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"SEED-5C, 2025"
25 November 2025

Proceedings and Strategic Outcomes of the

National-level dialogue on

Beeja Parampara – Conserving Our Past, Cultivating Our Future (SEED-5C)

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Proceedings and Strategic Outcomes of the

National-level dialogue on

Beeja Parampara – Conserving Our Past, Cultivating Our Future (SEED-5C)

Date: 25 November 2025 | Venue: Department of Agriculture, Government of Karnataka

Organised by: SuATI Project, GIZ India, in collaboration with: Department of Agriculture, Government of Karnataka

Context

Dear Children of the Land,

Every generation carries a legacy.

These landraces have survived because someone cared, someone protected, someone passed them on.

Now, they call out to **you.**

Your choices, your voice, your curiosity can keep this heritage alive and help it flourish across wider lands.

When you learn, use, and promote them, you carry our legacy forward.

The future of this heritage now rests in your hands.

With hope and pride,

— Your Farmer

Dear Consumer,

A seed survives only when someone chooses it.
And in that choice, our entire farming future is shaped.

Traditional seeds are nourishing, resilient, and gentle on the earth but they continue to live only when you bring them to your kitchen. Your demand gives them purpose. Your plate becomes their protection.

When you choose them, we proudly grow them.
When you value them, they remain alive for generations.

Thank you for helping us keep these precious seeds in the soil, and not just in our memories.

— Your Farmer

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"SEED-5C, 2025"
25 November 2025

Executive Summary

SEED-5C framework—Conservation, Cultivation, Consumption, Commerce, and Collaboration

The National-level Dialogue on Beeja Parampara – Conserving Our Past, Cultivating Our Future (SEED-5C, 2025), held on 25 and 26 November 2025 in Bengaluru, convened custodian farmers, scientists, policymakers, civil society organisations, social enterprises, and development partners to re-envision India's seed systems in the context of climate change, nutrition insecurity, and agrarian distress. Organised by the Support of Agroecological Transformation Processes in India (SuATI) project of GIZ India, in collaboration with the Department of Agriculture, Government of Karnataka. The dialogue was structured around the SEED-5C framework—Conservation, Cultivation, Consumption, Commerce, and Collaboration—placing indigenous seeds and landraces at the core of climate-resilient, nutrition-sensitive, and farmer-centric agriculture.

The proceedings highlight resilient seed systems require integrated approaches that link biodiversity conservation with agroecological cultivation, indigenous food cultures, inclusive markets, and coordinated governance. Across five thematic sessions and a policy panel, speakers and participants reaffirmed that landraces are living genetic resources essential

for adaptive agriculture, ecosystem resilience, nutritional security, and future crop improvement.

KARNATAKA'S LANDRACE MISSION

Karnataka's ₹160-crore Landrace Mission; community seed banks conserving over 3,000 traditional varieties

Key outcomes showcased during the dialogue included Karnataka's ₹160 crore Landrace Mission; community seed banks conserving over 3,000 traditional varieties; participatory breeding initiatives enhancing climate resilience; and innovative value-chain models delivering 40–50% income premiums to farmers. Community seed banks emerged as dynamic platforms for conservation and innovation, participatory breeding successfully integrated farmer knowledge with science, agroecological practices strengthened soil health, and indigenous food systems contributed to improved dietary diversity.

Despite these advances, the proceedings identified persistent challenges, including inadequate seed infrastructure, limited access to quality landrace seed at scale, fragmented research and development efforts, declining youth engagement in seed stewardship, weak institutional convergence, and insufficient incentives for custodian farmers. While India has strong legal frameworks, particularly the Protection of Plant Varieties and Farmers' Rights Act (PPV&FRA), the Seed Act, and the Biological Diversity Act—implementation gaps and weak access-and-benefit-sharing mechanisms continue to constrain farmer participation and the scaling of community seed systems. In contrast, EU Regulation 2018/848, with its pathway toward 100% organic seed use by 2036, illustrates how policy can actively enable diverse planting material within formal markets.

COLLECTIVE ACTION

SEED-5C marks a critical transition from dialogue to collective action towards climate-adaptive, nutrition-sensitive, and socially just food systems rooted in India's rich seed heritage.

The dialogue concluded with a shared roadmap to institutionalise community seed systems as public biodiversity infrastructure; formally recognise and incentivise custodian farmers; simplify and harmonise legal and regulatory facilitation; strengthen benefit-sharing mechanisms; expand participatory research; scale agroecological cultivation; integrate traditional crops into public nutrition programmes; enable fair and inclusive markets through Farmer Producer Organisations and digital tools; and strengthen multi-stakeholder collaboration. SEED-5C marks a critical transition from dialogue to collective action towards climate-adaptive, nutrition-sensitive, and socially just food systems rooted in India's rich seed heritage.

1. Background and Conference Context

INDIA AGROBIODIVERSITY

India is globally recognised as a centre of agrobiodiversity, from the rice terraces of the Eastern Himalayas and millet traditions of the Deccan Plateau to the sacred groves of the Western Ghats, where farmers—especially women—have preserved seeds as symbols of life, continuity, and collective memory

India's agro-biodiversity, nurtured through centuries of farmer-led innovation, represents a living repository of genetic diversity, cultural knowledge, and ecological adaptation. Traditional indigenous seed varieties, commonly referred to as landraces, carry the genetic memory of communities shaped by local environments, food cultures, and farming practices. These living repositories underpin food security, nutrition, and farmer independence, while also serving as vital genetic resources for future crop improvement. India is globally recognised as a centre of agrobiodiversity, from the rice terraces of the Eastern Himalayas and millet traditions of the Deccan Plateau to the sacred groves of the Western Ghats, where farmers, especially women, have preserved seeds as symbols of life, continuity, and collective memory. Seed security forms the foundation of food security and nutritional well-being. A resilient and biodiverse seed system ensures farmers' access to a wide range of crop varieties at affordable costs, enabling adaptation to climate variability while maintaining agroecological balance. However, agricultural homogenisation, monocropping, market-driven seed systems, erosion of Indigenous knowledge, and increasing climate extremes have significantly weakened community seed sovereignty. This loss of genetic diversity poses serious risks to long-term food and nutrition security, ecological stability, and farmer livelihoods.

Seed systems in India operate through two interconnected pathways:

formal systems driven by research institutions, regulatory frameworks, and organised seed supply chains; and informal systems rooted in rural, tribal, and forested landscapes, where communities exchange, conserve, and evolve local crop varieties *in-situ*. While formal systems contribute improved varieties, informal systems remain indispensable for conserving genetic diversity, sustaining cultural traditions, and promoting food sovereignty. Strengthening linkages between these two pathways is essential for building climate-resilient and nutrition-sensitive food systems.

CLIMATE-RESILIENT SEED SOVEREIGNTY

The dialogue brought together custodian farmers, State Agricultural Universities, research institutions, civil society organisations, social enterprises, policymakers, and young innovators to co-create pathways for climate-resilient seed sovereignty.

Recognising these challenges, the National Dialogue on Beeja Parampara – Conserving Our Past, Cultivating Our Future (SEED-5C) was organised to consolidate learning, share best practices, and develop a coherent roadmap for strengthening community-centred seed systems. Anchored in the SEED-5C framework, Conservation, Cultivation, Consumption, Commerce, and Collaboration the dialogue brought together custodian farmers, State Agricultural Universities, research institutions, civil society

organisations, social enterprises, policymakers, and young innovators to co-create and strengthen pathways for climate-resilient seed sovereignty. Grassroot efforts such as community seed banks, Farmer Producer Organisations, participatory breeding, and indigenous food initiatives were showcased as practical models for revitalising traditional genetic resources while enhancing livelihoods. The dialogue aimed to strengthen community-led conservation and participatory breeding, deliberate on policy frameworks including the PPVFR Act, Farmers' Rights, Seed Act, and Biodiversity Act, promote market linkages for heritage seeds, foster youth innovation and digital tools for seed systems, and collectively develop a roadmap for climate-resilient seed sovereignty.

DIALOGUE AIM

The dialogue aimed to strengthen community-led conservation and participatory breeding, deliberate on policy frameworks


Beeja Parampara
Conserving Our Past,
Cultivating Our Future


National dialogue on

2. Setting the Vision

The inaugural session of SEED-5C established a strong strategic and policy foundation for strengthening indigenous seed systems, positioning landraces and community-led seed conservation as critical responses to climate change, increasing drought frequency, emerging pest and disease pressures, declining seed quality, nutrition insecurity, and agrarian vulnerability. The session brought together representatives from the Department of Agriculture, Government of Karnataka; SuATI–GIZ; State Agricultural Universities (SAUs); civil society organisations; private sector partners; allied government departments; media representatives; and custodian farmers from across the country, collectively shaping a shared vision for safeguarding India's agrobiodiversity and advancing climate-resilient agriculture.

Discussions reaffirmed Karnataka's commitment to promoting Beeja Parampara, Desi Krushi, and Desi Beeja, recognising farmers as the primary custodians of agrobiodiversity and underscoring the need for sustained institutional support to strengthen community-led conservation initiatives. Landraces were emphasised not merely as agricultural inputs, but as living legacies shaped by generations of farmer knowledge, cultural practices, and ecological adaptation. Strengthening seed systems at the local level, alongside coordinated state and national support, was highlighted as essential within agriculture's concurrent governance framework.

