राष्ट्रीय नवप्रवर्तन प्रतिष्ठान – भारत
विज्ञान एवं प्रौद्योगिकी विभाग, भारत सरकार का स्वायत्तशासी संस्थान
National Innovation Foundation - India
Autonomous Institute of the Department of Science and Technology, Govt. of India

Innovation Frontline

May 2025 / Vol. 01 / No. 02

REVOLUTIONIZING APPLE CULTIVATION -HRMN-99 TRANSFORMS FARMING IN PLAINS

Silver Jubilee Celebration - NIF

Editor-in-Chief
Dr. Arvind C. Ranade

Editor
Dr. Rintu Nath

Publication Committee:
Dr. Vivek Kumar
Dr. R K Ravikumar
Dr. Nitin Maurya
Er. Rakesh Maheshwari
Shri Hardev Choudhary
Dr. Satya Singh
Dr. Poonam Singh

Design
Ms. Bhavna Desai

Coordination
Dr. Neha Tavker

Address for correspondence
National Innovation Foundation - India
Grambharti, Amrapur, Gandhinagar,
Gujarat- 382650

Tel: +91-02764-261131, 32, 34, 35

e-mail
info.nif@nifindia.org

website
https://www nif.org.in

Published by Dr. Arvind C. Ranade on behalf of National Innovation Foundation -India

CONTENTS

Editorial

Dr. Arvind C. Ranade

The shock of economic protectionism emanating from the US has sent jitters across the globe, forcing nations to reconsider their trade relations and economic strategies. What appears as a disruption on the surface, however, contains within it the seeds of opportunity, particularly for emerging economies like India that stand at a critical juncture in their development trajectory. Such tariff measures, often viewed in terms of immediate economic discomfort, present a moment of serious reflection for developing economies. India can potentially leverage this disruption to reimagine its growth model and address one of the fundamental challenges i.e., persistence of rural-urban development dichotomy. While urban centers thrive as innovation and commerce hubs, rural India, housing nearly 65% of the population, remains peripheral to the economic transformation narrative. This disparity represents both a moral and strategic challenge to achieving India's full potential. Development path of India must be inclusive, looking beyond urban-centric models to embrace the latent creativity and productive capacity of rural areas. Realizing nation's rural human capital is integral to comprehensive socio-economic advancement.

'Strategic collaborations between rural innovators, urban entrepreneurs, research institutions, and government agencies become essential to scaling grassroots innovations'

Rural India represents not merely farmland but a vast reserve of innovative technologies, traditional knowledge, and entrepreneurial spirit waiting to be unleashed, and NIF has been proactively supporting such knowledge reserves from across the country. The global disruption in trade patterns offers an opportunity to pivot from viewing rural India as merely a passive recipient of development to recognizing it as a wellspring of innovation. This shift in perspective carries profound implications for policy formulation and resource allocation, challenging orthodox approaches in favor of enabling ecosystems that validate and amplify grassroots innovation.

The changing trade dynamics highlight the potential for grassroots innovation to create uniquely Indian products that can carve new niches in national as well as global markets.

Products born from rural innovation, characterized by sustainability, affordability, and cultural authenticity, can open alternative pathways to national and global integration. Consider bamboo crafts people in Northeast India who have transformed their skills from producing basic household items to crafting export-ready furniture through innovative techniques. Similarly, handicrafts, herbal medicines, millet production, etc., represent potential thriving economic niches. As modern-day consumers increasingly seek sustainable and ethically produced goods, grassroots technologies can offer alternatives. The critical challenge lies in bridging the gap between local innovation and commercialisation, and addressing issues of scale, quality standardization, branding, and market access.

Strategic collaborations between rural innovators, urban entrepreneurs, research institutions, and government agencies become essential to scaling grassroots innovations. Rural producer companies, cooperative societies, and self-help groups offer promising approaches to achieving scale while maintaining community ownership. Moreover, the digital revolution has transformative potential for such grassroots innovation ecosystems. Mobile internet access creates unprecedented opportunities for rural communities to access information, connect across geographical boundaries, and showcase innovations to a larger demography. Digital platforms can document traditional knowledge, facilitate exchange between innovators facing similar challenges, connect them with technical experts, and create direct market linkages bypassing traditional intermediaries. The success of Digital India in expanding connectivity must now be complemented by efforts to develop content and platforms specifically supporting rural innovations, including accessible information on intellectual property protection, quality certification, and market intelligence.

'By nurturing creative potential beyond urban centers, India can craft a balanced model of progress, drawing strength from both modern and traditional knowledge systems'

Integrating grassroots innovations into India's economic strategy represents a fundamental recalibration of the development paradigm. By nurturing creative potential beyond urban centers, India can craft a balanced model of progress, drawing strength from both modern and traditional knowledge systems. This approach aligns with the vision of Atmanirbhar and Viksit Bharat, representing not just material prosperity but a harmonious and inclusive form of development honoring India's diverse heritage while embracing contemporary challenges. True national resilience comes from decentralized innovation networks that respond adaptively to changing circumstances and diverse demands. As India navigates the complexities of a changing global trade environment, embracing and empowering its rural innovation potential may prove to be not just a social imperative but a strategic economic advantage that transforms challenges into opportunities for a sustainable and inclusive Bharat. ■

Dr. Arvind C. Ranade

Revolutionizing Apple Cultivation -HRMN-99 Transforms Farming in Plains

Hardev Choudhary, Noushad Parvez

Shri Hariman Sharma, a grassroots innovator from Himachal Pradesh, has redefined apple cultivation in India through his ground breaking variety, HRMN-99-an apple that thrives in the extreme heat of the plains, where summer temperatures soar as high as 48°C. His journey is a remarkable tale of perseverance, innovation, and the transformational power of indigenous knowledge.

The story began in 1999, when Shri Sharma observed a few apple seedlings sprouting unexpectedly in his backyard orchard. Driven by curiosity and guided by instinct, he began transplanting the most promising saplings and experimenting with grafting techniques-initially on a plum tree and later on crab apple seedlings sourced from Shimla. Over time, his efforts bore fruit, quite literally, resulting in a thriving apple orchard in a non-traditional apple-growing region.

Unlike conventional varieties that require prolonged chilling periods and specific climate conditions, HRMN-99 is self-pollinating, requires minimal chilling, and performs exceptionally well in tropical and sub-tropical regions. It represents a significant shift in apple cultivation, making it accessible to a much wider geographical belt in India.

Between 2007 and 2012, Shri Sharma faced several hurdles-from skepticism among experts to the absence of institutional support. His breakthrough moment arrived in 2013, when Dr. P.L. Gautam, then Chairperson of the Protection of Plant Varieties and Farmers' Rights Authority (PPV&FRA), introduced his innovation to the National Innovation Foundation (NIF)-India.

NIF formally named the variety HRMN-99-an acronym of Hariman's name and the year of discovery-and filed for its registration under the PPV&FR Act, 2001. NIF also extended financial support in 2014 for nursery development and sapling propagation. With further support, NIF initiated multi-location trials across 29 states, distributing more than 17,000 saplings to over 1,500 farmers and institutions, including Rashtrapati Bhavan.

