and ecosystem. PFRI is seriously engaged in the conservation of different species of flora and fauna in India. The conservation work includes the conservation of Hoolock Gibbon and Black Neck Crane from Arunachal Pradesh, conservation of Horse Shoe Crab and Soil Tolerant Paddy from Indian Sundarban and conservation of Asian Elephant from Purulia and Assam.

Hoolock Gibbons

Progyan Foundation for Research and Innovation (PFRI) intends biodiversity conservation of this endangered primate by connecting two or more of these proximal patches through the plantation to decrease the chances of reproductive isolation of the Hoolock Gibbons.

Horseshoe Crab

Horseshoe crab conservation efforts mainly concentrate on preserving the integrity of the coastal areas of Sundarban, safeguarding the sandy shores where horseshoe crabs lay their eggs. PFRI actively engaged in studying the behaviour, population dynamics, and migratory patterns of horseshoe crabs in the Sundarbans and understanding their ecological role and the specific environmental conditions essential for their survival is paramount.

Asian Elephant

Progyan Foundation for Research and Innovation (PFRI) is involved in a multi-faceted approach, including the establishment of wildlife corridors, habitat restoration initiatives, and the development of early warning systems to mitigate human-elephant conflicts in South and North Bengal and Jharkhand.

Salt Tolerant Paddy

Salt tolerance paddy cultivation in the Indian

Sundarban has been employed by adopting salt-tolerant 50 varieties of rice that can withstand higher levels of salinity which is truly indigenous.

Black Neck Crane & Red Rice

The Black-necked Crane, a migratory bird, relies on the wetlands and rice fields of West Kamang, Arunachal Pradesh for foraging during its annual migration. If the cultivation of red rice were to diminish, it would lead to a decline in the Black-necked Crane population and significant biodiversity loss. Recognizing this intricate connection efforts have been made to conserve the Black-necked Crane must coincide with the preservation of indigenous agricultural practices.

Mangrove

Climate change, habitat degradation, human disturbance, fuel-wood collection and lack of spaces for the mangrove species to regenerate and thrive are the biggest reasons for reduced mangrove cover. Restoration and plantation of mangroves in Indian Sundarban is going on in association with the local communities. The process includes rearing, plantation, monitoring, awareness, and community restoration.

Mangrove

Being a dynamic, ecologically based, natural resource management system agroforestry through the integration of trees on farms and in the agricultural landscape, diversifies and sustains production for increased social, economic and environmental benefits for land users at all levels. It is essential for smallholders and other rural people because it can improve their food supply, income and health. Agroforestry systems are multifunctional systems that can provide a wide range of economic, socio-cultural and environmental benefits. A feasibility study was initiated for organic farming and agroforestry in the state of Assam based on the RCP scenarios.

SERVICES

PFRI is dedicated to providing a comprehensive range of services aimed at strengthening expertise and capabilities in various critical fields. Its core focus lies in training and skill development across several key areas.

These include **Climate-resilient Agriculture**, which involves techniques and practices designed to mitigate the impact of climate change on agricultural production.

Climate resilient aquaculture training is another significant aspect, focusing on sustainable methods for fish and seafood cultivation.

Apiculture, or beekeeping, is also emphasized, highlighting sustainable beekeeping practices for honey production and environmental conservation.

Moreover, PFRI offers expertise in **Environmental and Social Impact Assessment (ESIA)**, a vital process for evaluating the potential effects of projects or activities on the environment and surrounding communities.

Green Audit services are provided to assess and enhance environmental

sustainability within organizations and industries.

Proposal Writing assistance is available to help stakeholders effectively communicate project ideas and secure funding for environmental and agricultural initiatives.

Scientific Documentation services ensure accurate and comprehensive recording of research findings and data, facilitating knowledge dissemination and informed decision-making.

Geographic Information System (GIS-RS) expertise is leveraged for spatial data analysis and mapping, aiding in environmental monitoring, resource management, and decision support.

CAPACITY BUILDING

PFRI offers a diverse array of courses aimed at enhancing understanding and expertise in several crucial areas related to environmental sustainability and conservation. These courses cover a broad spectrum of topics, each addressing key aspects of sustainable development and environmental stewardship.

Firstly, the courses on **Ecosystem Services (ESs)**, are the benefits that ecosystems provide to humans, including clean water, pollination, and carbon sequestration. These courses delve into

Biodiversity courses are also offered, focusing on the variety of life forms present in ecosystems and the importance of conserving and restoring biodiversity for ecosystem health and resilience. Participants learn about the threats to biodiversity, conservation strategies, and the significance of biodiversity for ecosystem functioning and human livelihoods.

the importance of preserving and restoring natural ecosystems to ensure the continued provision of these vital services and their role in supporting human well-being.

Regenerative Agriculture courses explore sustainable farming practices that prioritize soil health, biodiversity conservation, and ecosystem resilience. These courses emphasize techniques such as cover cropping, crop rotation, and agroforestry to improve soil fertility, enhance biodiversity, and mitigate climate change.

Additionally, PFRI offers courses on **Carbon Neutrality and Net Zero, Addressing Strategies** to reduce greenhouse gas emissions and achieve a balance between emissions produced and removed from the atmosphere. Participants learn about carbon footprint assessment, renewable energy adoption, and carbon offsetting practices to contribute to global efforts to combat climate change.

Circular Economy courses focus on promoting sustainable resource use and minimizing waste generation by designing products, processes, and systems that prioritize resource efficiency, reuse, and recycling. Participants explore principles of circularity, such as product design for durability and recyclability, waste reduction strategies, and the importance of closing material loops to create a more sustainable economy.

MAJOR **RESEARCH**

Enhancing Climate Resilience and Reducing Inequality in Agrarian Communities of the Global South.