KARNATAKA'S COMMITMENT

Discussions reaffirmed Karnataka's commitment to promoting Beeja Parampara, Desi Krushi, and Desi Beeja, recognising farmers as the primary custodians of agrobiodiversity and underscoring the need for sustained institutional support to strengthen community-led conservation initiatives.

Karnataka has emerged as a priority state where seed systems constitute a core intervention area, with civil society organisations playing a pivotal role in conserving, multiplying, and disseminating indigenous seeds. Advancing this work requires strong scientific rigour to systematically identify landraces, assess their nutritional value, and support their effective translation from fields to consumers for healthy diets. The Government of Karnataka's initiatives, led by the Department of Agriculture in close collaboration with state-level ecosystem actors and international organisations, stand out as pioneering efforts in this domain. In the context of escalating climate risks, recurrent droughts, and production instability, strengthening local and community-managed seed systems has been recognised as an urgent priority for state governments.

URGENT PRIORITY FOR STATE GOVERNMENTS

In the context of escalating climate risks, recurrent droughts, and production instability, strengthening local and community-managed seed systems has been recognised as an urgent priority for state governments

The session acknowledged ongoing efforts to document farmer narratives across multiple states to inform future policy formulation and programme design. Speakers and experts highlighted gaps in access and benefit-sharing mechanisms, calling for stronger legal frameworks, improved seed governance, and enhanced international cooperation to ensure equitable recognition and benefits for farming communities engaged in conservation. These measures were framed as essential for maintaining seed quality, incentivising conservation, and aligning community-led initiatives with national and global climate-resilient agriculture agendas. International perspectives reinforced India's growing leadership in global agrobiodiversity discourse. A key milestone of the inaugural session was the release of the publication "Beeja Parampara – Narratives of Preservation and Pride," documenting community-led conservation experiences and showcasing the stewardship of custodian farmers preserving traditional crop varieties.

UNIVERSITY OF AGRICULTURAL SCIENCES

UAS reported the conservation of over 1,800 traditional paddy varieties currently under evaluation across diverse agro-climatic zones.

University of Agricultural Sciences, Gandhi Krishi Vigyana Kendra (GKVK) reflected on India's transition from pre-independence food scarcity to post–Green Revolution self-sufficiency, while acknowledging emerging ecological, nutritional, and sustainability challenges associated with high-input and uniform production systems. UAS reported the conservation of over 1,200 traditional paddy varieties currently under evaluation across diverse agro-climatic zones. It was emphasised that landraces, unlike uniform modern varieties, are genetically diverse, adapted to low-input and water-stressed conditions, often more resilient

to climate-induced pest and disease pressures, cost-effective for farmers, and nutritionally rich, recognising landraces as living genetic libraries. Strengthening farmer–researcher collaboration through citizen science approaches was identified as a priority, alongside expanding documentation beyond cereals to include vegetables, fruits, tubers, pulses, and other underexplored and underutilized crops.

CHALLENGES FOR INDIAN AGRICULTURE

While food security has largely been achieved, the dialogue underscored that nutritional security and climate resilience now represent defining challenges for Indian agriculture.

The evolution of Karnataka's traditional seed system was presented as the outcome of sustained national consultations followed by systematic state-level operationalisation. Farmer-led platforms such as Krishi Melas and Genome Saviour Awards were highlighted as effective mechanisms for recognising custodianship, improving awareness of traditional varieties, strengthening on-farm seed quality, and mobilising community participation. While food security has largely been achieved, the dialogue underscored that nutritional security and climate resilience now represent defining challenges for Indian agriculture. Experiences from organic and natural farming systems indicated that yield declines often occur when high-input varieties are cultivated under low-input or climate-stressed conditions, whereas landraces adapted to local agro-ecosystems offer viable and resilient alternatives. In this context, participants emphasised the need for a dedicated traditional variety release system, distinct from existing mechanisms designed for modern varieties and hybrids. Karnataka's initiatives on crop-wise landrace collection, purification, and multiplication across SAUs were highlighted, with scientists actively working towards the formal release of traditional varieties suited to sustainable and agroecological farming systems.

PARTICIPANTS

Participants stressed that landraces should complement—not replace—modern varieties, serving as reservoirs of genetic diversity and adaptive traits essential for future agriculture.

From a broader policy perspective, landraces were situated within the dual challenges of biodiversity erosion and climate change. Participants stressed that landraces should complement, not replace modern varieties, serving as reservoirs of genetic diversity and adaptive traits essential for future agriculture. The limitations of relying solely on ex-situ conservation were acknowledged, with strong emphasis placed on in-situ conservation to enable continuous adaptation of germplasm under changing climatic conditions, evolving pest pressures, and environmental stresses. The session called for ecosystem-based, multi-trait breeding strategies integrating nutrition, resilience, yield stability, quality, and consumer preferences,

moving beyond linear and yield-centric paradigms. It was further emphasised that agriculture must be approached holistically, integrating crops, livestock, fisheries, and allied sectors to strengthen overall ecological and livelihood resilience.

A highlight of the inaugural session was the felicitation of 33 custodian farmers from Karnataka, Kerala, Assam, Madhya Pradesh, Tamil Nadu, Odisha, and Rajasthan, actively engaged in conserving diverse crops including paddy, pulses, tubers, vegetables, and other traditional crops. Shri N. Chaluvarayaswamy, Hon'ble Minister of Agriculture, Government of Karnataka, honoured the farmers in recognition of their invaluable contribution to conserving traditional seed diversity and sustaining India's agrobiodiversity heritage. The felicitation reaffirmed the central message of the session: farmers remain at the heart of resilient, climate-adaptive, and nutrition-sensitive seed systems.

The SEED-5C national dialogue was designed around the 5C framework—Conservation, Cultivation, Consumption, Commerce, and Collaboration—with five thematic sessions envisaged for deeper discussion:

Conservation – Community Gene Banks, In-Situ Models and Documentation

Cultivation – Participatory Breeding and Agroecological Practices

Consumption – Reviving Indigenous Food Cultures and Nutrition

Commerce – Fair and Sustainable Seed Enterprises and Digital Technology

Panel Discussion – Collaboration and Policy: Financing Seed Sovereignty and Governance


CONSERVATION
CULTIVATION


CONSERVATION
CULTIVATION


Conserving Our Past, Cultivating Our Future
CONSERVATION
CULTIVATION
CONSUMPTION


Beeja Parampara
Conserving Our Past, Cultivating Our Future

Session 1: Conservation – Community Gene Banks, In-Situ Models & Documentation

Conservation Pathways for Climate-Resilient and Farmer-Centric Seed Systems

The session focused on farmer-led conservation of landraces through complementary in-situ and ex-situ approaches, highlighting the central role of community seed banks, participatory documentation, legal recognition, and decentralized seed systems in safeguarding agrobiodiversity under increasing climate, market, and nutritional pressures. The discussion emphasised that conservation is most effective when embedded within cultivation systems, local food cultures, and livelihood pathways, rather than treated as a standalone intervention.

CONSERVATION EMBEDDED WITHIN CULTIVATION SYSTEMS

The discussion emphasised that conservation is most effective when embedded within cultivation systems, local food cultures, and livelihood pathways, rather than treated as a standalone intervention.

Legal and Policy Frameworks for Farmer-Centric Conservation

The session started with conservation within India's evolving legal and institutional frameworks governing plant genetic resources. The Protection of Plant Varieties and Farmers' Rights Act (PPVFRA), 2001 and the Biological Diversity Act, 2002 were discussed as landmark legislations introduced following India's commitments under the Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement. These frameworks

marked a shift from perceiving biodiversity as global commons to regulated systems recognising ownership, access, and benefit-sharing.

The PPVFR Act was highlighted as a unique *sui generis* system, explicitly recognising farmers' rights, including the right to save, use, exchange, share, and sell farm-saved seed, as well as the right to register farmers' varieties without any registration fee. However, limited awareness, procedural complexity, and uneven state-level implementation continue to constrain the Act's impact, calling for simplified processes, state facilitation, and stronger convergence with biodiversity governance systems to ensure farmers can effectively exercise their rights.

REGISTERED VARIETIES

Karnataka has registered 204 farmers' varieties, while Odisha leads nationally with over 700 registered varieties, demonstrating the potential of proactive institutional support.

Clarifying conceptual distinctions was considered essential. From an evolutionary perspective, agriculture spans nearly 10,000 years, during which landraces emerged through natural selection and evolved into farmers' varieties through deliberate selection based on yield stability, taste, stress tolerance, and adaptability. These varieties subsequently served as genetic foundations for formal breeding programs during the Green Revolution. Under the PPVFR framework, landraces are subsumed under farmers' varieties, many of which qualify as varieties of common knowledge. Registration requires Distinctness, Uniformity, and Stability (DUS) testing, with seed samples and associated traditional knowledge forming critical components of the application process.

State-level progress was highlighted as illustrative evidence. Karnataka has registered 204 farmers' varieties, while Odisha leads nationally with over 700 registered varieties, demonstrating the potential of proactive

institutional support. Other states such as Chhattisgarh and Jharkhand are gaining momentum, though progress remains uneven across regions.