'HRMN-99 is self-pollinating, and performs exceptionally well in tropical and sub-tropical regions'

The results were remarkable. HRMN-99 started bearing fruit in 23 states, including Bihar, Manipur, Madhya Pradesh, Gujarat, Karnataka, and Telangana.

Shri Hariman Sharma was awarded the Padma Shri by the President of India on 28 April 2025.

States like Manipur and Chhattisgarh have even commenced commercial cultivation. The apple's attractive red-yellow striped skin, juicy pulp, and unique shape make it both market-friendly and farmer-preferred.

Researchers from the Centre for Cellular and Molecular Biology (CCMB), Hyderabad, and scientists attending the 101st Indian Science Congress in Jammu conducted studies validating its superiority over other low-chill varieties like Anna and Dorsett Golden. Yield data from 2017-18 showed that 3-8-year-old HRMN-99 trees produced up to 75 kg of fruit annually.

Fruiting in Karnataka

Fruiting in Manipur

Ambikapur, Chhattisgarh

Bilaspur, Himachal Pradesh

Siliguri, West Bengal

NIF, in collaboration with the North Eastern Region Community Resource Management Project (NERCORMP), facilitated the planting of over 1 lakh HRMN-99 saplings across all Northeastern states. The initiative not only enhanced farmers' incomes but also provided a sustainable livelihood alternative in the region.

In recognition of his pioneering contribution, Shri Hariman Sharma received the National Grassroots Innovation Award from the Hon'ble President of India, Shri Pranab Mukherjee, during the Festival of Innovation in 2017.

'Shri Hariman Sharma received the National Grassroots Innovation Award from the Hon'ble President of India'

He also proudly represented India at the 4th ASEAN-India Grassroots Innovation Forum held in Malaysia in November 2023. Cementing his legacy, he was honoured with the Padma Shri, one of India's highest civilian awards, for revolutionizing apple farming in non-traditional areas.

Today, as HRMN-99 apple orchards bloom in unexpected parts of India, far from the snowy hills of Himachal and Kashmir, they stand as a symbol of grassroots ingenuity and resilience. Shri Hariman Sharma's story is a powerful reminder that true innovation often springs from humble beginnings, and when nurtured, has the potential to change lives, livelihoods, and landscapes. ■

Mr. Hardev Choudhary is a Scientist – E at the National Innovation Foundation – India. He holds a Master's degree in Agricultural Science and leads VARD & IPM – Agriculture, focusing on incubation, IPR protection, and entrepreneurship for sustainable agriculture and livelihoods.
Email: hardev@nifindia.org

Dr. Noushad Parvez is a Project Manager at EDII, Ahmedabad. He holds a PhD in Agricultural Microbiology and has worked with NIF - India.
Email: shahriak@gmail.com

Empowering Mobility: The Journey of the Step Walker from Mind to Market

Mahesh Patel

According to a 2023 estimate by the World Health Organization (WHO), nearly 1.3 billion people-about, 16% of the global population live with significant disabilities[1]. For many, everyday life presents barriers to mobility, independence, communication, and full participation in society. In such contexts, assistive technologies serve as vital tools, enabling individuals to overcome physical, sensory, and cognitive limitations and lead more independent, empowered lives.

The Step Walker is a transformative mobility aid designed to help the elderly and differently-abled safely navigate stairs - a critical yet often overlooked challenge. Unlike traditional walkers, which are typically restricted to flat surfaces, the Step Walker consist of innovative flexible movement of front and rear legs with locking mechanism that allows for smooth stair navigation. Users can raise the front legs while ascending and lower them while descending, enhancing safety, stability, and independence.

The Spark Behind the Innovation

The inspiration for the Step Walker came from a 12-year-old schoolgirl, Shalini Kumari, who observed her grandfather struggling with stairs at home. Motivated by this experience, she conceptualized an improved walker design that could assist with stair mobility. In 2011, her idea won the IGNITE Award by the National Innovation Foundation-India (NIF), and was conferred by Dr. A.P.J. Abdul Kalam Hon'ble former President of India for her creativity and innovation spirit.

From Concept to Product: The Role of NIF

Recognizing the potential of the idea, NIF took on the challenge of transforming it into a viable product. The Institute conducted extensive research, including prior art analysis and market benchmarking, to define the technical scope.

'The inspiration for the Step Walker came from a 12-year-old schoolgirl, Shalini Kumari, who observed her grandfather struggling with stairs'

Key design priorities included safety, lightweight construction, minimal joints, durability, ergonomic comfort, and the ability to fold for portability. The walker was also tailored to accommodate average stair heights (4 -7 inches).

NIF collaborated with professional design firm Lumium Innovations Pvt Ltd, students from the National Institute of Design (NID), and various engineering experts over four years (2012-2016). A number of prototypes were developed and refined based on feedback from real users and orthopedic professionals. The innovation has been patented (Patent No: 403211), securing its intellectual property rights in the name of Shalini.

Product Development and Commercialization

In 2018, NIF partnered with VISSCO Rehabilitation Aids Pvt. Ltd., a leading manufacturer of orthopedic equipment in India, for commercialization. The final product launched on February 6, 2020, featuring an adjustable height, a robust ergonomic design, and a folding mechanism for convenience. To meet global standards, VISSCO ensured ISO, CE, and GMP certifications for the walker.

[1] *https://www.who.int/news-room/fact-sheets/detail/disability-and-health#:~:text=Key%20facts,than%20for%20those%20without%20disabilities*

Prior to this, NIF collaborated with partners like Jignesh Rehab in Ahmedabad for prototyping. NIF also signed a technology transfer agreement with Kaviraa Solutions in Maharashtra in 2014 and with Artificial Limbs Manufacturing Corporation of India (ALIMCO) in 2018, though the product did not launch under that initiative. Despite setbacks, NIF's persistent support and VISSCO's investment ensured that the Step Walker reached the market.

Future Possibilities and Policy Support

With rising global attention on elder care and inclusive technologies, there is significant scope for scaling such innovations. Institutions like hospitals, rehabilitation centers, and elderly care homes could integrate the Step Walker into their systems. The future also holds potential for smart enhancements - such as fall-detection sensors, health monitoring tools, and AI-enabled connectivity features for real-time support.

Celebrating the Innovator

Shalini's innovation garnered recognition from influential figures, including renowned Indian film star Priyanka Chopra, who acknowledged her contribution on Twitter during Children's Day. She was also featured on Teenovation, a television program aired on Zee Q that highlights young innovators. In December 2022, she won first prize (USD 1500) at the Grassroots Innovation Competition held during the 3rd ASEAN-India Grassroots Innovation Forum in Cambodia. Currently, she is pursuing her postgraduate studies, working towards an M.Sc. in Bioinformatics.

A Model of Collaborative Innovation

The journey of the Step Walker embodies a new model of inveted innovation in which school children ideate, engineers create and enterpreneur take innovation to the market[2].

It showcases NIF's role in nurturing grassroots ideas through sustained *in-situ* incubation and institutional support. This case highlights how impactful innovations can emerge from simple ideas, given the right ecosystem and encouragement.