Rural communities in the Global South, particularly those in the Indo-Gangetic floodplains of India and Bangladesh, face significant challenges due to climate change. These challenges include acute crop damage, loss of livelihood, and starvation, particularly in the face of extreme weather events like floods. To address these issues, resilient technology cooperation for collective farming (primary productivity) is urgently needed. Such cooperation can secure livelihoods, ensure food security, and ultimately help marginalized communities escape the poverty trap. This project, supported by GDN-JSDF funding, aims to provide innovative solutions to these socioeconomic challenges through flood-resilient floating agro-farm modules.

01

Project Implementation

Previous interventions under the MIDP program of GDN have successfully demonstrated the efficacy of place-based innovative designs. These interventions have provided contingency plans for weather extremities, showcasing that local solutions can effectively address multifaceted socioeconomic issues. On a household basis, the intervention has secured food and increased earnings for 65-70% of marginal farmers who adopted it. The remaining participants have benefited from capacity building, financial inclusion, and alternative livelihood opportunities. Building on this success, the project aims to grow as an enterprise for food security and sustainable livelihoods across diverse socio-ecological production landscapes, promoting universality and resilience in the face of climate change.

02

Sustainability and Growth

Sustainability is central to the project, with a focus on accommodating new entrants and expanding both vertically and laterally. This approach not only enhances adaptive strength and inclusivity but also reduces occupational inequality among farming communities with varied skills. At the science-society interface, scaling-up efforts will build capacities in cross-cutting areas such as financial management, market linkage, disease and pest management, and soil-less organic farming. These efforts aim to reduce inequalities, promote entrepreneurial efficacy, and strengthen local institutions. The project's deliverables align with the Sustainable Development Goals (SDGs) through community-based interventions focusing on inclusive growth, climate-resilient agriculture, renewable energy, alternative livelihoods, and disaster preparedness, along with natural resource management.

03 Outcomes

New Challenges in the Post-Pandemic Period: The COVID-19 pandemic has resulted in a mass reverse exodus of casual labourers due to nationwide lockdowns and loss of livelihoods. These returning migrant labourers now seek food security and new economic opportunities in their villages. It is essential to accept these migrant labourers as additional beneficiaries, expanding the scope of our work and extending the timeline for necessary actions.

Effective Integration of Float-Farming and Aquaculture Technology: The project aims to develop a hub that is more equitable, sustainable, resilient, and economically beneficial by integrating float-farming and aquaculture technologies. Utilizing renewable energy (solar) will reduce emissions from irrigation and promote energy independence in the primary productivity sector, with active farmer participation.

Expansion of Economic Opportunities: Float farms have expanded economic opportunities for marginalized communities, particularly those who lost jobs and livelihoods during the pandemic. By providing alternative livelihoods, the project has reduced socio-economic inequality.

Stakeholder Support and Inclusivity: Local stakeholders have embraced the intervention, appreciating its potential to address joblessness among short-term migrants in rural areas. The project has ensured significant participation of women farmers through participatory communication frameworks, including focused group discussions, informal meetings, and learning sessions.

Resilience and Competency: The intervention has proven resilient during the pandemic crisis and has effectively addressed challenges such as torrential rains, pest attacks, and water stress in coastal areas. It has demonstrated its potential as an entrepreneurial effort for marginal communities.

04 Conclusion

In conclusion, this project exemplifies how resilient technology cooperation and innovative interventions can enhance the adaptive capacity of agrarian communities, reduce inequalities, and promote sustainable development in the face of climate change.

Conservation of Fragmented Rainforest Habitats and Western Hoolock Gibbon Populations

This project focuses on place-based action research at the science-society interface, aiming to conserve fragmented rainforest habitats that host isolated populations of the endangered Western Hoolock Gibbon (Hoolock hoolock). The intervention site is located near the Mehao Wildlife Sanctuary (WLS) in the Roing Forest Division, Lower Dibang Valley District, Arunachal Pradesh, India. The area covers approximately 250 km² and includes 46 villages. Each fragmented patch hosts families of Hoolock Gibbons, with an average family size of 3.5 individuals (Aich et al., 2019). Recent genetic studies confirm that India has only the Western Hoolock Gibbon population (Trivedi et al., 2021).

01 Project Objectives

- Ecosystem-based conservation of the socio-ecological production landscape in Lower Dibang Valley, Arunachal Pradesh, India.
- Community-based adaptive management of Western Hoolock Gibbons in Lower Dibang Valley, Arunachal Pradesh, India.
- Geospatial scenario planning and policy advocacy.

02 Challenges

Deforestation due to logging, cropland, and infrastructure expansion has fragmented the once contiguous forest patches of the Lower Dibang Valley. Much of these areas are outside protected status. Hoolock Gibbons, as canopy dwellers, are indicators of forest ecosystem health. Habitat fragmentation, mainly from agricultural expansion and logging, threatens their survival. They risk local extinction as isolated groups become genetically depleted and vulnerable to predators. The survival of these primates is critically linked with the traditional ecological knowledge (TEK) and land-use practices of indigenous communities, which are changing due to socio-economic and climate changes.

03 Activities

- **Ecosystem-based Adaptation (EbA) for Habitat Conservation:** Develop canopy-high bio-corridors using bamboo, liana, and other locally available materials to mimic natural canopies.
- **Community Rights and Participatory Planning:** Conduct geospatial studies, field assessments, ecological studies, threat mapping, and participatory resource mapping to support habitat conservation.
- **Policy Implications and TEK Utilization:** Build local capacities for species protection through TEK. Validate and adapt management strategies based on multi-criteria analysis of Hoolock Gibbon habitats.

- **Community Capacity Building:** Establish women-led Gibbon Guardians groups for alternative livelihoods and conservation efforts. Engage local communities and green crusaders in conservation activities.
- **GIS-RS-Based Mapping and Policy Advocacy:** Use GIS and remote sensing for land-use planning and policy advocacy. Collaborate with stakeholders for habitat and wildlife conservation activities.

04 Outcomes

The project's inclusive, community-based approach will conserve the Hoolock Gibbon population, rainforest habitat, and the socio-cultural legacy of Indigenous communities, ensuring sustainable coexistence. Capacity building in conservation, adaptive livelihood practices, and economic resilience will enhance risk management. Globally, the habitat suitability index (HSI) will predict habitat quality and species distributions, facilitating biological surveys, strategic reserve assessments, and contingency planning for climate change scenarios. The project aligns with global initiatives for conserving socio-ecological landscapes and contributes to achieving Sustainable Development Goals (SDGs) and Aichi targets.