Community Institutions, Farmer Knowledge, and Integrated Conservation Models

The importance of traditional varieties as genetic donors for climate resilience was strongly emphasised. India conserves over 120,000 rice germplasm accessions across national institutions. Traits sourced from traditional varieties in regions like Odisha and Assam have contributed

RICE GERMPLASM

India conserves over 120,000 rice germplasm accessions across national institutions.

to climate-smart modern cultivars with submergence tolerance, salinity tolerance, and enhanced nutritional profiles. India's contribution of germplasm to the Svalbard Global Seed Vault was cited as evidence of its global significance, while also underscoring the limitations of relying solely on ex-situ conservation.

GLOBALLY IMPORTANT AGRICULTURAL HERITAGE SYSTEM

The Koraput region of Odisha, recognised as a Globally Important Agricultural Heritage System (GIAHS), has documented over 350 farmers' rice varieties, 93 millet and pulse varieties, 16 vegetable species, and 284 medicinal plant species.

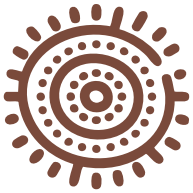
Field-based evidence from biodiversity hotspots illustrated both the scale of genetic wealth and the extent of erosion. The Koraput region of Odisha, recognised as a Globally Important Agricultural Heritage System (GIAHS), has documented over 350 farmers' rice varieties, 93 millet and pulse varieties, 16 vegetable species, and 284 medicinal plant species. Historical records show that between 1952–1960, nearly 1,745 rice landraces were documented in the Jeypore tract alone, which later declined to around 350 by the 1990s. Systematic conservation beginning in the early 2000s initially preserved 141 rice accessions, later expanding to 356 accessions by 2020,

with active in-situ conservation continuing.

COMMUNITY GENE–SEED–GRAIN BANK

Institutional innovations such as the community gene–seed–grain bank continuum were highlighted as effective models, connecting field gene banks, community seed banks, and food banks.

Conservation in such regions has been operationalised through an integrated "4C approach" (Conservation, Cultivation, Consumption, and Commerce) reinforcing that sustainability requires strong linkages to livelihoods and markets. Institutional innovations such as the community gene–seed–grain bank continuum were highlighted as effective models, connecting field gene banks, community seed banks, and food banks. These systems are strengthened through pure-line selection and decentralized quality seed production, ensuring both genetic integrity and farmer access. Participatory varietal selection and plant breeding enabled farmers to evaluate varieties based on yield stability, taste, processing quality, and resilience. Successful outcomes include distribution through Farmer Producer Organizations and State Seed Corporations, alongside GI recognition, such as for Kala Jeera rice in 2023, demonstrating the economic potential of traditional varieties.



LIVING MUSEUMS

Long-term conservation efforts spanning six generations have preserved around 116 mango varieties and over 1,350 traditional rice varieties, transforming farms into "living museums" of agrobiodiversity

Hill and mountain ecosystems illustrated vulnerabilities: crops such as barley, buckwheat, amaranth, red rice, kidney beans, and rice beans have nearly disappeared due to monocropping, market dependence, and dietary shifts. Climate-induced disasters such as flash floods highlight the critical role of resilient local seed systems. Over five years, farmers evaluated 111 traditional varieties, selecting 17 for large-scale multiplication and value-chain development. These landraces demonstrated drought and cold tolerance, adaptability to poor soils, and suitability for short growing seasons, supporting mixed farming systems and generating 40–50% premium prices compared to conventional markets.

Farmer-Led Conservation and Ecosystem Benefits

Long-term conservation efforts spanning six generations have preserved around 116 mango varieties and over 1,350 traditional rice varieties, transforming farms into "living museums" of agrobiodiversity. These initiatives also maintain associated insects, birds, and soil and aquatic organisms, often absent from chemically managed systems. Farmers report superior performance of traditional varieties under organic and low-input conditions, reducing external input dependence and enhancing resilience to pests and climate stresses. However, custodian farmers bear

disproportionate financial and logistical burdens, often spending ₹1–1.5 lakh annually to sustain conservation, underscoring the need for formal recognition, incentives, and institutional support.

SCALING CONSERVATION

Value-chain development, branding, packaging, and GI tagging were identified as effective strategies for visibility and market viability, with FPOs and community-managed institutions as key intermediaries for scaling conservation without compromising farmer ownership.

Technology, Livelihood Integration, and the Way Forward

Technology and innovation were recognised as enablers when designed around community needs. Tools such as digital documentation, participatory data collection, open-source seed systems, and decentralized quality seed production were highlighted to strengthen transparency, traceability, and access. Participatory evaluation methods, including tricot trials (triadic comparison of technologies), allowed robust data generation at low cost across diverse farming conditions. Nutritional profiling and agronomic characterisation of traditional varieties were emphasised as prerequisites for scaling, value addition, and integration into public nutrition programmes.

Persistent structural challenges were noted, including limited storage infrastructure, market incentives, and shifting consumer preferences. Policy gaps remain in providing direct incentives to custodian farmers, sustained R&D investment in traditional crops, risk-sharing mechanisms, and inclusion of landraces in public schemes such as the PDS and Mid-Day Meal programmes. Gender and land-access constraints particularly affect women and indigenous communities, limiting equitable participation and leadership.

Community feedback reinforced that conservation delivers results only when linked to tangible livelihoods—food security, income, recognition,

and dignity. Value-chain development, branding, packaging, and GI tagging were identified as effective strategies for visibility and market viability, with FPOs and community-managed institutions as key intermediaries for scaling conservation without compromising farmer ownership.

Key Points of the Session

Community seed banks

Community seed banks must be recognised as decentralised public infrastructure, functioning as dynamic platforms linking conservation, cultivation, food security, and climate resilience.

Farmer-conserved landraces

Farmer-conserved landraces are critical climate and nutrition assets, providing drought, flood, salinity, and pest tolerance, underpinning resilient farming systems and future crop improvement.

Farmer-centric legal frameworks

India's farmer-centric legal frameworks offer strong protection but weak implementation, highlighting the need to simplify variety registration, strengthen benefit-sharing, and improve institutional facilitation.

Integrated in-situ and ex-situ models

Integrated in-situ and ex-situ models anchored in community institutions enable continuous adaptation of genetic resources while strengthening farmer ownership, participation, and agroecological resilience.

Custodian farmers

Custodian farmers bear disproportionate conservation costs, underscoring the need for incentives, infrastructure support, market linkages, and inclusion of traditional varieties in public food and nutrition programmes.


Dr. Sarika Mitra
Dr. B.C. Pairo


National dialogue on

Session 2. Cultivation – Participatory Breeding & Agro-ecological Practices

DIALOGUE HIGHLIGHTS

The dialogue highlighted the critical role of participatory breeding, agro-ecological practices, and farmer-led innovation in sustaining traditional crop varieties, enhancing climate resilience, and strengthening local food systems.

The dialogue highlighted the critical role of participatory breeding, agro-ecological practices, and farmer-led innovation in sustaining traditional crop varieties, enhancing climate resilience, and strengthening local food systems. Discussions emphasized that conservation of landraces is inseparable from their cultivation under ecologically sound, socially inclusive, and economically viable farming systems. Farmer engagement, traditional knowledge, and scientific validation emerged as essential enablers for maintaining crop diversity, improving nutritional outcomes, and promoting climate-resilient agriculture.

Leadership and Policy Frameworks

India's growing leadership in agro-ecology and landrace conservation was underscored as a reference point for both national and international agricultural transformation. Progressive frameworks recognizing farmers' rights, community seed systems, and participatory approaches were highlighted as key drivers for inclusive agricultural development. These frameworks enable collaborative action across farmers, researchers, institutions, and policymakers to conserve genetic diversity, support

climate-resilient practices, and integrate local innovations into broader food systems. State-level interventions were presented as transformative models, demonstrating how structured policy support, funding mechanisms, and institutional partnerships can promote conservation, improve farmer livelihoods, and mainstream landraces. These initiatives combine digital mapping, landrace documentation, establishment of seed repositories, participatory evaluation, capacity building, and market integration, creating an integrated approach to agrobiodiversity conservation.

KEY STRATEGIES

Key strategies include identification, documentation, and geospatial mapping of custodian farmers and landrace hotspots;

Conservation and Cultivation of Landraces

Landraces were consistently highlighted as critical assets for climate resilience, nutrition security, and sustainable agriculture due to their genetic diversity, local adaptation, and cultural significance. Conservation benefits from in-situ cultivation, allowing landraces to continue evolving under local agro-ecological conditions. Key strategies include identification, documentation, and geospatial mapping of custodian farmers and landrace hotspots; participatory evaluation trials assessing agronomic performance, nutritional value, and market potential; and training farmers in production, seed multiplication, and post-harvest management. Awareness campaigns, cultural events, and exhibitions were emphasized to promote the nutritional, cultural, and ecological value of landraces. Integration into formal and informal seed systems, with support for branding, GI tagging, and digital marketing, was recognized as essential for mainstreaming traditional varieties. Increasing youth engagement, incentivising custodians, and strengthening seed security were identified as critical measures for long-term sustainability.

COLLABORATIVE BREEDING

Collaborative breeding approaches were discussed as effective alternatives to conventional breeding, integrating farmers' knowledge, preferences, and local environmental conditions into crop improvement.