'The journey of the Step Walker embodies the synergy of creativity, innovation and entrepreneurial commitment'

Dura Step walker

The Step Walker is more than just a mobility aid - it is a symbol of inclusive innovation that improves lives and addresses real-world problems. It also exemplifies how nurturing the ideas of young minds can lead to meaningful, scalable solutions. As India moves forward in building a more inclusive society, fostering such grassroots innovations will be essential to bridging gaps in healthcare, accessibility, and social equity. ■

[2]*For further reading:*
https://www.idin.org/sites/default/files/resources/Gupta_2012.pdf

Shri Mahesh Patel is a Scientist – G at the National Innovation Foundation – India. He specializes in the incubation of innovation-based enterprises, with nearly three decades of experience in this domain.
Email: mahesh@nifindia.org

Empowering Communities from the Ground Up: The Role of Partner Institutions in Grassroots Innovation Diffusion

Rahul Prakash, Nitin Maurya

Grassroots innovations-wwborn from the creativity, resilience, and real-life experiences of local communities-form a vital and increasingly recognized segment of India's innovation landscape. These practical solutions address local needs and technological challenges, often going unrecognized in mainstream innovation discourse. Scaling these innovations into widespread, impactful solutions requires robust support from partner institutions, supportive policies, and strategic collaboration. This article focuses on the role of such institutional partners in nurturing and promoting grassroots innovations in central and eastern regions of the country.

MoU with ORMAS

A Network for Innovation Diffusion

The social diffusion of grassroots innovations depends on a number of factors, including interpersonal communication through word of mouth, the network of partner institutions possessing complementary capabilities, community-based participatory approaches, demonstration sites and pilot initiatives showcasing an innovation's benefits, leveraging existing social networks, and the strategic use of available local communication channels. Government bodies, Universities, civil society organizations, and local groups such as self-help groups (SHGs) and cooperatives all contribute to amplifying the reach and replication of innovative solutions.

The National Innovation Foundation-India (NIF) adopts a collaborative approach, working closely with entities such as State Science and Technology Councils, Forest Departments, Agricultural Extension Centers, Universities, Krishi Vigyan Kendras, Panchayati Raj Institutions, Livelihood Promotion Organisations, Line Departments and voluntary organizations among others. These partnerships help transform individual innovations into scalable technologies for broader societal impact.

Mobilizing Resources and Market Access

Partner institutions are instrumental in bridging grassroots innovators with financial and market ecosystems. In 2024-25, NIF and its technology business incubator, NIFientreC, facilitated funding and support from various governmental and development bodies:

- Dantewada (Chhattisgarh) district administration backed rural livelihood projects like sanitary napkin pad making and leaf plate production.
- Odisha Rural Development and Marketing Society (ORMAS) enabled the setup of a banana

fiber extraction unit.

- Saranda Forest Division Office (Jharkhand) supported the deployment of sal leaf plate machines, agarbatti makers, and cow dung-based technologies.

These collaborations not only provided financial resources but also opened commercial pathways in

Addressing Context-Specific Needs Sal leaf technology in Saranda Forest Division

new regions for various grassroots innovations. Organizations such as ORMAS, Jindal Steel & Power Foundation, and the Jharkhand State Minor Forest Produce Co-operative helped commercialize innovations such as the sanitary napkin-making machine and multipurpose food processing units in their respective regions of operation.

Training and Capacity Building

Building local capacities to adopt and sustain innovations is a key component of diffusion. During 2022-23, under their watershed development initiative, the Forest Division Dumka,

Addressing Context-Specific Needs_ Banana Fibre Processing unit with ORMAS Angul

Jharkhand, in partnership with NIF and NIFientreC, introduced 15 grassroots innovations in six micro-watersheds (Jal Chhajans). This involved

- Installation of 23 technology units in 11 villages
- 18 training sessions for over 200 beneficiaries
- Sessions led by a team of innovators and trainers providing hands-on learning on technologies like the Combi Tillage Equipment and Multi-Food Processing Machine

A similar effort in Bolangir, Odisha saw eight grassroots innovations introduced to forest protection groups (Vana Samrakshan Samitis) under Entry-Point Activities (EPA), showcasing the effectiveness of grassroots technology integration when paired with community training.

Local Context, Tailored Innovation

Partner institutions help customize innovations to suit regional contexts. For instance, in Saranda Forest-rich in sal trees-NIF collaborated with the Forest Division and Jharkhand State Livelihood Promotion Society (JSLPS) Chaibasa to deploy 16 semi-automatic sal leaf plate machines, ensuring sustainable livelihoods aligned with local resources. Site selection was based on careful feasibility assessments, including electricity, market proximity, and infrastructure readiness.

In Angul, Odisha, where banana cultivation is prevalent, facilitated by NIF, ORMAS partnered with grassroots innovator P.M. Murugesan to conduct a 10-day banana fiber processing training program for 30 SHG women. The program introduced two key machines for fiber extraction and rope making, and enabling the production of value-added items like baskets, bags, and lamps. These examples highlight how partner organizations align innovations with local materials and skills to enhance impact and sustainability.

Feedback and Iterative Development

Partner institutions with technical expertise provide vital feedback to refine innovations. For example, a tamarind de-seeder deployed in Bastar, Chhattisgarh, revealed that the innovation's efficiency reduced when processing cold-stored tamarind due to persistent residual moisture after standard drying. This insight led to engineering modifications, enhancing its performance in real conditions.

Testing for feedback of Tamarind_ Deseeder

Likewise, the mass adoption of leaf plate machines prompted iterative design improvements such as better pressing mechanisms and enhanced portability. These field-driven refinements underscore the importance of feedback loops in the innovation evolution.

Models of Successful Partnerships

Effective partnerships for grassroots innovation employ diverse frameworks such as

Training and capacity building on various GRIs under watreshed mission

government initiatives (Dantewada, Saranda Forest Division), livelihood mission collaborations (ORMAS, JSLPS), technology-integrated watershed projects (Sariyahat Dumka), and corporate social responsibility (financial, technical, market support). These varied collaborations demonstrate a multi-faceted approach to fostering and scaling grassroots innovation.

Challenges and Way Forward

Despite the existence of successful partnership models in fostering grassroots innovation diffusion, several challenges hinder their widespread and lasting impact. Viability remains a key concern, often leading to over-reliance on the continued operational support of the initiating institutions. Coordination gaps between partner institutions may also impede progress, resulting in inefficient resource allocation, and a lack of a unified strategic approach. Inadequate documentation of the processes, insights gained, and lessons learned represents a significant missed opportunity, hindering the ability to replicate successes, adapt strategies effectively, and build a robust knowledge base for future endeavors.

Based on the experiences thus far, the key recommendations would include developing a detailed long-term sustainability plan beyond initial funding and hand-holding, documenting and establishing knowledge-sharing protocols, creating performance metrics that take into account regional contexts and may be developing a multi-stakeholder platform would help.