By connecting fragmented habitats and empowering local communities, this project aims to enhance the resilience of Western Hoolock Gibbon populations and their ecosystems. Through sustainable conservation practices and community engagement, the project will address both ecological and socio-economic challenges, fostering a harmonious coexistence between humans and wildlife.

Comprehensive Study on the Behavioural Dynamics of Tobacco Smokers in India, Bangladesh, and Nepal

The project titled "A Comprehensive Study on the Behavioural Dynamics of Tobacco Smokers in India, Bangladesh, and Nepal" was successfully launched in mid-October 2022. In the first quarter, extensive background research was conducted, including an exhaustive literature review on smoking cessation activities, scientific studies at the science-society interface, and methodological reviews for data interpretation. This research informed the development of the study's research design and guided the assessment and survey tools.

The sociometric survey for identifying beneficiaries and target cohorts commenced with standard procedures, including Pre-informed Free Consent (PIFC) from subjects and communities. A structured questionnaire for socio-psychometric analysis was drafted following WHO guidelines and literature reviews. Experienced medical practitioners, social psychiatrists, and action

researchers reviewed the questionnaire, which was then validated in the field with a 10% sample size (100-120 samples) in India and Bangladesh. Subsequently, 20 surveyors in each country were trained and equipped to conduct socio-scientific surveys and data collection using digital platforms. Digital data accrual and archival facilities were established through free access to cloud services like Google Forms and Kobo Toolbox. Simultaneously, collaborations and partnerships with target organizations were initiated, leading to positive institutional linkages.

01

Background

Tobacco consumption is the leading preventable cause of death and disability worldwide. The World Health Organization (WHO) estimated that 4.9 million premature deaths per year were attributable to tobacco use in 2010, rising to 7.1 million in 2016, and projected to reach eight million by 2030 if current consumption rates continue. The health burden is disproportionately high in developing countries, where tobacco is expected to cause around 40 million deaths between 2005 and 2030.

This study focuses on India, Bangladesh, and Nepal, aiming to recommend a community-based sustainable tobacco cessation program for similar underserved cohorts of tobacco smokers. The objective is to identify the psycho-biological and societal drivers of smoking, enabling the development of a cohort-level sustainable tobacco cessation strategy. The recommendation will address the beneficiaries' immediate needs, emphasizing the importance and challenges of adopting tobacco harm-reduction (THR) products.

02

Project Recommendations

The project proposes an adaptive paradigm reinforced by evidence-based approaches like multicriteria decision analysis and scenario planning. This framework aims to create a transparent, participatory, and reciprocal program at the societal interface, targeting tobacco harm reduction and smoking cessation in underserved communities. Strategic partnerships among stakeholders will integrate research with actionable solutions, addressing the inequities in accessibility and smoking habits in developing countries like India, Bangladesh, and Nepal.

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Project Recommendations

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04 Deliverables

- A comprehensive research report detailing the study's findings.
- Stratified data on vulnerability, susceptibility, and resilience to tobacco smoking based on primary sociometric analysis.
- A comprehensive research methodology tailored to the unique needs of identified cohorts, validated in each target community.
- A community-based tobacco cessation program was developed using scenario planning and multicriteria decision analysis.
- A recommended policy framework and operational guidelines for smoking cessation and THR implementation.
- Memorandums of understanding (MoUs) with relevant partners in participating countries.
- A 3-minute video documentation based on smoker surveys and stakeholder responses in the three countries.

05 Tobacco Addiction and Smoking in India

India faces significant health challenges as the country with the second-highest tobacco consumption worldwide. In 2017, approximately 266.8 million adults used tobacco, more than twice the number in the European Union. India deals with dual tobacco use: smoking and smokeless tobacco. According to the Global Adult Tobacco Survey (GATS) 2016-17, 10.38% of adults smoke tobacco, and 21.38% use smokeless tobacco. The overall prevalence of tobacco use is 28.6%, including 42.4% of men and 14.2% of women.

The Demographic Health Survey, known as the National Family Health Survey (NFHS), provides estimates of various health indicators. The survey conducted in 2019-20 revealed persistent tobacco use challenges, particularly in northeastern states. The National Health Policy 2017 aims to reduce tobacco use prevalence by 15% by 2020 and 30% by 2025. GATS-2 reported a 17% reduction since GATS-1.

06 Health Consequences and Economic Burden

Tobacco use and second-hand smoke exposure cause over one million deaths annually in India, accounting for 9.5% of total deaths. The economic cost of tobacco-related disease and death was INR 1773.4 billion (USD 27.5 billion) in 2017-2018, with direct healthcare costs constituting 22% and indirect costs (lost productivity) 78%. Premature death costs were 75% of total economic costs, amounting to 1.04% of India's GDP and 5.3% of total health expenditure.

07 Outcomes of the Study

Participants, both smokers and non-smokers, were recruited through community outreach activities such as Focused Group Discussions, Rapid Rural Appraisals, and Key Informant Interviews.

Free Prior Informed Consent (FPIC) was obtained before interviews, with the purpose of the survey explained in detail. Non-smoking adults were recruited from urban academic institutes, schools, and other non-smoking areas.

Interviews involved community members aged 12 to 57, with varying financial, employment, and lifestyle backgrounds. Theoretical sampling allowed for successive recruitment based on data collection and category development. Depending on cohort categories, decisions were made on whether to interview participants from urban or rural regions, adults with or without smoking habits, or those with chronic respiratory conditions.

The study aims to provide cohort-specific scenario planning, community-based sustainability in remedial programs, and evidence-based adaptive learning. It seeks to enrich research resources and enhance compatibility at the science-society interface, contributing to a more comprehensive understanding and solution framework for tobacco addiction.