Participatory Breeding and Varietal Selection

Collaborative breeding approaches were discussed as effective alternatives to conventional breeding, integrating farmers' knowledge, preferences, and local environmental conditions into crop improvement. Key elements include participatory identification of desirable traits, selection of parental material, on-farm trials, joint evaluation of progenies, mass selection, participatory varietal enhancement, and market-assisted improvement. These approaches reduce dependency on hybrids and externally developed improved varieties, strengthen local seed systems, and enhance on-farm crop diversity. Participatory breeding ensures that newly developed varieties

are locally adapted, climate-resilient, and nutritionally rich while supporting farmer empowerment and the evolutionary adaptation of crops.

Soil Health and Agro-Ecological Management

Healthy soils were identified as the foundation for sustainable cultivation, conservation of landraces, and production of nutrient-rich crops. Agro-ecological practices such as organic farming, conservation agriculture, integrated soil fertility management, agroforestry, crop diversification, residue retention, water management, and ecological pest regulation were highlighted as essential for maintaining soil health and supporting biodiversity. These practices enhance soil organic matter, nutrient cycling, and biotic regulation, reduce reliance on chemical inputs, integrate traditional knowledge with ecological management, and promote resilience to climate variability and extreme weather events. Complementary interventions, including sustainable storage systems and post-harvest management, were recognized as critical for protecting yields, reducing losses, and adding value to traditional crops.

AGRO-ECOLOGICAL PRACTICES

Agro-ecological practices enhance soil organic matter, nutrient cycling, and biotic regulation, reduce reliance on chemical inputs, integrate traditional knowledge with ecological management, and promote resilience to climate variability and extreme weather events.

Market Integration, Value Addition, and Digital Innovations

Market access and value addition were emphasized as necessary for sustaining landrace cultivation and improving farm incomes. Strategies include leveraging digital platforms and e-market systems for better price discovery, establishing small-scale processing units to convert raw produce into higher-value products, village-level storage and cold chain systems to minimize post-harvest losses, and promoting branding, GI tagging, and marketing of landrace-derived products. Farmers' experiences highlighted that traditional varieties often exhibit superior nutritional quality and

resilience under low-input and marginal conditions, reinforcing the need for interventions that simultaneously strengthen cultivation and market linkages.

Farmers as Custodians, Capacity Building, and Collaborative Action

Farmers were recognized as key innovators and custodians of agrobiodiversity, with capacity building, participatory awareness programs, exposure visits, and youth engagement essential for long-term sustainability. Collaboration among farmers, researchers, policymakers, and institutions emerged as the primary driver for sustained agricultural transformation, signalling a shift from debate to collective action in conserving genetic diversity, supporting climate-resilient practices, and integrating local innovations into broader food systems.

Key Points of the Session

Landraces are critical assets

Landraces are critical assets for climate-resilient, nutrition-sensitive, and sustainable farming systems.

Effective conservation

Structured policy support, scientific collaboration, and community participation are essential for effective conservation and mainstreaming of landraces.

Reducing dependence on external varieties

Participatory breeding and varietal selection integrate farmers' knowledge and local adaptation into crop improvement, reducing dependence on external varieties.

Agro-ecological practices

Agro-ecological practices provide the foundation for healthy soils, biodiversity conservation, and resilient agricultural systems.

Enhance farmer livelihoods

Market access, value addition, and digital innovations enhance farmer livelihoods and support sustainable utilization of traditional varieties.

Long-term conservation and adoption

Youth engagement, capacity building, and awareness generation are critical to ensure long-term conservation and adoption.


National dialogue on
Beeja Parampara


National dialogue on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Conserving Our Past, Cultivating Our Future

Session 3. Consumption – Reviving Indigenous Food Cultures & Nutrition

SESSION EMPHASIZES

The session emphasized that landraces, dietary diversity, and locally adapted farming practices are interconnected pillars of resilient and nutrition-sensitive food systems.

Reviving Indigenous Food Cultures and Nutrition

The discussions highlighted the pivotal role of indigenous food systems, traditional diets, and seed conservation in strengthening nutrition, ensuring food security, and preserving cultural heritage. The session emphasized that landraces and dietary diversity, and locally adapted farming practices are interconnected pillars of resilient and nutrition-sensitive food systems. Community-led initiatives, school garden programmes, and enterprise-based approaches were showcased as practical strategies for conserving traditional foods while supporting ecological, social, and economic sustainability.

Dietary Diversity in Indigenous Communities

Field studies conducted in Meghalaya, Manipur, and among the tribal communities revelead, indigenous food systems continue to sustain high dietary diversity and nutritional adequacy. Across the Vesapadi Hills of Meghalaya and selected villages in Manipur, more than 300–370 distinct food items were documented, including cereals, millets, pulses, green leafy vegetables, fruits, tubers, and fermented preparations. Random village sampling, focus group discussions, and systematic dietary surveys

ensured comprehensive documentation of local food practices. Analysis revealed that approximately 40% of these foods were available year-round, supporting seasonal dietary resilience. Nutrient assessments indicated higher intakes of protein, iron, vitamin B1, and vitamin C, largely due to increased consumption of green leafy vegetables and fruits. Comparative evaluation highlighted a significantly lower prevalence of anaemia and better overall health outcomes in these communities relative to mainstream populations. These findings underscore the capacity of locally available, ecologically adapted foods to enhance nutrition security and contribute to climate-resilient diets.

300–370 DISTINCT FOOD ITEMS

Across the Vesapasi Hills of Meghalaya and selected villages in Manipur, more than 300–370 distinct food items were documented, including cereals, millets, pulses, green leafy vegetables, fruits, tubers, and fermented preparations.

Indigenous Seeds and Community-Led Conservation

Custodian farmers in Karnataka and Assam exemplified strategies for preserving traditional seeds and food heritage. In Karkala, Karnataka, youth-led efforts collected over a thousand traditional rice varieties, including Palkoda, Raktashali, Navarathna, Mapillai Samba, and Thilluppu Samba. These varieties exhibit adaptability to local climatic conditions, resilience to pests, and nutritional benefits such as antioxidant and medicinal properties, reinforcing their importance for agricultural biodiversity and community nutrition.

In West Karbi Anglong, Assam, indigenous communities conserve 8–12 paddy varieties using traditional seed storage structures, locally known as Khitri, Konja, and Maifu, constructed from wood and plant materials. These systems maintain seed viability for up to five years, ensuring long-term seed security. Seed conservation is embedded within cultural and ritual practices and complemented by multi-layered cropping systems, which

allow small landholders (typically 1–5 acres) to grow diverse, nutrient-rich crops. Community-level interventions include the distribution of 30–50 fruit-bearing plants per household and the establishment of school gardens to enhance early engagement with sustainable agriculture. Plans to plant 55,000 additional trees exemplify the scalability and ecological integration of these initiatives.

INNOVATIVE DELIVERY MODELS

Innovative delivery models, including "buy one, share one" schemes and collaboration with NGOs and nutrition programmes, enhance accessibility while promoting the use of indigenous ingredients.

Nutrition-Sensitive Innovations and Enterprise

Entrepreneurial approaches leverage traditional foods for modern nutrition solutions. Millet-based products, developed using ragi, amaranth, peanuts, dates, and jaggery, provide protein, iron, and calcium in forms appealing to children. Innovative delivery models, including "buy one, share one" schemes and collaboration with NGOs and nutrition programmes, enhance accessibility while promoting the use of indigenous ingredients. Such interventions demonstrate how traditional crops can bridge cultural heritage, nutrition, and economic opportunity. These initiatives demonstrate how traditional crops can bridge cultural heritage, nutrition, and economic opportunity, linking food heritage with health outcomes and market access. Enterprise-based approaches also provide scalable pathways for economic empowerment while sustaining indigenous crop cultivation.

Cultural Significance, Food Heritage, and Health

Indigenous crops and traditional food systems play a critical role in promoting environmental sustainability, human health, and cultural continuity. Locally adapted varieties reduce reliance on chemical inputs,

maintain biodiversity, and preserve authentic culinary practices. Traditional diets, including fermented, germinated, and mixed-crop preparations, enhance nutrient bioavailability and metabolic health, contrasting sharply with modern diets dominated by refined and ultra-processed foods. By integrating indigenous foods into contemporary diets, nutrition strategies, and agricultural planning, these practices safeguard cultural heritage and contribute to long-term food security, ecological resilience, and public health.

Key Points of the Session

Indigenous food systems

Indigenous food systems improve nutrition and dietary diversity, with communities consuming over 300–370 locally available food items year round.

Traditional diets

Traditional diets strengthen climate and seasonal resilience, offering higher nutrient intake and better health outcomes compared to mainstream diets.

Community-led seed and food initiatives

Community-led seed and food initiatives, such as school gardens, youth seed custodianship, and traditional storage systems, link conservation directly to daily consumption.

Nutrition-focused enterprises

Nutrition-focused enterprises using millets and traditional crops create healthier food options and livelihood opportunities.

Indigenous food cultures

Reviving indigenous food cultures supports ecological sustainability, cultural continuity, and long-term food and nutrition security.