Conclusion

Partner institutions bridge grassroots innovators with beneficiaries and markets through funding, validation, training, and commercialization, creating ecosystems where diffusion and dissemination of innovations occur at scale. As demonstrated by various projects, effective partnerships transform isolated innovations into tools for rural development. The future of grassroots innovation diffusion in India depends on nurturing these institutional partnerships while addressing challenges of scale, sustainability, and integration. ■

Mr. Rahul Prakash is associated with the Dissemination and Social Diffusion (DSD) Department at the National Innovation Foundation – India. He holds an MBA in Information Technology Management.
Email: rahulp@nifindia.org

Dr. Nitin Maurya is a Scientist – E and Head of the INSPIRE-MANAK program and the Dissemination and Social Diffusion (DSD) Department at the National Innovation Foundation – India.
Email: nitin@nifindia.org

Powering Innovation with Policy Alignment

Tushar Garg, Shubhamika Jha

Across the globe, institutions are being reimagined to meet the evolving demands of the 21st century. The World Bank Group, long regarded as a development financial institution, is now transitioning into a "Knowledge Bank." Similarly, central banks are expanding their roles beyond monetary policy, embracing digital transformation and promoting financial inclusion.

In line with this global trend, the National Innovation Foundation (NIF) - India, an autonomous Institute under the Department of Science and Technology (DST), Government of India, is strengthening its focus on public policy. As an institution dedicated to grassroots innovation and inclusive development, NIF recognizes the need to align its efforts with public needs, not just through research and innovation, but also by influencing and contributing to the country's policy ecosystem.

By deepening its engagement with public policy, NIF aims to better understand citizen expectations and socio-economic challenges, and in turn, shape innovation policies that reflect real-world needs.

This policy-oriented approach will also complement NIF's other key functions-such as scouting innovations, documentation, R&D, IPR protection, business development, dissemination, and social diffusion-by grounding them in policy relevance. Every initiative undertaken by NIF has either a direct or indirect bearing on public policy, reinforcing the idea that impactful innovation must ultimately serve the public good.

Public at the Core

In a democratic country like India, the public is the most vital stakeholder. Public sentiment, discourse, and participation shape national agendas and ensure accountability. Institutions, particularly those serving the public sector, must align their actions with societal expectations. Mechanisms like Public Interest Litigation (PIL), civic engagement, and electoral participation ensure that public voice remains central to governance and policy-making.

As a public institution, NIF has consistently placed citizens-especially those from underserved regions-at the heart of its mission.

'NIF identifies, supports, and transforms these grassroots innovations into practical, user-friendly products, helps secure intellectual property rights, and enables their dissemination through both social and commercial channels'

Since its announcement in the Union Budget 1999-2000, NIF has empowered grassroots innovators and knowledge holders, many of whom reside in remote or economically challenged areas. These individuals are often rich in ideas but limited in access to mainstream innovation platforms.

NIF identifies, supports, and transforms these grassroots innovations into practical, user-friendly products, helps secure intellectual property rights, and enables their dissemination through both social and commercial channels. This end-to-end process helps convert unique local solutions into scalable, impactful innovations.

'In a democratic country like India, the public is the most vital stakeholder. Public sentiment, discourse, and participation shape national agendas and ensure accountability. Institutions, particularly those serving the public sector, must align their actions with societal expectations. Mechanisms like Public Interest Litigation (PIL), civic engagement, and electoral participation ensure that public voice remains central to governance and policy-making'

Policy Interventions Rooted in Practice

The impact of NIF's initiatives extends well beyond innovation-it has shaped and also to relevant public policy itself. A notable example is the Micro Venture Innovation Fund (MVIF), announced in the Union Budget 2002–03. Designed to provide risk capital for innovation-led enterprises, MVIF pioneered a model of "ease of doing Business". Its single-signature process and benefit-sharing model allowed innovators to pursue their ventures without the burden of repayment criteria or traditional loan instruments-paving the way for today's Fund of Funds for Startups (FFS) and similar schemes supporting entrepreneurship.

NIF also played a pivotal role in bringing top constitutional offices into the innovation fold. The hosting of the Festival of Innovation (FOIN) at the Rashtrapati Bhawan, later expanded into Festival of Innovation and Entrepreneurship (FINE), was a landmark moment that celebrated grassroots creativity at the highest level. Today's platforms like Startup Mahakumbh echo the same spirit-providing innovators with a stage to showcase their solutions and gain national recognition.

Another example of policy influence is NIF's collaboration with the Bureau of Indian Standards (BIS) to develop IS 17693:2022, an Indian standard for non-electric clay cooling cabinets-originating from the popular grassroots innovation *Mitticool*.

Linking Actions to Policy and Vice Versa

These examples highlight a crucial lesson: activities and policies must inform and reinforce each other. When a grassroots initiative proves its value, it should be mainstreamed through public policy to ensure wider adoption. Conversely, policy frameworks should guide innovation efforts, ensuring relevance, scalability, and systemic impact.

This synergy between practice and policy will allow NIF to stay rooted in its mission-making innovation accessible to the people and driven by the people. The ultimate metric of success for NIF lies in its ability to source more innovations from the public and make more innovations available to the public.

In conclusion, NIF's evolving focus on public policy reflects a mature, forward-looking strategy. It underscores the institution's belief that sustainable innovation is not just about ideas-it's about making those ideas work for society at large. As India continues to build an inclusive and innovation-driven economy, institutions like NIF will remain central to transforming citizen creativity into national progress. ■

Shri Tushar Garg is a Scientist – D at the National Innovation Foundation – India. He works in the field of Impact Assessment and Public Policy. He has prior experience in the private sector, including at Goldman Sachs Asset Management (GSAM).
Email: tusharg@nifindia.org

Ms. Shubhamika Jha is a Project Associate I at the National Innovation Foundation – India. She works in the field of Impact Assessment and Public Policy and holds a Master's degree in Mathematics.
Email: shubhamikajha@nifindia.org

Shodh Camp: Bridging Traditional Knowledge with Technological Innovation in Nandurbar, Maharashtra

Kanti Patel, Kartik Patel

The Shodh Camp, an initiative by the National Innovation Foundation-India (NIF), is designed to uncover and promote grassroots innovations and traditional knowledge within local communities. The initiative also focuses on disseminating useful technologies and identifying unmet societal needs for future interventions.

From February 1 to 15, 2025, NIF organized a Shodh Camp at Molgi Parisar in Nandurbar, Maharashtra, in collaboration with YOJAK - Centre for Research and Strategic Planning for Sustainable Development and the local organization REEDS (Research in Environment, Education and Development Society).

Scope and Engagement

Over the span of 15 days, the camp reached more than 20 villages across the district, focusing on:

- Scouting and documenting traditional knowledge.
- Demonstrating NIF-incubated grassroots technologies.
- Identifying areas requiring technological intervention to uplift tribal livelihoods.

Through direct interaction with farmers, artisans, and traditional knowledge holders, the camp brought attention to rural innovations blending indigenous wisdom with modern solutions.

Documentation of Indigenous Knowledge and Innovations

A key goal was to preserve and promote age-old practices. The research team documented 238 traditional practices related to human and veterinary health, 12 technological innovations, and 13 farmer-conserved plant varieties.

These records not only safeguard valuable indigenous knowledge but also create opportunities for refinement, scaling, and wider application in rural development. Many of these practices, rooted in generations of experience, offer eco-friendly, practical solutions that remain relevant even today.