MAJOR **EVENTS** & ACTIVITIES

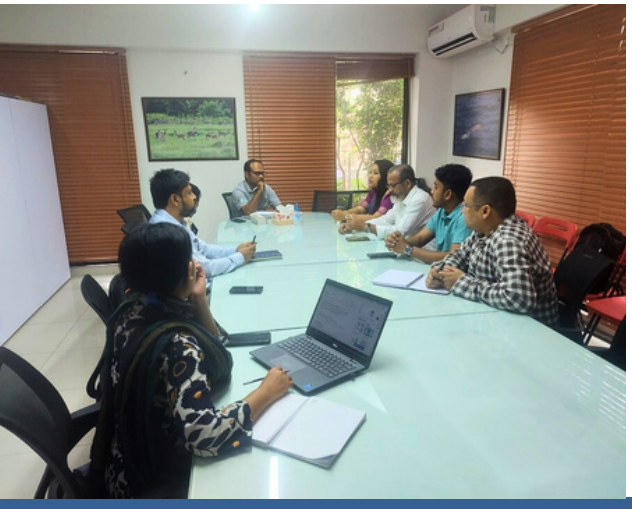
April, 2023

1. Meeting with IUCN in Dhaka, Bangladesh

A pivotal meeting in Dhaka, Bangladesh unfolded as representatives from various research institutions converged with members of the International Union for Conservation of Nature (IUCN). The gathering aimed to foster collaboration and develop a cohesive approach towards addressing pressing environmental challenges in the South Asian region. As the meeting concluded, a palpable sense of optimism pervaded the room, signalling the dawn of a new era of partnership and collective action in the pursuit of environmental stewardship.

2. Meeting with Shushilan Dhaka and MOU with O. Creeds Dhaka, Bangladesh

In Dhaka, Bangladesh, representatives from Shushilan Dhaka and O. Creeds Dhaka and Progyan Foundation for Research and Innovation (PFRI) came together to forge a collaborative alliance aimed at advancing environmental and community research endeavours. With a shared vision of



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May, 2023

1. Strengthening Climate Resilient Agriculture: Nutrient Management and Integrated Pest Management Strategies in Amtali, Indian Sundarbans

The workshop on Strengthening Climate Resilient Agriculture: Nutrient Management and Integrated Pest Management Strategies in Amtali, Indian Sundarbans served as a crucial platform for farmers, researchers, and agricultural experts to come together and address the challenges posed by climate change in the region. Held in the heart of the Indian Sundarbans, the workshop focused on imparting knowledge and practical techniques to enhance agricultural resilience against changing climatic conditions. Through interactive sessions and hands-on demonstrations, participants gained insights into effective nutrient management practices and integrated pest management strategies tailored to the unique environmental context of Amtali.

By fostering collaboration and knowledge exchange, the workshop aimed to empower farmers with the tools and resources needed to adapt to the evolving climate while ensuring sustainable agricultural productivity in the Sundarbans.

2. Fostering Community Engagement: Crop Calendar Sensitization and Focus Group Discussions in Kakdwip, Indian Sundarbans

This initiative by Progyan Foundation for Research and Innovation (PFRI) underscores a proactive approach to empowering local communities in adapting to the intricacies of agricultural practices in the region. By sensitizing residents of Kakdwip to the importance of crop calendars, this endeavour aimed to enhance agricultural productivity and resilience in the face of dynamic climatic conditions. Through focused group discussions, community members are provided with a platform to share traditional knowledge, exchange experiences, and collaborate on refining crop planning strategies tailored to the Sundarbans' unique ecosystem. By fostering dialogue and collaboration among stakeholders, this initiative seeks to strengthen community resilience and promote sustainable agricultural practices in Kakdwip and beyond.

June, 2023

1. Empowering the Idu-Mishmi: Collaborative Development Initiatives in Lower Dibang Valley, Arunachal Pradesh

Significant meetings convened with the Block Development Officer and Agricultural Development Officer in Lower Dibang Valley, Arunachal Pradesh, marked a pivotal step towards enhancing the livelihood prospects and community sensitization for the local Idu-Mishmi tribe. Deliberations focused on fostering sustainable development strategies tailored to the unique socio-economic landscape of the region. Through collaborative efforts, initiatives were devised to empower the Idu-Mishmi community, leveraging agricultural advancements and tapping into indigenous knowledge systems. The gathering emphasized the importance of holistic approaches, integrating traditional practices with modern methodologies to ensure resilience and prosperity. This concerted endeavour embodies a commitment to fostering inclusive growth and preserving the cultural heritage of the Idu-Mishmi tribe, ultimately paving the way for a brighter and more equitable future.

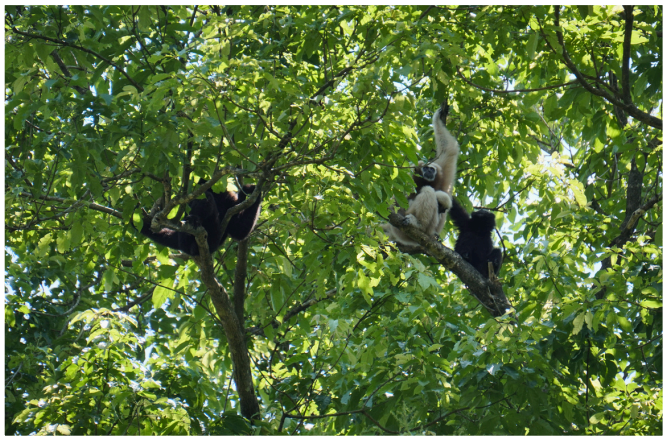
2. Exploring Idu-Mishmi Traditions: An Interactive Encounter with Gaobura of Injuno, Lower Dibang Valley

An interactive session convened with the Gaobura of Injuno village in Lower Dibang Valley, Arunachal Pradesh, served as an invaluable opportunity to delve into the rich tapestry of traditional culture and heritage of the Idu-Mishmi tribe.