National dialogue on
Beeja Parampara
Conserving Our Past, Cultivating Our Future


COMMERCE

Session 4: Commerce – Fair and Sustainable Seed Enterprises and Digital Technology

SESSION FOCUS

This session focused on building farmer-led seed enterprises, fair-trade value chains, and the integration of digital technologies into modern seed systems.

This session focused on building farmer-led seed enterprises, fair-trade value chains, and the integration of digital technologies into modern seed systems. Key discussions included local branding, GI tagging, heritage labelling, cooperative models, and digital marketplaces to link community-managed seeds with local, national, and global markets. Case studies from across India illustrated practical methods for conserving agro-biodiversity while generating sustainable livelihoods.

Community-Led Seed Systems and Agro-Biodiversity Conservation

This session highlighted extensive experiences with tribal and local communities, who have historically acted as custodians of seed diversity. Organisations supporting community-led seed systems operate across multiple Indian states, reaching nearly one lakh villages and four million families. Programmes focus on sustainable livelihoods, agro-biodiversity conservation, and social enterprise development.

Modern agriculture has narrowed crop diversity to a few major staples such as rice, wheat, and maize. This monocropping trend, compounded

by climate change, has accelerated the erosion of landraces. The session emphasised that in-situ and ex-situ conservation efforts, combined with systematic documentation and transfer of traditional knowledge from custodians to the next generation, are crucial for sustaining agro-biodiversity. Conservation initiatives must also link directly with viable market opportunities to ensure farmer livelihoods and long-term viability.

SIX INTERLINKED PILLARS

Community-led seed sovereignty integrates six interlinked pillars—conservation, cultivation, consumption, commercialisation, capacity building, and collective action.

Community-led seed sovereignty integrates six interlinked pillars: conservation, cultivation, consumption, commercialisation, capacity building, and collective action. Activities include participatory surveys, germplasm collection, seed purification, morphological and nutritional characterisation, small-scale trials, and documentation of storage methods. Village-level seed saver groups, committees, and cluster-level seed banks are complemented by institutional ex-situ facilities such as gene banks. Partnerships with KVKs, state and national agencies, and international organisations provide technical guidance and support for scaling. Participatory varietal selection and registration under PPV&FRA recognise farmers as innovators, strengthening ownership and stewardship of traditional varieties.

Women-led initiatives, including backyard cultivation, nutrition gardens, and mini-kit seed enterprises, have generated revenues of approximately ₹25 lakh/annum. Seeds conserved and multiplied include paddy, maize, beans, sorghum, minor millets, and groundnuts. Records of morphological traits, genetic purity, and germination are digitally maintained for traceability. Persistent challenges include limited village-level storage infrastructure, the need for continuous capacity building, competition from hybrid seeds, and

incomplete integration of landraces into formal seed systems.

Commercial Seed Systems and Market Integration

Discussions addressed the commercial dimensions of seed systems, emphasising that maintaining farmer margins is central to sustainability. Seed markets are inherently fragile due to biological uncertainties, and identifying viable markets and scaling operations remain key challenges.

SATELLITE FPOS

The creation of satellite FPOs as spokes around core hubs facilitated better aggregation, improved utilisation of facilities, and enabled structured business planning.

Case studies highlighted FPO-led hub-and-spoke models for seed aggregation. Initial decentralised seed processing units struggled with scale, cash flow, and operational linkages. The creation of satellite FPOs as spokes around core hubs facilitated better aggregation, improved utilisation of facilities, and enabled structured business planning. Assured buyback arrangements significantly increased seed procurement volumes and stabilised farmer confidence. FPO turnover increased from ₹99 lakh to ₹2.58 crore within a year, while participatory varietal recognition under PPV&FRA streamlined the integration of landraces into formal seed systems.

Branding, heritage labelling, and GI tagging were identified as key strategies for positioning indigenous varieties in domestic and international markets. Market linkages with restaurants, cloud kitchens, and e-commerce platforms, supported by digital tracking and planning tools, enhance transparency, fairness, and benefit-sharing.

Technology-Enabled Indigenous Seed Commerce

Open-pollinated and indigenous seeds face unique economic challenges, as buyers can multiply seeds, limiting the original producer's revenue. Digital, royalty-based platforms were discussed as a solution to ensure continuous income for farmers conserving traditional varieties.

PREMIUM CONSUMERS

GI recognition, storytelling, and functional product positioning were emphasised as critical to reaching premium consumers globally.

These platforms integrate DNA fingerprinting, blockchain, and direct benefit transfer mechanisms to provide traceability, authenticate seeds, and distribute royalties automatically across generations. By democratizing seed entrepreneurship, small-scale growers can participate, generate income, and preserve biodiversity. Existing digital infrastructure, including national ID systems, payment systems, and agricultural knowledge networks, can support the implementation of such models at scale, transforming indigenous seed conservation into a viable enterprise model.

Scaling Indigenous Varieties in Domestic and Global Markets

Strategies for positioning India's indigenous crops in national and international markets were explored. Successful examples include basmati rice, Bora rice from Assam, and Gobindabhog rice from West Bengal. GI recognition, storytelling, and functional product positioning were emphasised as critical to reaching premium consumers globally.

Climate-resilient cultivation practices such as the System of Rice Intensification (SRI) reduce water use by 40–60% and lower methane emissions, aligning with global sustainability standards. Large-scale organic supply chains spanning over 100,000 farming families across 16 states ensure consistent quality and supply. Regenerative agriculture certifications,

digital traceability, sustainable packaging, and fair pricing strengthen farmer participation, build consumer trust, and enhance global market access.

AI-BASED PLATFORM

An AI-based platform for indigenous seeds integrates historical, scientific, nutritional, and cultural data, providing location-specific guidance to farmers, researchers, and conservationists.

Digital Technologies for Modern Seed Systems

Emerging technologies were discussed as enablers of sustainable seed systems. Practical innovations include IoT-based soil sensors, AI and machine learning applications, drones, Agri-GIS systems, digital advisory tools, and mobile platforms.

An AI-based platform for indigenous seeds integrates historical, scientific, nutritional, and cultural data, providing location-specific guidance to farmers, researchers, and conservationists. Tools for Environment Social Governance (ESG) assessment, predictive yield modelling, and water budgeting support informed decision-making, enhance sustainability, and facilitate traceable seed management. These innovations bridge farmer knowledge with institutional support and market systems, strengthening equitable and resilient seed enterprises.

Key Points of the Session

The session emphasised two major perspectives:

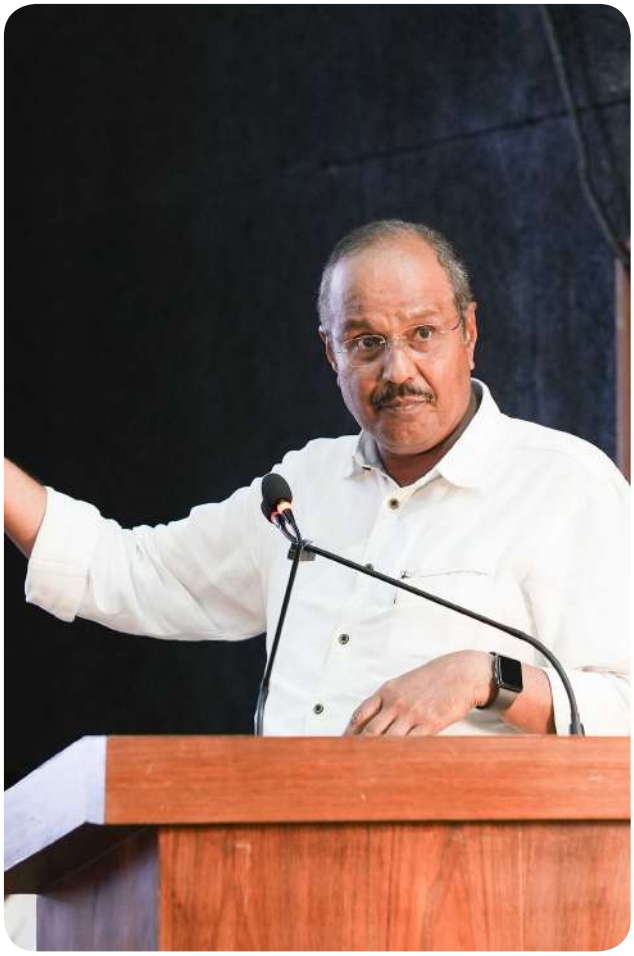
Bottom-up community seed systems

Villages and local communities form the foundation of equitable, resilient seed conservation and production, progressively linked to local, national, and international markets.

Institutional and digital integration

Farmers Producer Organisations (FPOS), Self-Help Groups (SHGs), federations, and digital platforms facilitate aggregation, scaling, transparency, and fair benefit-sharing, addressing long-standing inefficiencies in seed systems.

The integration of community engagement, institutional frameworks, digital innovation, and market strategies is essential to ensure the commercial viability of traditional seed systems while advancing climate resilience, biodiversity conservation, and social equity.

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Session 5: Panel Discussion – Collaboration & Policy: Financing Seed Sovereignty and Governance

This panel discussion addressed multi-stakeholder collaboration, governance mechanisms, and financing strategies to strengthen seed sovereignty. Key themes included legal frameworks, institutional support, policy advocacy, public–private partnerships, and equitable access and benefit-sharing mechanisms for community-managed seed systems. Discussions highlighted the critical role of coordinated action, policy coherence, and financial instruments in sustaining agrobiodiversity and empowering farmers.