Showcasing of Grassroots Technologies

The camp also showcased several NIF-incubated innovations, which gained enthusiastic responses from the local community. Demonstrated technologies included Sugarcane Bud Chipper - Simplifies planting operations, Bamboo Splitting Machine - Supports artisans in processing bamboo efficiently, Multi-purpose Food Processing Machine, Pole Climber - Helps safely ascend electric poles, and Onion and Garlic Leaf/Root Cutter.

Other impactful tools introduced included Onion Seed Sowing Machine, Fruit Nipper, Chironji Decorticator, JP Stove, Cabbage Uprooter, and Cycle Weeder. Each tool addressed specific challenges faced in farming or daily life, offering labor-saving, time-efficient alternatives to traditional methods.

Identifying Technological Gaps and Community Needs

Beyond existing technologies, the camp identified key unmet needs such as, Green Mango Processing Device - To support the region's Aamchur (dry mango powder) producers, Improved Bamboo Processing Equipment and Training Programs - To boost bamboo-

Preserving tradition – An elder passionately playing the indigenous 'Sunka' musical instrument in a tribal home setting.

Engaging with the community – to shares valuable information with local villagers to promote grassroots innovation

based livelihoods, Hill-compatible agricultural tools like power tillers, weeders, and hay rakes - To aid marginal and small farmers.

Other critical areas for intervention included, Mahua Flower Collection & Processing - Mechanized tools for this locally valuable resource, Millet Processing Technologies -To improve yield and profitability, Tamarind Deseeder - To support efficient tamarind value-addition, Fruit and Medicinal Plant Processing - For crops like mango, jamun, custard apple, and palmarosa. These insights emerged from deep community engagement, where farmers and artisans discussed challenges in their day-to-day work.

Demonstrating innovative agricultural tools - Empowering rural women through hands-on training and knowledge sharing.

Promoting High-Value Crops and Rural Innovation

The camp also promoted the cultivation of high-value fruits developed by innovative farmers, such as Sadabahar Mango, HRMN-99 Apple, Custard Apple, G Vilas Pasand Guava. These varieties promise to increase farmer' incomes and create new opportunities in food processing and agribusiness.

Other crucial recommendations included Sanitary Napkin Making Machines - To ensure affordable menstrual hygiene solutions, Cow Dung Upla Making Devices- For efficient fuel production, Check Dams - To combat water scarcity and improve year-round irrigation.

Impact and Community Response

The Shodh Camp had a profound impact on the communities involved. Local farmers, artisans, and leaders showed strong interest in the innovations and expressed willingness to adopt new technologies. These tools were recognized for their potential to Improve agricultural productivity, Reduce physical labor, and Enhance sustainability. The camp also played a vital role in reviving traditional knowledge systems and encouraging local innovation. It laid the foundation for future

collaboration among grassroots innovators, research institutions, and government bodies.

The Way Forward

A significant takeaway was the need for sustained follow-up. While the camp successfully introduced technologies and documented innovations, long-term benefits depend on:

- Ongoing training and capacity-building
- Financial and institutional support
- Establishment of rural innovation centers for research and customization of solutions

Spreading awareness about innovations among school children through interactive village outreach.

Conclusion

The success of this Shodh Camp reflects the enormous potential of grassroots innovation in transforming rural economies. By integrating traditional wisdom with modern science, the initiative empowers tribal communities with tools for self-reliance and sustainable growth.

Such models should be replicated across India to ensure more rural communities benefit from both scientific advancements and the preservation of indigenous knowledge-fostering a more inclusive and resilient future.

Dr. Kanti Patel is a Principal Associate at the National Innovation Foundation – India. He holds a PhD in Botany and is associated with the Scouting, Documentation, and Database Management (SDDM) Department.
Email: kanti@nifindia.org

Er. Kartik Patel is a Senior Project Associate at the National Innovation Foundation – India. He holds a B.Tech in Agricultural Engineering and is associated with the VARD & IPM – Engineering Department.
Email: kartikp@nifindia.org

Shining a Light on Grassroots Digital Innovators

Neha Tavker

In a progressively digitalized world, innovation often appears synonymous with the most of the tech giants and startups. However, a revolution brews at the level of grassroots, where individuals and communities create digital solutions tailored for the local needs. These initiatives, termed as Grassroots Digital Innovations (GDIs), gained visibility during the COVID-19 pandemic, as citizens turned into developers of open-source apps, digital platforms, and community services. Yet, the innovators behind these efforts remain largely invisible in mainstream innovation discourse. This article explores who these innovators are, why they remain unseen, and how methodological rigor can help in identifying, documenting, and supporting them.

Understanding unsung digital Innovators

Unsung digital innovators are individuals or collectives-often from marginalized or underrepresented communities-who develop digital tools to solve everyday problems. They include rural teachers developing learning apps, cooperative groups building e-commerce platforms, or local youth coding telehealth tools. These actors lack formal recognition, institutional support, or venture capital backing, yet their contributions are highly impactful.

Combination of factors are the reason of unrecognition; many lack formal affiliations with technology or academic institutions, which hinders access to resources and networks. Others operate with limited digital infrastructure or media exposure. Innovation systems favor scalable, financially viable solutions, thereby sidelining local and need-based initiatives. Moreover, language, cultural, and accessibility barriers further exclude these creators from data registries, patent filings, and public recognition.

Methodologies to Identify

One of the reseach method - digital ethnography, offers a promising approach by allowing researchers to explore online behaviors and community dynamics through immersive observation, interviews, and trace requisite data. Local Facebook pages, WhatsApp groups, and community forums serve as an active hubs where the grassroots digital innovation often unfolds. Community mapping complements this by charting the spatial and social structures in which innovations emerge, helping to identify both human and technological assets.

Participatory observation involves engaging directly with communities, participating in their digital practices, and co-creating the documentation processes. Using methods like digital diaries, video ethnographies, and innovation labs, researchers can build trust while uncovering deeper insights. This approach emphasizes mutual learning and the respectful integration of local knowledge systems.

Digital Tools and Techniques

Digital crowdsourcing platforms are vital in surfacing community-led innovation. Tools like Ushahidi and FixMyStreet allow communities to report local issues and propose solutions. In India, platforms supported by civic tech groups like the National Innovation Foundation-India have helped aggregate grassroots knowledge and spread localized solutions.

Open-source development environments such as GitHub or Glitch offer a space where low-cost, collaborative innovation prospers at slow pace. These platforms democratize software development by allowing individuals without formal training to contribute, iterate, and customize tools based on community needs. In rural and remote areas, such ecosystems imbibe a peer-to-peer learning and cultivate a culture of digital tinkering.

Mobile technologies further alter the access to innovation. In bandwidth-constrained regions, mobile-first strategies have proven to be a game changer. Agricultural apps that provide weather alerts, market prices, or pest management tips-often in local languages-have empowered farmers with timely, actionable information. Similarly, health workers have also used mobile apps for data collection, patient tracking, and teleconsultation, and in result bridging the service gap in underserved communities.

More recently, AI-integrated tools are beginning to play a role in expanding grassroots innovation.

Machine learning algorithms can help identify innovation trends from user-generated content, predict resource needs in local areas, or automate translation to ensure linguistic inclusivity. As AI becomes more accessible, it opens new possibilities for rural and informal innovators to interact with complex systems in simplified, meaningful ways. These technologies are not just enablers-they are equalizers. When deployed thoughtfully, they amplify community agency and build a bottom-up digital infrastructure that aligns with the local aspirations and its realities.