Through open dialogue and exchange, insights were gleaned into the intricate customs, rituals, and belief systems that have been preserved over generations. The Gaobura's profound knowledge offered a window into the soul of the community, highlighting the significance of indigenous practices in shaping identity and fostering cohesion. This enlightening engagement not only deepened understanding but also underscored the imperative of safeguarding and celebrating the unique cultural heritage of the Idu-Mishmi tribe for posterity.

3. Empowering Idu-Mishmi Communities: A Collaborative Commitment to Livelihood & Environmental Conservation

Progyan Foundation for Research and Innovation (PFRI) signed a Memorandum of Understanding (MOU) with the Idu Mishmi Cultural Literary Society (IMCLS) and the All Idu Mishmi Students Union (AIMSU) in Arunachal Pradesh heralding a new era of collaboration aimed at advancing the livelihoods of the Idu-Mishmi tribes while championing environmental conservation efforts. This agreement signifies a shared commitment to leveraging cultural heritage and educational platforms to foster sustainable development within the community. Through joint initiatives, including skill-building programs, awareness campaigns, and advocacy efforts, the MOU seeks to empower the Idu-Mishmi people while nurturing a deeper sense of environmental stewardship. By harnessing the collective expertise and resources of the organizations, this partnership embodies a holistic approach to addressing the complex challenges facing the Idu-Mishmi tribes, ensuring a harmonious balance between cultural preservation and ecological sustainability.



4. Preserving Primate Paradises: Exploring Hoolock Gibbon Habitat in Mehao Wildlife Sanctuary, Lower Dibang Valley

A comprehensive Hoolock gibbon habitat survey was conducted within the Mehao Wildlife Sanctuary, nestled in the picturesque Lower Dibang Valley of Arunachal Pradesh, marking a crucial step in the conservation efforts for this endangered species. The survey aimed to understand the distribution and abundance of Hoolock gibbons and provided a platform for interaction with passionate conservation activists dedicated to their protection. Through engaging discussions and field observations, insights were gained into the myriad challenges these majestic primates face, from habitat loss to poaching threats. The exchange of knowledge and experiences with conservationists underscored the urgent need for collaborative action to safeguard the habitat and ensure the long-term survival of the Hoolock gibbons in this pristine sanctuary.

July, 2023

1. Enhancing Agricultural Practices through Float Farming: A Report on Soil Mixing, Growth Bag Preparation, and Seeding in Amtali, Indian Sundarban

Float farming is an innovative agricultural technique introduced by Progyan Foundation for Research and Innovation (PFRI) in the vulnerable coastal regions of the Indian Sundarban, including Amtali.

Float Farming Setup:

The float farming setup in Amtali involved constructing floating platforms using locally available materials such as bamboo and plastic drums. These platforms were anchored to prevent drift and provide stability. The construction process was community-driven, emphasizing the involvement of local farmers to ensure sustainability and ownership.

Soil Mixing:

One of the key aspects of successful float farming is the preparation of nutrient-rich soil. In Amtali, a blend of organic compost, river silt, and locally sourced soil amendments was scientifically mixed to create a fertile substrate suitable for plant growth. This process is crucial for replenishing nutrients and maintaining soil health in the floating beds. Growth bags made from biodegradable materials were prepared to facilitate plant growth in the waterlogged conditions of the Sundarban. These bags serve as containers for seedlings and provide a stable medium for root development.

Seeding:

In Amtali, local varieties of crops such as vegetables and fruits which are indigenous in nature were selected based on their adaptability to waterlogged conditions. Careful attention was paid to seed spacing, depth, and timing to optimize germination and growth.

The implementation of float farming techniques, including soil mixing, growth bag preparation, and seeding, offers promising prospects for sustainable agriculture in Amtali, Indian Sundarban. By harnessing local knowledge and resources, farmers can enhance productivity, mitigate environmental challenges, and improve livelihoods in this unique coastal ecosystem.

August, 2023

1. Prticipation in the 8th Asia-Pacific Climate Change Adaptation (APAN) Forum on Enhancing Community Resilience Incheon, South Korea

Progyan Foundation for Research and Innovation (PFRI) participated in the 8th Asia-Pacific Climate Change Adaptation (APAN) Forum on Enhancing Community Resilience in Incheon, South Korea.

The 8th Asia Pacific Climate Change Adaptation (APAN) Forum was considered Asia-Pacific's largest and longest-standing gathering of adaptation practitioners to meet, exchange knowledge and experiences, and collaborate towards the pertinent outcomes and practical solutions that are needed to address the challenges of climate change. The forum was hosted by the Ministry of Environment – Republic of Korea, under the bigger umbrella of the Korea Global Adaptation Week 2023 in Songdo, Incheon City. The APAN Forum is a biennial flagship event of the Asia Pacific Adaptation Network (APAN) Secretariat, hosted by the UN Environment Programme (UNEP) Regional Office for Asia and the Pacific with the support of the Ministry of the Environment – Japan.

2. Cultivating Resilience: Empowering Farmers through Climate Resilient Agriculture Training at ICAR-KVK Nimpith, West Bengal

The training session on Climate Resilient Agriculture by Progyan Foundation for Research and Innovation (PFRI) hosted at the Indian Council of Agricultural Research-Krishi Vigyan Kendra (ICAR-KVK) in Nimpith, West Bengal, served as a vital platform for equipping farmers with the necessary knowledge and skills to mitigate the impacts of climate change on agricultural practices. Through interactive workshops, practical demonstrations, and expert-led discussions, participants gained insights into innovative techniques and technologies tailored to enhance resilience against changing climatic conditions. The training emphasized sustainable farming practices, crop diversification, water conservation methods, and the utilization of resilient crop varieties. By fostering a collaborative learning environment, ICAR-KVK Nimpith continues to play a pivotal role in empowering farmers to adapt and thrive in the face of evolving environmental challenges, ultimately ensuring food security and livelihood sustainability in the region.