DISCUSSION HIGHLIGHTS

Discussions highlighted the critical role of coordinated action, policy coherence, and financial instruments in sustaining agrobiodiversity and empowering farmers.

Legal and Institutional Frameworks for Biodiversity and Seed Governance

India was noted for having one of the few comprehensive legal frameworks for biodiversity and farmers' rights, including the Biological Diversity Act and the Protection of Plant Varieties and Farmers' Rights (PPV&FRA) Act. While the framework is robust at national, state, and local levels, implementation often remains fragmented and siloed, underscoring the need for coordinated, system-level approaches.

At the state level, Biodiversity Management Committees and State Biodiversity Boards are in place across regions; however, collaboration among these institutions remains limited. Strengthening institutional coordination across India's ten major agroecological zones and twenty sub-regions was identified as a priority, with the Western Ghats and West Coast highlighted as high-priority areas due to rich agrobiodiversity.

A holistic definition of "seed" was emphasised, encompassing cultivated crops, wild relatives, animal breeds, and other forms of genetic diversity, recognising that seeds are inseparable from broader farming systems, including crops, trees, livestock, birds, and surrounding environments.

FRAMEWORKS

Frameworks such as the Planetary Health Diet illustrate how dietary shifts towards culturally appropriate and biodiversity-sensitive foods can improve public health while creating market opportunities for traditional seeds.

The panel also highlighted consumption as a critical driver of conservation. While cultivation, conservation, and commercialisation are essential, demand ultimately shapes supply. Frameworks such as the Planetary Health Diet illustrate how dietary shifts towards culturally appropriate and biodiversity-sensitive foods can improve public health while creating market opportunities for traditional seeds. Programmes promoting traditional recipes and nutrition-sensitive meals were cited as practical examples of linking consumption to seed sovereignty. Rising consumer purchasing power presents an opportunity to align sustainable diets with biodiversity conservation and seed security.

Access and Benefit-Sharing Mechanisms

Discussions emphasised that equitable access and benefit-sharing (ABS) mechanisms are fundamental for protecting farmers' rights over seeds and genetic resources. While originally conceived to promote transparency

and fairness in research collaborations, ABS practices have often focused narrowly on monetary returns, overlooking non-monetary benefits such as access to seed, medicines, and food security.

Emerging global challenges include Digital Sequence Information (DSI), where genetic material can be sequenced and shared digitally without the physical transfer of seeds, posing risks to fair benefit-sharing and data sovereignty. Expansion of Annex I of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) was also discussed, stressing that farmer-maintained varieties and wild species must be included to safeguard traditional knowledge and heritage. Robust mechanisms for tracing, legally protecting, and distributing benefits from genetic resources are critical to secure both farmers' rights and global commitments.

DIGITAL SEQUENCE INFORMATION (DSI)

Emerging global challenges include Digital Sequence Information (DSI), where genetic material can be sequenced and shared digitally without the physical transfer of seeds, posing risks to fair benefit-sharing and data sovereignty.

Strengthening Community-Based Seed Systems

Community-based and farmer-managed seed systems remain central to sustaining agrobiodiversity. While informal and semi-formal seed networks continue to supply the majority of seeds in South Asia, policy and institutional support are necessary for characterisation, purification, registration, and formal release of promising indigenous varieties. Initiatives such as cross-border regional collaboration ("Seeds Without Borders") demonstrate the value of sharing suitable landraces across agroecologically similar regions, ensuring both conservation and market access.

Challenges identified include capital-intensive infrastructure, market access constraints, and policy distortions such as minimum support prices that incentivise selling seeds as grain. Mechanisms like buyback arrangements, incubation support, and access to financial services were proposed to improve the sustainability of farmer-led seed enterprises.

Policy, Collaboration, and Financing

Effective seed sovereignty requires multi-level collaboration among farmers, researchers, policymakers, civil society organisations, and private actors. Successful approaches combine shared decision-making, public–private partnerships, and integration of formal and informal seed systems. Policy support, political will, and legal backing were highlighted as critical enablers, with experiences from Karnataka and Odisha demonstrating market-linked, farmer-centred approaches that integrate nutrition, food security, and biodiversity objectives.

POLICY SUPPORT, POLITICAL WILL, AND LEGAL BACKING

Policy support, political will, and legal backing were highlighted as critical enablers, with experiences from Karnataka and Odisha demonstrating market-linked, farmer-centred approaches that integrate nutrition, food security, and biodiversity objectives.

Royalty and compensation mechanisms for landrace custodians were emphasised as critical policy interventions. Such measures ensure that farmers can sustainably invest in seed multiplication, conservation, and integration into broader seed systems. Recognition of farmers' contributions, GI tagging of key varieties, and market development were identified as essential steps to strengthen livelihoods while promoting agrobiodiversity.

Key Points of the Session

Legal frameworks

Strong legal frameworks like PPV&FRA and the Biodiversity Act exist, but require coordinated, system-level implementation.

Seeds

Seeds must be understood holistically, including crops, wild relatives, livestock, and the broader farming ecosystem.

Farmer-managed seed systems

Farmer-managed seed systems need support for characterization, selection, formal release, GI tagging, and regional sharing initiatives.

Access and benefit-sharing

Access and benefit-sharing mechanisms should include both monetary and non-monetary benefits, protecting farmers' rights and knowledge.

Collaboration

Collaboration among farmers, researchers, NGOs, and markets is critical to ensure sustainable governance, financing, and market linkages.

State-level experiences

State-level experiences demonstrate that market-linked, farmer-centered approaches can sustain biodiversity, livelihoods, and seed sovereignty.

Field Visit

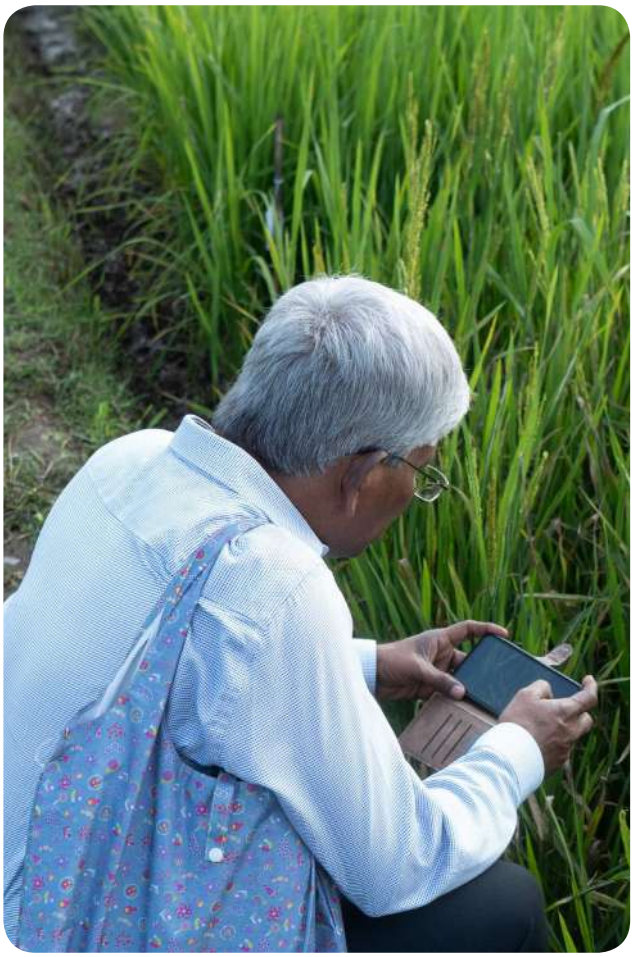
Exposure to Seed Bank Conservation and Landrace Purification

As part of the SEED 5C National Dialogue, landrace conserving custodian farmers, Nodal Officers representing Department of Agriculture, GoK, Project implementing officers, GoK; FIBL, Switzerland; GIZ, India and Crop Coordinators (Crop Breeders) from Farm Universities of Karnataka visited the Gene Bank established at the University of Agricultural Sciences, Bangalore to witness the Ex-situ method of conserving custodian farmer shared crop landraces. Further, a field visit was organised to Zonal Agricultural Research Station, V. C. Farm, Mandya to provide participants with practical field exposure to landrace purification processes and community-managed seed bank conservation under the Landraces Project Initiative. A total of 354 rice land races were evaluated for their DUS and productivity traits. This visit enabled delegates to directly observe ongoing efforts in collection, conservation, evaluation and multiplication of indigenous seed diversity at the field level.

Custodian farmers actively engaged with the delegation by sharing experiential knowledge on the performance of specific landraces, highlighting their agronomic adaptability, stress tolerance (drought and pest resistance), suitability to low-input farming systems, nutritional attributes, and cultural significance. These field-level narratives underscored the importance of farmer knowledge systems in sustaining and enhancing landrace diversity and informed deliberations on strengthening farmer–scientist collaboration.

Representatives from State Agricultural Universities and research institutions expressed strong interest in advancing the scientific validation of the documented landrace information. The university teams would undertake systematic evaluation, purification, multiplication, genetic characterization, and nutritional profiling of selected landraces to establish varietal identity, improve seed quality, and facilitate wider adoption within sustainable and climate-resilient food systems.