Ethical Considerations

Ethical research involving grassroots innovators demands more than academic consistency. It requires recognition, attribution, and fair use of community-generated knowledge. Many digital creators at the grassroots level are unaware of intellectual property protocols, making them vulnerable to misuse. Ethical practice includes securing informed consent, facilitating licensing through accessible frameworks like Creative Commons, and establishing fair revenue-sharing models.

Comprehensive representation must be vital to any methodological approach. Underrepresented voiceses - pecially women, minorities, and the digitally unconnected - must not be left out. Cultural sensitivity, local language engagement, and working with trusted intermediaries are much essential for fair and inclusive research.

Case study insights

Several global examples illustrate the diversity and impact of grassroots digital innovations. During the COVID-19 pandemic, cooperatives in Spain built open-source platforms for local delivery services, while women-led groups in rural India created WhatsApp-based educational modules during school closures. In Kenya and Brazil, few communities responded to the health crisis by developing low-cost diagnostic tools and sanitization technology. Greek communities launched mental health apps to support citizens post-lockdown. These examples highlights the adaptability and relevance of GDIs across different sectors and geographies.

In India, the National Innovation Foundation (NIF) has been instrumental in scouting, supporting, and scaling grassroots innovations, many of which have integrated digital components over time. One such example stems from INSPIRE MANAK (an NIF-India initiative) which refers to development of mobile-based applications to support farmers and traditional healers in documentation and diagnosis. From artificial intelligence for enhanced safety to mobile applications for sustainability and security, database pool of student entries at the NIF-India offers a diverse range of innovative solutions to real-world problems

Challenges and Recommendations

Current research methodologies exhibit significant limitations. A recurring issue is the overemphasis on successful innovations, which skews perception and neglects the lessons found in failed or incomplete initiatives. Short-term studies often miss crucial insights about the long-term viability of innovations. Also, language and digital literacy barriers may affect the accuracy and inclusivity of data collection. To overcome these issues, researchers should embrace methodological diversity, integrating qualitative and quantitative tools. Longitudinal studies are vital to understand the sustained impact of the innovations over time. Establishing community archives or "digital commons" can preserve knowledge and enhance continued learning. Local innovation nodes, embedded within communities, can serve as collaborative spaces for ideation, co-creation, and dissemination.

Making invisible innovators visible demands a shift from extractive research practices to co-creative and broad methodologies. Grassroots digital creativity reflects resilience, cultural insight, and collective problem-solving. With refined tools, ethical frameworks, and community-based approaches, the research and innovation ecosystem can still better support these efforts. Investing and recognizing grassroots digital creativity is not only an academic priority-it is a societal imperative for building a more inclusive nation with sustainable digital future. ■

For further reading:

- *Gerli, P., Whalley, J., & Cave, M. (2024). Friends or enemies? Technological Forecasting and Social Change, 198, 122005.*
- *Thapa, A., Ghimire, A., Bhandari, P., Saud, S., Ojha, S., & Aryal, S. (2024). Seeds of innovation: Empowering agriculture through grassroots breeding for sustainability: Review. iTECHMAG, 6, 41–47.*
- *Hossain, M. (2018). Grassroots innovation: A systematic review of two decades of research. Technology in Society, 55, 8–23.*
- *Kumar, V., Chand, V. S., Zhang, L., Hoppers, C. A. O., Zhang, W., Esders, M., & Gupta, A. K. (2013). Grassroots Innovations for Inclusive Development: Need for a Paradigmatic Shift. Vikalpa, 38(3), 103-122.*

Dr. Neha Tavker is a Research Associate III at the National Innovation Foundation – India, working in the Publications and Communication Division. She holds a PhD in Nano Sciences.
Email: nehat@nifindia.org

Mohd. Shafi Ahanger - from a blacksmith boy to an innovator

Shabbir Ahmad Kutay

Creativity is the seed, and innovation is the water that nurtures it. Only when they work in tandem can true value emerge. Innovation acts as the engine driving us toward the future-especially in today's world, where economic and societal challenges are constantly evolving. Creativity fuels imagination, but innovation brings those ideas to life, adding real-world value.

Being innovative means embracing better ways of doing things. It's about refining the ordinary into the extraordinary, and turning even the simplest concepts into meaningful, impactful solutions. This transformation is not limited to any one space-it happens across R&D institutions, schools, industries, and at the grassroots level.

'Shafi's journey is a powerful reminder that with creativity, innovation, and determination, one can overcome all odds and contribute meaningfully to society and the nation'

India is land rich with creative minds. Many individuals, through sheer perseverance and talent, have made their families proud and earned national recognition. One such story is that of Mohd. Shafi Ahanger, who rose from humble beginnings as the son of a rural blacksmith to become a national-level innovator. His enterprise, Shafi Innovative Solutions (LLP), is now known for developing efficient Walnut Peeling Machines.

Shafi receiving State Award during '11th National Grassroots Innovations and Outstanding Traditional Knowledge Award Functions' in 2023

Shafi's journey is a powerful reminder that with creativity, innovation, and determination, one can overcome all odds and contribute meaningfully to society and the nation.

Early Life and Skills of Shafi:

Born in 1984, Mohd. Shafi Ahanger is a creatively gifted and physically challenged individual from the rural village of Kapran in Anantnag district, Jammu & Kashmir. Raised in a humble household with two sons and six daughters, Shafi grew up facing significant financial challenges. His father, a blacksmith, earned a modest income of ₹8,000 to ₹ 10,000 per month, which made it difficult for the family to make ends meet.

Due to these constraints, Shafi had to discontinue his formal education after completing the 12th grade. Determined to support his family, he turned to his passion and curiosity for technology. With no formal training, he taught himself how to repair mobile phones and eventually opened a small mobile phone repair shop in his village. Over the years, Shafi became adept at fixing, refurbishing, and maintaining all kinds of mobile devices, purely through dedication and hands-on experience.

Married in 2016 and now a father of two sons, Shafi's journey into innovation began early in life. His innate curiosity led him to develop several useful devices such as

an inverter power supply, a DC-powered lantern, and a generator built using a 6-volt motor. While working on mobile repairs, he encountered recurring issues with repairing PCBs (Printed Circuit Boards). Undeterred, he successfully designed a user-friendly device that simplified PCB repair.

Among his most notable contributions is an improved Walnut Peeling Machine, which has brought him recognition for addressing local agricultural needs through technological innovation. Shafi is a firm believer in continuous learning and improvement. "I never did any course to learn my work. I learned everything with passion, interest, and hard work," he shares.

Shafi's story is a remarkable example of how perseverance, self-learning, and a deep-rooted desire to innovate can transform lives and inspire communities.

Recognition and Financial Support by NIF:

Mohd. Shafi Ahanger was first identified in 2012 by the Jammu & Kashmir Cell team of the National Innovation Foundation (NIF) - India. His dedication and inventive spirit gained well-deserved recognition when NIF extended vital support for the development of his innovations.