September, 2023

1. PFRI's Participation in the International Conference on Ecological Challenges: Assessment and Restoration in Dhaka, Bangladesh

Through engaging presentations, panel discussions, and networking opportunities, PFRI showcased its commitment to innovative research and solutions aimed at addressing pressing ecological challenges. The conference provided a platform for PFRI to share insights, methodologies, and best practices developed through its research and innovation initiatives. By actively participating in this forum, PFRI not only contributed to the collective understanding of ecological issues but also forged valuable partnerships to further advance efforts towards sustainable environmental stewardship.

2. Unlocking Sustainable Agriculture: Assessing the Potential of Agroforestry and Organic Farming in Guwahati, Assam

Assessment of the scope of agroforestry and organic farming in Assam, particularly in Guwahati, is crucial for sustainable agricultural practices and environmental conservation. With its rich biodiversity and conducive climate, Assam holds significant potential for the integration of agroforestry techniques and organic farming methods. Agroforestry systems, such as alley cropping and silvopasture, can enhance soil fertility, conserve water, and provide additional income streams for farmers.

Likewise, embracing organic farming practices reduces reliance on synthetic inputs, promotes biodiversity, and improves soil health. In Guwahati, where urbanization poses threats to agricultural land, promoting agroforestry and organic farming can mitigate environmental degradation while ensuring food security. However, to fully realize this potential, comprehensive assessments are needed to understand local agroecological conditions, socio-economic dynamics, and market opportunities, enabling tailored strategies for the adoption and scaling of these sustainable farming practices.

3. Interactive Session on climate resilient agriculture with the Department of Agricultural Extension Dhaka, Bangladesh

The interactive session between the Progyan Foundation for Research and Innovation (PFRI) and the Department of Agricultural Extension in Dhaka, Bangladesh, marks a pivotal moment in addressing the challenges posed by climate change in the agricultural sector. Recognizing Bangladesh's vulnerability to climate-related risks, such as erratic rainfall, flooding, and cyclones, this session serves as a platform to foster knowledge exchange and collaboration among stakeholders.

Participants engage in discussions on innovative agricultural practices, resilient crop varieties, water management techniques, and sustainable soil conservation methods tailored to withstand climatic uncertainties.

By leveraging the expertise of agricultural extension officers and harnessing community-driven approaches, the session aims to empower farmers with practical strategies to adapt to changing climate patterns while ensuring food security and livelihood resilience in Bangladesh's agricultural landscape.

October, 2023

1. Empowering Arunachal Pradesh: Capacity Building Workshop for Local Tribes on Livelihood Augmentation

The Capacity Building Workshop on Livelihood Augmentation in Arunachal Pradesh, India, facilitated by PFRI (Progyan Foundation for Research and Innovation), signifies a significant step towards empowering communities in the region. Arunachal Pradesh, with its diverse ethnicities and rugged terrain, presents unique challenges to sustainable livelihood development. The workshop served as a platform to enhance the capabilities of local stakeholders, including farmers, artisans, and entrepreneurs, especially from the local tribes, by imparting knowledge and skills relevant to their respective fields. Through interactive sessions, practical demonstrations, and experiential learning activities, participants gained insights into innovative agricultural techniques, value-addition processes, and entrepreneurial opportunities. By fostering partnerships and promoting inclusive growth strategies, the workshop endeavoured to catalyze socio-economic development, enhance resilience to external shocks, and contribute to the overall well-being of tribal communities in Arunachal Pradesh.

2. Awareness campaign, Multilevel Stakeholder Workshops on biodiversity & habitat conservation in Arunachal Pradesh, India

A series of awareness campaigns and multilevel stakeholder workshops on biodiversity and habitat conservation in Arunachal Pradesh, India, were held representing the concerted effort to address the pressing environmental challenges facing the region.

Arunachal Pradesh, known for its rich biodiversity and unique habitats, is increasingly threatened by human activities and climate change. The campaigns and workshops were aimed to engage a diverse array of stakeholders, including local communities, school children, government agencies, NGOs, and researchers, in dialogue and collaborative action. Through informative sessions, interactive discussions, and experiential learning activities, participants gained a deeper understanding of the

importance of biodiversity conservation and habitat protection. By fostering partnerships and promoting sustainable practices, the campaigns endeavoured to mobilize collective efforts toward safeguarding Arunachal Pradesh's invaluable natural heritage for future generations.

3. Empowering Tribal Livelihoods: PFRI's Mushroom Farming Initiative in Lower Dibang Valley, Arunachal Pradesh

PFRI (Progyan Foundation for Research and Innovation) has initiated a transformative endeavour by establishing mushroom farms in five villages (Abango, Bismaknagar, Denlo, Harupahar, Injuno) of Lower Dibang Valley, Arunachal Pradesh, India, providing tribal communities with supplementary livelihood opportunities. Recognizing the economic challenges and nutritive challenges faced by these communities, PFRI has

introduced mushroom cultivation as a sustainable and profitable alternative. Through training sessions, technical support, and the provision of necessary resources, local tribal peoples were empowered to embark on this innovative venture. Mushroom farming not only diversifies their income sources but also promotes self-reliance and resilience against external shocks. Moreover, it aligns with the region's ecological ethos, as mushrooms were cultivated using locally available organic materials. This initiative not only enhanced livelihood prospects but also contributed to the socio-

economic development and well-being of tribal communities in Lower Dibang Valley.

4. Preserving Primate Habitats: PFRI's Eco-Trail Conservation for Hoolock Gibbons in Mehao Wildlife Sanctuary, Arunachal Pradesh

In an effort to safeguard the habitat of the Hoolock Gibbon and promote biodiversity conservation, PFRI collaborated with forest officials to initiate plantation activities along the gibbon trail in Mehao Wildlife Sanctuary, Arunachal Pradesh, India. By establishing eco-trails and conducting plantation drives, PFRI aimed to mitigate habitat fragmentation and restore degraded areas within the sanctuary. This proactive approach not only enhances the gibbon habitat but also fosters ecological connectivity crucial for the survival of various wildlife species. Furthermore, the engagement of local communities in these conservation efforts encouraged sustainable land management practices and instilled a sense of ownership and responsibility towards protecting the sanctuary's biodiversity. Through such initiatives, PFRI demonstrated its commitment to ensuring the long-term sustainability of the Hoolock Gibbon population and preserving the ecological integrity of Mehao Wildlife Sanctuary.