Overall, the field visit reinforced the SEED-5C framework by demonstrating effective linkages between conservation, cultivation, and collaboration, and by emphasizing the value of integrating community-led conservation initiatives with formal scientific research and institutional support mechanisms.



Conclusion and Way Forward

The dialogue on SEED-5C reaffirmed that indigenous seed systems are foundational to India's climate resilience, nutrition security, and agrobiodiversity stewardship. Across the five pillars of conservation, cultivation, consumption, commerce, and collaboration, a unifying message clearly emerged: farmers, particularly custodian farmers are not passive beneficiaries, but active innovators, breeders, and stewards of genetic diversity. Landraces were consistently recognised not merely as heritage crops, but as living genetic resources that underpin adaptive agriculture, ecological stability, biodiversity conservation, and culturally rooted food systems.

The dialogue demonstrated that community seed banks, participatory breeding, agroecological practices, indigenous food cultures, and farmer-led enterprises together form an integrated pathway towards seed sovereignty. Evidence shared from multiple states illustrated that in-situ conservation embedded within cultivation and livelihoods is more resilient and sustainable than standalone ex-situ approaches. Participatory research and citizen science were shown to strengthen both varietal performance and farmer ownership, while nutrition outcomes, consumer demand, market access, and enterprise development emerged as decisive drivers of sustained conservation. These discussions reinforced a central insight: agrobiodiversity survives when it is actively cultivated, consumed, and commercialised in equitable and locally grounded ways.

Notwithstanding these achievements, the discussions also highlighted persistent structural constraints that continue to impede the scaling of community seed systems. Key challenges include inadequate seed infrastructure, limited access to quality landrace and farmer-bred seed at scale, fragmented and project-based research and development, declining youth engagement in seed stewardship, weak institutional convergence across agriculture, biodiversity, and nutrition sectors, and insufficient economic, social, and policy incentives for custodian farmers. As a result, custodian farmers continue to bear disproportionate conservation costs, while traditional varieties remain marginal within formal seed systems, public procurement, research pipelines, and nutrition programmes.

Participants noted that these constraints persist despite India's comparatively strong legal architecture, particularly the Protection of Plant Varieties and Farmers' Rights Act (PPV&FRA) and the Biological Diversity Act. While these frameworks provide important recognition of farmers' rights, custodianship, and access and benefit sharing, the prevailing Seed Act, centric regulatory system remains predominantly designed for uniform, stable, and formally bred varieties. Consequently, landraces and farmers' varieties characterised by genetic heterogeneity, dynamic evolution, and local adaptation are weakly accommodated within existing seed notification, quality control, and market access mechanisms. The dialogue underscored that this regulatory misalignment represents a critical bottleneck in integrating community seed systems into the formal seed sector.

A central policy insight that emerged from SEED-5C was therefore the urgent need for an India-specific Seed Act policy framework that explicitly recognises, enables, and governs landraces and farmers' varieties.

Participants emphasised that such a framework must be aligned with the farmers' rights provisions of the PPV&FRA, harmonised with biodiversity and access-and-benefit sharing regulations, and responsive to the realities of farmer-managed seed systems. Drawing on relevant European experiences in recognising heterogeneous plant material and farmers' seed systems, the dialogue highlighted the value of adaptive, proportionate, and context-sensitive regulatory approaches that move beyond uniformity-based standards while safeguarding seed quality, traceability, and public interest.

The proposed Seeds Bill, 2025 introduces mandatory registration, QR-based digital traceability via the SATHI Portal, and stricter penalties for spurious seeds, while retaining farmers' rights to save and exchange seed; however, restrictions on branded sale and VCU testing requirements risk creating regulatory barriers for farmer collectives and community seed banks, potentially constraining traditional varieties and weakening seed sovereignty safeguards under the PPV&FRA, 2001. In contrast, EU Regulation 2018/848 mandates the use of organic-certified, in-conversion, or organic-heterogeneous planting material, allowing non-organic seed only through temporary national derogations, with a target of 100% organic seed use by 2036 supported by country-specific availability databases. Together, these frameworks highlight the strategic importance of enabling landraces within formal systems, not only for conservation, but as drivers of a regenerative bioeconomy, where climate-resilient genetics, nutrition-rich crops, and farmer-led seed enterprises can power sustainable value chains, rural livelihoods, and biodiversity-based innovation.

Way Forward

Building on the collective insights of SEED-5C dialogue, the following strategic directions are proposed:

1. Institutionalise community seed systems as public biodiversity infrastructure
2. Position custodian farmers at the core of seed governance
3. Strengthen farmer-centric legal facilitation and benefit sharing
4. Expand coordinated research on landraces and agrobiodiversity
5. Mainstream participatory breeding and agroecological cultivation
6. Integrate landraces into nutrition systems and build consumer awareness
7. Enable fair markets and farmer-led seed enterprises
8. Leverage digital and scientific innovations responsibly
9. Advance coordinated, multi-stakeholder collaboration
10. Draw lessons from international organic seed frameworks

- **Institutionalise community seed systems as public biodiversity infrastructure**

Community seed banks should be formally recognised and supported as decentralised public institutions and biodiversity hubs, linked with SAUs, KVKs, State Biodiversity Boards, and State Seed Corporations. Sustained investment is required for storage, quality assurance, documentation, and decentralised seed multiplication to enable continuous in-situ adaptation and farmer access.

- **Position custodian farmers at the core of seed governance**

Custodian farmers must be formally recognised as knowledge holders and conservation leaders. Dedicated incentives, conservation grants, royalty mechanisms, and social recognition systems are needed to offset conservation costs and enable intergenerational transfer of seed knowledge, with farmer leadership embedded in decision-making platforms.

- **Strengthen farmer-centric legal facilitation and benefit sharing**

PPV&FRA registration processes for farmers' varieties should be simplified, with stronger state facilitation and convergence with biodiversity governance and ABS mechanisms. Benefit sharing must include both monetary and non-monetary dimensions, recognition, access to seed, research outputs, markets, and services.

- **Expand coordinated research on landraces and agrobiodiversity**

Public research institutions and SAUs should scale multidisciplinary research on traditional varieties, covering agronomy, climate resilience,

nutrition, genetics, seed quality, and value-chain potential. Participatory research and citizen science must be institutionalised, with greater focus on under-researched crops beyond cereals.

- **Mainstream participatory breeding and agroecological cultivation**

Participatory varietal selection and breeding should be scaled through structured farmer–researcher partnerships, integrating nutritional traits, climate resilience, and local preferences, while agroecological practices restore soil health and reduce input dependence.

- **Integrate landraces into nutrition systems and build consumer awareness**

Traditional crops should be systematically linked to the Public Distribution System (PDS), Mid-Day Meal, Integrated Child Development Services Scheme program (ICDS), and other nutrition schemes, supported by nutritional profiling and local procurement. Consumer awareness through education, media, culinary platforms, GI tagging, and heritage labelling is essential to revive indigenous food cultures and demand.

- **Enable fair markets and farmer-led seed enterprises**

FPOs, SHGs, and cooperatives should be strengthened for aggregation, processing, branding, and market access. Digital platforms can enhance traceability, transparency, and royalty-sharing, supported by dedicated financial instruments and enterprise incubation.

- **Leverage digital and scientific innovations responsibly**

Open-source documentation, participatory data systems, nutritional characterisation, and AI-enabled advisory tools should complement indigenous knowledge while safeguarding data sovereignty and addressing emerging challenges such as Digital Sequence Information.

- **Advance coordinated, multi-stakeholder collaboration**

Seed sovereignty requires aligned action across farmers, civil society, research institutions, governments, and markets. State-level models from Karnataka and other regions demonstrate scalable pathways that integrate conservation, livelihoods, nutrition, and biodiversity.

- **Draw lessons from international organic seed frameworks**

Learning from international frameworks such as EU Regulation 2018/848—which mandates organic-certified and heterogeneous planting material and targets 100% organic seed use by 2036—can inform pathways for mainstreaming diverse landraces within formal systems while strengthening market demand.

In conclusion, SEED-5C marks a transition from dialogue to collective action. The proceedings underscore that resilient seed systems cannot be built through isolated interventions; they demand integrated approaches that connect biodiversity with livelihoods, research with tradition, consumer awareness with conservation, and policy with practice. By centring custodian farmers, strengthening community institutions, reforming enabling seed policies, and aligning conservation with cultivation, consumption, commerce, and collaboration, India can consolidate its leadership in agrobiodiversity while building climate-adaptive, nutrition-sensitive, and socially just food systems for the future.