Fabrication of Walnut Peeling Machine at Fab. Lab. NIF

NIF provided comprehensive handholding support for value addition and prototype development of two key innovations: the PCB Repairing Device for Mobile Phones and the Walnut Peeling Machine.

To further protect and promote his work, NIF also filed patent applications for both innovations in Shafi's name. Recognizing his ongoing contributions and potential to inspire others.

'NIF established a community workshop at Shafi's location, operating under his mentorship, to support and motivate other grassroots innovators'

NIF established a community workshop at Shafi's location, operating under his mentorship, to support and motivate other grassroots innovators in the region.

Additionally, Shafi's innovation journey was further strengthened through support from NIFientreC, the business incubator of NIF. He was selected for the Grassroots Accelerator Programme, which helped facilitate the commercialization of the Walnut Peeling Machine. Through these initiatives, Shafi's work not only received national acknowledgment but also became a catalyst for nurturing innovation at the grassroots level.

Shafi has been honored twice with state-level awards by the National Innovation Foundation - India at its prestigious 'National Grassroots Innovations and Outstanding Traditional Knowledge

Improvised Walnut Peeling Machine

Shafi presenting the Walnut Peeing Machine during FOIN-2023 at Rashtrapati Bhawan – New Delhi

'Walnut cultivation plays a vital role in the horticulture economy of Jammu and Kashmir, which accounts for over 90% of India's total walnut production'

Award Functions'-first in 2017 for his PCB Repairing Device for Mobile Phones, and again in 2023 for his innovation of the Walnut Peeling Machine.

Innovation and the Walnut peeling Machine of Shafi:

Recognizing the inefficiencies and hardships associated with traditional walnut peeling methods in Jammu & Kashmir, Shafi developed an innovative and commercially viable solution - the Walnut Peeling Machine. This machine has not only transformed the way walnuts are processed but also laid the foundation for his entrepreneurial journey through the establishment of Shafi Innovative Solutions LLP. The enterprise envisions becoming a leading manufacturer in the walnut processing sector, aiming to significantly reduce the time, labor, and drudgery involved in peeling walnuts using conventional methods.

Designed as a cost-effective and locally viable solution, Shafi's Walnut Peeling Machine simplifies the post-harvest process, making it highly relevant to thousands of households in the Kashmir Valley engaged in the walnut trade. It enhances productivity by enabling a user to process nearly ten times more walnuts in a single day compared to manual labor, all while maintaining safety and efficiency.

Walnut cultivation plays a vital role in the horticulture economy of Jammu and Kashmir, which accounts for over 90% of India's total walnut production. In 2020-21 alone, India exported approximately 1,069.70 metric tonnes of walnuts valued at ₹29.75 crore (around USD 3.97 million). The key walnut-producing states include Jammu & Kashmir, Uttarakhand, Himachal Pradesh, and Arunachal Pradesh, with Jammu & Kashmir being the dominant contributor with around 98% share in national output.

Shafi's machine holds immense market potential and paves the way for entrepreneurship in post-harvest processing. By reducing operational costs and labor intensity, the machine offers scalable opportunities for local employment and enterprise.

Today, Shafi aspires to become a successful entrepreneur by manufacturing and marketing his machines under a unified brand. "Original ideas and hard work can empower people financially, even if they lack formal education," says Shafi, whose journey stands as a powerful testament to grassroots innovation and perseverance. ■

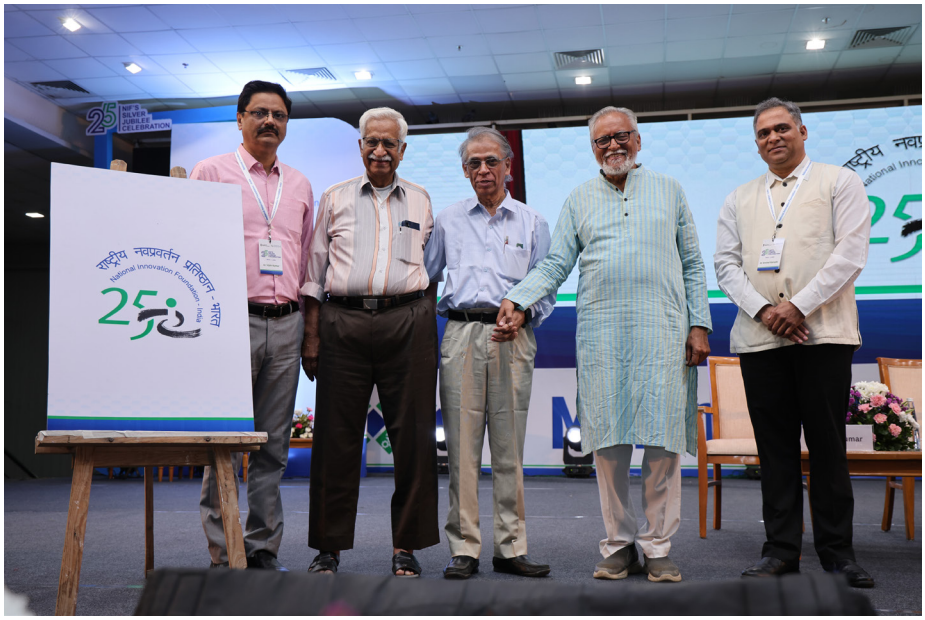
Er. Shabbir Ahmad Kutay is a Senior Project Associate at the National Innovation Foundation – India. He holds a Master's degree in Agricultural Process and Food Engineering and a Bachelor's degree in Mechanical Engineering. He is associated with the VARD & IPM – Engineering Department.
Email: shabirk@nifindia.org

Silver Jubilee Celebration - NIF

The Silver Jubilee celebrations of the National Innovation Foundation - India (NIF), an autonomous institute of the Department of Science and Technology, Government of India, were held at Vigyan Bhawan, Science City, Ahmedabad from 1 - 2 March 2025. This event marked 25 years of NIF's contributions to nurturing innovations, value addition, IPR, and subsequent business development in the innovation ecosystem.

The inaugural session was graced by the presence of the Chief Guest, Dr. V S Ramamurthy, Former Secretary of DST, Government of India; the guest of Honour, Dr. T Ramasami, Former Secretary of DST, Government of India; the Special Guest, Prof. Anil K Gupta, Visiting Professor of IIMA, IITB, AcSIR, and Founder of SRISTI, GIAN, and NIF; Dr. Arvind C. Ranade, Director of NIF; and Dr. Vipin Kumar, Chief Scientist and Former Director of NIF.

Dr. Arvind C. Ranade, Director NIF in his welcome address summarized 25 years journey of NIF. He emphasized a roadmap for strengthening every functional aspect, be it scouting, value addition, research and development, Intellectual Property Rights Protection, Business Development, or Dissemination and Social Diffusion. Dr. Ramamurthy mentioned that wisdom and determination are supreme for any innovation. The Department of Science and Technology, Government of India, is reaching out to innovators through the National Innovation Foundation - India. Dr. Ramasami stated that we are celebrating twenty-five years journey of democratizing innovation. Prof Gupta took the opportunity to express his gratitude towards everyone who contributed to the journey of NIF especially those who contributed voluntarily without expecting any reward. Dr. Vipin Kumar, Chief Scientist and former Director of NIF delivered a vote of thanks expressing his gratitude towards everyone who had played some role in the journey of NIF.