November, 2023

1. Monitoring and evaluation of float farming crops in Amtali, Indian Sundarban

The monitoring and evaluation of float farming crops in Amtali, Indian Sundarbans, was a crucial mechanism for assessing the efficacy and sustainability of this innovative agricultural practice. By closely scrutinizing the growth and development of crops cultivated through float farming techniques, experts can gauge the impact on soil health, water quality, and biodiversity

conservation in the unique Sundarbans ecosystem. Through meticulous data collection and analysis, potential challenges and opportunities were identified, paving the way for informed decision-making and adaptive management strategies. Moreover, this monitoring and evaluation process facilitates knowledge shared among the farmers, enabling them to optimize their farming practices for maximum yield and environmental resilience.

2. PFRI's Freshwater Aquaculture Training in the Indian Sundarbans

The PFRI has taken a significant step towards enhancing freshwater aquaculture in the Amtali region of the Indian Sundarban through specialized training programs. These initiatives were aimed at empowering the local communities with the essential knowledge and skills required for sustainable aquaculture practices. By providing comprehensive training sessions, PFRI endeavoured to promote environmentally responsible methods while ensuring economic prosperity for the region's inhabitants. Through hands-on workshops and theoretical sessions, participants were equipped with valuable insights into breeding techniques, water quality management, disease prevention, and market strategies. Such efforts not only foster self-reliance among the locals but also contribute to the conservation of aquatic ecosystems in the fragile Sundarbans region.

December, 2023

1. Harvesting and marketing of harvested crops from Float farms was done by PFRI in Amtali, Indian Sundarban

The harvesting and marketing of harvested crops from Float farms in Amtali, Indian Sundarbans were efficiently managed by the Progyan Foundation for Research and Innovation (PFRI). PFRI, with its expertise and resources, played a pivotal role in overseeing the entire process, ensuring optimal crop yield and effective marketing strategies. From coordinating the harvest schedule to organizing transportation and facilitating market access, PFRI's involvement streamlined operations and enhanced the profitability of float farming for local communities. Through collaborative efforts with farmers and stakeholders, PFRI contributed significantly to the sustainable development of float farming in Amtali, fostering economic empowerment and food security in the Indian Sundarbans.

January, 2024

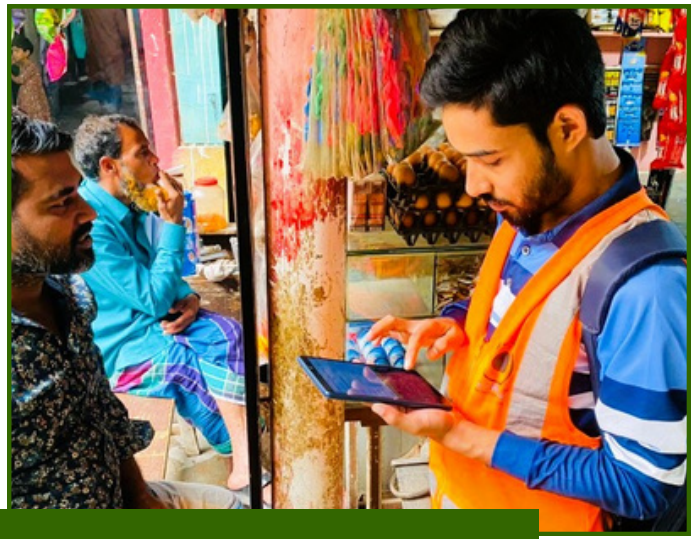
1. Initiating the Smoker's Survey Project: Collaborative Administrative Meeting in Saptari, Nepal

An administrative meeting and interaction with the foresters for the initiation of the Smoker's Survey Project in Saptari, Nepal, were successfully conducted. The meeting served as a platform for discussing the project's objectives, methodologies, and logistical requirements with the foresters responsible for ground-level implementation. Key topics addressed included the identification of survey sites, recruitment and training of surveyors, data collection protocols, and coordination mechanisms between stakeholders. Through constructive dialogue and collaboration, the groundwork for the Smoker's Survey Project was laid, emphasizing the importance of community engagement and data accuracy in addressing tobacco-related health issues in the region.

2. Understanding Smoking Habits in Marginalized Communities: A Survey in Saptari and Siraha, Nepal

The survey for assessing and identifying the psycho-biological and societal drivers and determinants of smoking habits among economically and socially marginalized and vulnerable smokers was successfully conducted in Saptari

and Siraha, Nepal. This comprehensive initiative aimed to delve deeply into the multifaceted factors influencing smoking behaviour within these communities. Through rigorous data collection methods and targeted interviews, the survey sought to uncover the interplay of psychological, biological, and societal factors contributing to smoking habits among marginalized populations. By shedding light on these determinants, the survey endeavours to inform evidence-based interventions and policy measures tailored to address the specific needs and challenges faced by vulnerable smokers in the region. This effort underscores the commitment to promoting public health equity and reducing tobacco-related disparities in marginalized communities of Nepal.



3. Comprehensive Survey of Smokers in Dhaka, Bangladesh

A thorough survey on smokers was diligently conducted in Dhaka, Bangladesh, providing valuable insights into smoking habits and patterns within the city. This comprehensive initiative involved meticulous data collection methods, including interviews, questionnaires, and observation, to capture a holistic understanding of smoking behaviors among residents. The surveyors delved into various aspects such as frequency of smoking, types of tobacco products consumed, socio-economic backgrounds of smokers, and their perceptions towards smoking cessation programs. By gathering detailed information, the survey aimed to inform evidence-based interventions and policies to address smoking-related challenges and promote public health in Dhaka. This initiative underscores the commitment to tackling tobacco use and its associated health risks in urban settings like Dhaka, contributing to the overall well-being of its inhabitants.

February, 2024

1. Training on Nutrient management & Integrated Pest Management for Climate Resilient Agriculture in Kultali and Tipligheri, Indian Sundarban

To bolster agricultural resilience against the adverse effects of climate change in the vulnerable regions of Kultali and Tipligheri within the Indian Sundarban, extensive training sessions have been conducted on nutrient management and integrated pest management (IPM). Recognizing the crucial role these practices play in sustaining agricultural productivity amidst evolving environmental conditions, local farmers have been equipped with essential knowledge and skills. Through these training programs, farmers have gained insights into optimizing nutrient u sage to enhance soil fertility and crop health, while simultaneously adopting IPM techniques to mitigate pest pressures sustainably. By integrating these approaches, farmers are better prepared to adapt to shifting climatic patterns, ensuring the long-term viability of agricultural livelihoods in the region. Such initiatives underscore a proactive approach toward building climate-resilient agricultural systems, crucial for the sustainable development of communities in the Sundarbans.

2. Climate-resilient brackish water aquaculture practice by PFRI in Tipligheri, Indian Sundarban

The Progyan Foundation for Research and Innovation (PFRI) has spearheaded a pioneering initiative in Tipligheri, located within the Indian Sundarbans, to promote climate-resilient brackish water aquaculture practices. Recognizing the challenges posed by climate change in coastal regions, particularly in the Sundarbans, PFRI has championed innovative approaches to aquaculture that can withstand environmental fluctuations. By implementing advanced technologies and sustainable management techniques, PFRI has empowered local fish farmers to adapt to changing conditions while maintaining productivity. Through the adoption of resilient species and improved infrastructure, such as water management systems and eco-friendly ponds, PFRI's initiative not only enhances the livelihoods of coastal communities but also contributes to the conservation of fragile ecosystems.

This concerted effort highlights the potential for climate-resilient aquaculture to serve as a cornerstone for sustainable development in the Sundarbans and beyond.

3. Implementation of Apiculture as a supplementary livelihood for the terminal agrarian community in Tipligheri, Indian Sundarban by PFRI

The Progyan Foundation for Research and Innovation (PFRI) has embarked on a transformative endeavour in Tipligheri, nestled within the Indian Sundarban, by introducing apiculture as a supplementary livelihood for the terminal agrarian community. Recognizing the vulnerability of traditional agricultural practices to climate change impacts, PFRI has pioneered the integration of beekeeping into the local economy, offering a resilient alternative for livelihood diversification. Through comprehensive training programs and access to modern beekeeping techniques, PFRI has empowered farmers to harness the potential of apiculture effectively. By tapping into the rich floral diversity of the Sundarbans, beekeepers can cultivate high-quality honey and other hive products, providing a sustainable source of income while mitigating dependence on erratic agricultural yields. PFRI's initiative fosters economic resilience and promotes environmental conservation by supporting pollinator populations and encouraging biodiversity in the Sundarbans. This holistic approach underscores the transformative power of apiculture in uplifting terminal agrarian communities toward a more secure and sustainable future.

March, 2024

1. Assessment of the agricultural landscape of the Gangetic floodplain of Begusarai Bihar - Planning for a climate-resilient future

In Begusarai, Bihar, the Gangetic floodplain's rich agricultural history faces challenges from climate change, like erratic rainfall and floods. Centre for Atmospheric and Climate Sciences (CACS), IIT Madras in collaboration with Progyan Foundation for Research and Innovation (PFRI) aims to tackle these issues through a holistic approach, combining science, community engagement, and policy support. By introducing climate-resilient agricultural systems, the food security and livelihoods for future generations can be protected.

2. Promoting Climate-Resilient Agriculture: Focus Group Discussion and Site Visit in Dhabouli, Basahi, Kharagpur and Cheria Bariapur in Begusarai, Bihar

The focus group discussion and site visits were done in Dhabouli, Basahi, Kharagpur and Cheria Bariapur in Begusarai, Bihar aimed to promote climate-resilient agriculture in the Gangetic floodplain. Agrarian communities were engaged in understanding the ground zero status. The marginal farmers had shared their insights and experiences to formulate the strategies for neo-agricultural practices that can withstand the impacts of climate change. Key topics included sustainable farming techniques, water management, crop diversification, and the adoption of resilient crop varieties. This collaborative initiative between Centre for Atmospheric and Climate Sciences (CACS), IIT Madras and Progyan Foundation for Research and Innovation (PFRI), India underscores the importance of community collaboration and knowledge-sharing in building resilience against environmental challenges in agriculture.

3. Revitalizing Kanwar Lake: A Climate-Resilient Approach by CACS, IITM and PFRI, India

The Kanwar Lake, situated in the Begusarai district is the only Ramsar Site of Bihar. It is also the largest freshwater ox bow lake in Asia and is on the Central Asian avian flyway. It is the habitat of 3 endangered vultures and hosts 54 species of migratory birds. Presently this wetland is experiencing a significant decrease in water levels and degradation of economic services. Progyan Foundation for Research and Innovation (PFRI), in collaboration with the Centre for Atmospheric and Climate Sciences (CACS), IIT Madras, has initiated the scoping study to introduce climate-resilient agricultural practices along with the agroforestry model, especially focusing on enhancing the green cover through TOFI (Trees outside the forest in India) approach to restoring as well as stepping forward to achieve the NetZero goal. TOFI will be mentored by ICAR-CAFRI, Jhansi, India. Knowledge tourism will also be undertaken to conserve the pristine biodiversity of the sacred grooves. This will also build up the climate resilience of the indigenous inhabitants and facilitate the general concept of ecosystem services amongst the communities.

Accreditations:

Progyan Foundation for Research and Innovation (PFRI) holds ISO 1401:2015 certification. PFRI is the research organ of 'South Asian Forum for Environment (SAFE)' a civil society organization. SAFE is recognized by the M/o Environment Forest & Climate Change and M/o NRE, Govt of India and accredited by 'NGO darpan' of Niti Ayog. It also enjoys consultative status with the UN Environment, UNFCCC, UNDP, World Bank and ECOSOC.

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