Unveiling the Silver Jubilee logo of NIF
(From Left: Dr. Vipin Kumar, Dr. V S Ramamurthy, Dr. T Ramasami, Prof. Anil K Gupta, Dr. Arvind C Ranade)

The inaugural session encompassed the unveiling ceremony of a Silver Jubilee logo of NIF, the Release of the Silver Jubilee film, Launch of NIF's Bimonthly newsletter "Innovation Frontline". All the dignitaries and invited guests visited the exhibition of innovators organized by NIF. The exhibition was open to the general public for both days.

Inauguration of the exhibition

Release of the Coffee Table book: 25 Years of Innovation – Celebrating Grassroots Creativity (From left: Dr. Arvind C Ranade, Prof. Anil Sahasrabuddhe, Shri Jagadish Vishwakarma, Dr. Gulshan Rai, Shri Krishna Kumar Yadav)

Three technical sessions were conducted on day one. The first session "From Grassroots to Product - My Association and Reflection" was chaired by Prof. Shailendra Saraf, Director, NIPER. Prof. Cecilia Joseph, Prof. K M L Pathak, Prof. S N Naik and Prof. A K Das were the experts. This session provided a platform for various academics and professionals to share their experiences and the collaboration opportunities between NIF and other institutions.

Release of the newsletter – Innovation Frontline

The session emphasized the synergistic relationship between traditional knowledge and modern science, depicting the successful commercialization of grassroots innovations.

The second session "Journey of Outstanding Traditional Knowledge - My Association and Reflection" was chaired by Prof. Chaitanya Joshi, Director, GBRC. Prof. Prakash Itankar, Prof. Maitreyi Kollegal, Brig. P Ganesham were the experts. The session focused on the preservation and commercialization of traditional knowledge.

Prof. Sunil Pareek of NIFTEM chaired the third session "Integrating Efforts for a Broader Impact". Prof. Pareek and Shri P Vivekanandan discussed how to integrate various sectors to amplify the impact of innovations.

As part of the Silver Jubilee celebrations, a special session titled 'Transforming Ideas into Solutions' was organized. The session highlighted the remarkable journeys of grassroots innovators who, in the absence of ready-made solutions, took initiative to develop their own. A major highlight was the participation of six Padma award-winning innovators, who shared their transformative stories of resilience and creativity.

Some of the innovators participated in the cultural program that was organized after the third technical session.

The second day focused on future strategies under the theme "Viksit Bharat @ 2047 - The Future Roadmap for NIF". The sessions highlighted the scope, collaborations, and scale-up strategies necessary to propel NIF and India towards a leading position in global innovation by 2047. Dr. Arvind C Ranade was the moderator and the panellists were Dr. T Ramasami, Dr. V S Ramamurthy, Prof. Anil Sahasrabudhe, Dr. Gulshan Rai, Prof. B N Jagtap, and Prof. Narinder Mehra.

Prof. Anil Sahasrabudhe highlighted the rapid advancements in India's infrastructure and stressed the importance of reaching the last person in line to achieve true development.

Release of commemorative postal stamp and envelope

The panel discussed ambitious targets such as improving India's position in the Global Innovation Index, increasing the number of startups to 1.4 million by 2047, and enhancing India's economic status to among the top three globally. Prof. B N Jagtap emphasized the need to integrate grassroots innovations into the educational curriculum to a problem-solving mindset among students.

The second panel discussion "Collaborative Frameworks and Innovator Support" was moderated by Dr. Vipin Kumar. Panellists were Prof. Vasant Shetty, Prof. Indra Mani Mishra, Prof. Amit Dinda, Prof. Tariq Banday, and Shri Sandeep Sharma. The critical role of agriculture and veterinary sciences

in India's innovation landscape was discussed by panellists. It was also discussed that NIF could play a pivotal role in identifying and promoting innovations in cutting-edge technologies. The importance of a decentralized innovation model was discussed, where local innovations can be scaled up and integrated into national and international markets.

Dr. Jitendra Singh emphasized the government's commitment to integrating India's traditional knowledge with modern technology, aligning with Prime Minister Narendra Modi's vision of *'Virasat Bhi aur Vikas Bhi'*

The valedictory session encompassed the release of a postal stamp and special envelope, a Coffee Table Book "25 Years of Innovation - Celebrating Grassroots Creativity", and the Hindi version of the bimonthly newsletter of NIF. On this historic occasion, the Chief Guest was Dr. Jitendra Singh, Hon'ble Minister of Science & Technology (Independent Charge), Govt of India and the Guest of Honor, was Shri Jagadish Vishwakarma, Hon'ble Minister of MSME (State), Govt of Gujarat. Other dignitaries present on the occasion were Prof.

Cultural programs by the innovators

Anil Sahasrabuddhe, Chairperson, NIF, NETF and NBA; Dr. Gulshan Rai, Chairman, NIFientreC; Shri Krishna Kumar Yadav, Chief Post Master General, Ahmedabad and Dr. Arvind C. Ranade, Director, NIF.

Hon'ble Minister of Science and Technology, Dr. Jitendra Singh addressed the gathering virtually

Dr. Jitendra Singh, Hon'ble Minister of Science & Technology, Govt of India was the Chief Guest of the valedictory session. Dr. Jitendra Singh addressed the gathering virtually. He emphasized the government's commitment to integrating India's traditional knowledge with modern technology, aligning with Prime Minister Narendra Modi's vision of *'Virasat Bhi aur Vikas Bhi'* (Heritage and Development). Dr. Singh highlighted that, for the first time, grassroots innovators are receiving national recognition and support. He praised NIF's role in aligning India's technological and innovation policies and emphasized the need for greater access to innovative technologies for the common people. He expressed optimism that in coming years people will witness a large number of grassroots innovation-based start-ups with support from NIF.

Shri Jagadish Vishwakarma visited various stalls set up by innovators and expressed his happiness. Prof. Anil Sahasrabuddhe, in his address, explained the role of NIF for the innovation eco-system of the country. He touched upon improving Technology Readiness Levels, attracting angel investor funding opportunities and building business models. Dr. Gulshan Rai, Chairman, NIFientreC emphasised the importance of rural economy for overall economic wellbeing of the country and important role that NIF plays in strengthening it by supporting grassroots innovators. Shri Hariman Sharma, Shri Moa Subong, Shri Sundaram Varma and Shri CV Raju were four of the several Padma Shri awardees who fondly shared their experience.

The Hon'ble Minister of MSME, Gujarat, Shri Jagdish Vishwakarma, addressing the gathering.

Dr. Arvind C. Ranade delivered the vote of thanks and conveyed his heartfelt gratitude to everyone who spent their precious time building up the institution over the last 25 years. ■

राष्ट्रीय नवप्रवर्तन प्रतिष्ठान - भारत
National Innovation Foundation - India
25

National Innovation Foundation - India
Grambharti, Amrapur, Gandhinagar-Mahudi Road, Gandhinagar, Gujarat- 382650
Tel: +91-02764-261131, 32, 34, 35, 36, 38, 39 e-mail info.nif@nifindia.org website https://www nif.org.in