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DEUTSCHE ZUSAMMENARBEIT
Implemented by
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KSDA
KAGGA RICE
| RESILIENT | NUTRIENT-RICH |
COASTAL HERITAGE |
WHY KAGGA RICE MATTERS
• Grows where other paddy varieties cannot survive in coastal wetland conditions
• Naturally tolerant to salinity, pest-resistant
• Plays a key role in paddy–shrimp integrated farming, a unique eco-farming system
• Supports coastal farming livelihoods and traditional food cultures
• Rich in minerals and valued for its soft, mildly sweet taste
• A climate-resilient traditional landrace worth conserving for future generations
WHY KAGGA RICE STANDS OUT
• Sturdy, tall coastal rice adapted to marshy estuarine fields
• Moderate tillering with strong culms
• Long, compact panicles ensuring good grain filling
• Medium-bold red grains with nutrient-dense bran
• High dietary fibre, antioxidants, iron & zinc
• Slow digesting—steady energy release
• Soft yet firm texture after cooking; ideal for kanji & traditional diets
• Robust husk ensures good storage and seed viability


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DEUTSCHE ZUSAMMENARBEIT
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GULBARGA TUR DAL
Gulbarga (Kalaburagi), often known as the "Red Gram Bowl of Karnataka," is one of the country's most prominent tur growing regions. Its unique calcium- and potassium-rich soils give Gulbarga Tur Dal a distinctive nutritional profile, along with its characteristic aroma, flavour, and cooking quality.
GEOGRAPHIC INDICATOR REGISTRATION
• Name: Gulbarga Tur Dal
• Registered on: 14 August 2019
• Registered proprietors: University of Agricultural Sciences (UAS) and Karnataka Togari Abhivrudhi Mandali Ltd
UNIQUE TRAITS
• Higher calcium, potassium, and dietary fibre
• Distinct Flavour and unique taste
• Quick Cooking and Smooth texture
• Long Shelf Life

Annexure 1 - Program Schedule

Program Schedule - National Dialogue on

Beeja Parampara - Conserving Our Past, Cultivating Our Future

"SEED-5C, 2025"

Dates: 25 - 26 November 2025

Venue: Sangama Hall, Department of Agriculture, Government of Karnataka, Sheshadri Road, Bengaluru

Organized by: SuATI Project, GIZ India, in collaboration with the Department of Agriculture, Government of Karnataka

25th November 2025

09:30 – 10:00: Registration & Networking

10:00 – 10:45: Inauguration

- Prayer
- Nadageethe

Welcome Address

Dr. G. T. Puthra, Director, Department of Agriculture, Government of Karnataka, Bengaluru

Introductory Note

Smt. Namerta Sharma, Senior Team Leader Implementation, SuATI Project, GIZ, India

Inauguration by Lighting of the Lamp by

Shri. N. Chaluvarayaswamy, Hon'ble Minister of Agriculture, Government of Karnataka
Other dignitaries

*Release of the seed case study book "***Beeja Parampara – Narratives of Preservation and Pride"**

Address by

- Dr. S. V. Suresha, Vice Chancellor, University of Agriculture Science GKVK, Bangalore
- Shri. Ashok Dalwai, IAS (Rtd.), Chairman, Karnataka Agriculture Price Commission, Government of Karnataka

Facilitation of the Custodian Farmer

Presidential Address by

- Shri. N. Chaluvarayaswamy, Hon'ble Minister of Agriculture, Government of Karnataka

10:45 – 11:00: Coffee/Tea break

1

11:00 – 12:00: Session 1

Conservation – Community Gene Banks, In-Situ Models & Documentation

This session will explore farmer-led landrace conservation through in-situ and ex-situ strategies. Key topics include participatory mapping of seed diversity hotspots, integration of local data with national repositories, and simplified registration under PPVFRA. It will also highlight open-source seed systems and digital tools for documentation. Incentive mechanisms for strengthening community custodianship and ensuring long-term conservation will be discussed.

Chair	Dr. G. T. Puthra, Director, Department of Agriculture, Karnataka
Co-Chair	Dr. V.R. Prabavathy, Senior Fellow, M.S. Swaminathan Research Foundation, Chennai
Speakers *8 minutes per speaker and 10 minutes for discussion*	• Dr. B.C. Patra, Emeritus Scientist & Former Director, Central Rice Research Institute, Cuttack • Mr. Prashant K Parida, Director, M.S. Swaminathan Research Foundation Tribal Agro-biodiversity Centre, Jeypore • Dr. Lal Singh, Director, Himalayan Research Group, Shimla • Dr. Sarika Mittra, Consultant, Bioversity for Food and Agriculture, Alliance of Bioversity International and CIAT, New Delhi • Mr. Syad Ghani Khan, Seed Custodian Farmer, Mandya
Rapporteurs	Dr. Channabasava, Research Associate, UAS, GKVK & Ms. Ashwini Jain

12:00 – 13:00: Session 2

Cultivation – Participatory Breeding & Agroecological Practices

This session emphasizes agroecological cultivation practices that enhance climate resilience. Discussions will cover participatory varietal selection, crop diversity blocks, and farmer-led field trials. Collaborative breeding models between farmers and researchers will be showcased. The role of community seed centers, women SHGs, and FPOs in sustaining crop diversity and governance will be highlighted.

Chair	Dr. Amritbir Riar, Deputy Leader, Department of International Cooperation, FiBL, Switzerland
Co-Chair	Prof. S. Ramesh, Dept. of Genetics and Plant Breeding, UAS, GKVK, Bengaluru
Speakers *10 minutes per speaker and 10 minutes for discussion*	• Mr. Sharanappa B Mudagal, Additional Director of Agriculture (Organic Farming), Department of Agriculture, Karnataka • Prof. A. Mohan Rao, Department of Genetics and Plant Breeding, University of Agricultural Science, GKVK, Bengaluru • Dr. Mrinal Saikia, Associate Director of Research, Assam Agricultural University, Jorhat, Assam • Mr. Devarao, Champion Farmer, Belthangady
Rapporteurs	Ms. Manoshi Chakrovorty, SuATI, GIZ India

13:00 – 14:00: Lunch

14:00 – 15:00: Session 3

Consumption – Reviving Indigenous Food Cultures & Nutrition

This session links landraces to food heritage, nutrition, and health. It will showcase Indigenous and women-led initiatives that revive traditional recipes and culinary storytelling. School garden programs and community nutrition campaigns will be discussed as tools for cultural preservation. The session will emphasize how food diversity supports dietary health and strengthens local economies.

Chair	Dr. Rakesh Bhardwaj, Principal Scientist, NBPGR, New Delhi
Co-Chair	Prof. N. Mathivanan, Former Registrar, University of Madras, Chennai
Speakers *8 minutes per speaker and 10 minutes for discussion*	• Dr. R. Ananthan, Scientist, ICMR-National Institute of Nutrition, Hyderabad • Ms. Uma R Maheswari, Founder CEO, We-Mana Nutrition (OPC) Pvt Ltd, Bengaluru • Mr. Gangadhar Naik, Sirsi • Ms. Mariam, Seed Custodian Farmer, Karkala, Karnataka • Mr. Limshing Pumah, Custodian Farmer, West Karbi Anglong, Assam
Rapporteurs	Mr. Hariom Nirala, SuATI, GIZ India

15:00 – 16:00: Session 4

Commerce – Fair and Sustainable Seed Enterprises and Digital Technology

This session focuses on building farmer-led seed enterprises and fair-trade value chains. Topics include local branding, GI-tagging, and heritage labelling for traditional seeds. Digital marketplaces and cooperative models will be explored to integrate community seeds into broader market systems. Case studies of successful seed enterprises will provide practical insights.

Chair	Dr. Venkatramreddy Patil, Director Secondary Agriculture, Department of Agriculture, Karnataka
Co-Chair	Ms. Namerta Sharma, Senior Team Leader Implementation, SuATI Project, GIZ, India
Speakers *8 minutes per speaker and 10 minutes for discussion*	• Mr. Pramod Takawale, Programme Director – Agricultural Research, BAIF Development Research Foundation, Pune • Dr. Tanay Joshi, Director - Agriculture & Livelihoods, GPS-India & Africa, Ernst & Young LLP, New Delhi • Dr. Prabhakar Rao, Founder, Hariyalee Seeds, Bengaluru • Mr. Tapan Ray, CEO, Pratithi Organics Foods Pvt Limited, New Delhi • Mr. S. Kannappan, Founder, SMART TECH 2 FARMER, Chennai
Rapporteurs	Mr. Naveen, Utphan Labs, Mysore

16:00 – 16:15: Coffee/Tea break

16:15 – 17:15: Session 5 – Panel Discussion

Collaboration & Policy – Financing Seed Sovereignty and Governance

This session will address multi-stakeholder collaboration and governance mechanisms for seed sovereignty. Discussions will include funding models, public-private partnerships, and institutional support for community seed systems. Legal frameworks under the PPVFRA and Farmers' Rights will be discussed to improve implementation. Strategies for policy advocacy and benefit-sharing will be highlighted.

Chair	Mr. Hans Jurgen Klein, Team Leader, SuATI, GIZ, India
8 minutes per speaker and 10 minutes for discussion	• Ms Y.S. Patil, IAS. Commissioner, Dept. of Agriculture, Karnataka • Dr. N. Anil Kumar, Chairperson, Kerala State Biodiversity Board, Kerala • Dr. Amritbir Riar, Deputy Leader, Department of International Cooperation, FiBL, Switzerland • Dr. Mosharaf Hossain, Global Scientist- Seed System, IRRI South Asia Regional Centre, Varanasi • Mr. Nithin Ramakrishnan, Senior Researcher, Third World Network (Virtual)
Rapporteurs	Mr. Pradipta Kishor Chand, SuATI, GIZ India

17:15 – 18:00: Vote of Thanks

Ms. Namerta Sharma, Senior Team Leader Implementation, SuATI Project, GIZ, India

18:00 – 18.05: National Anthem

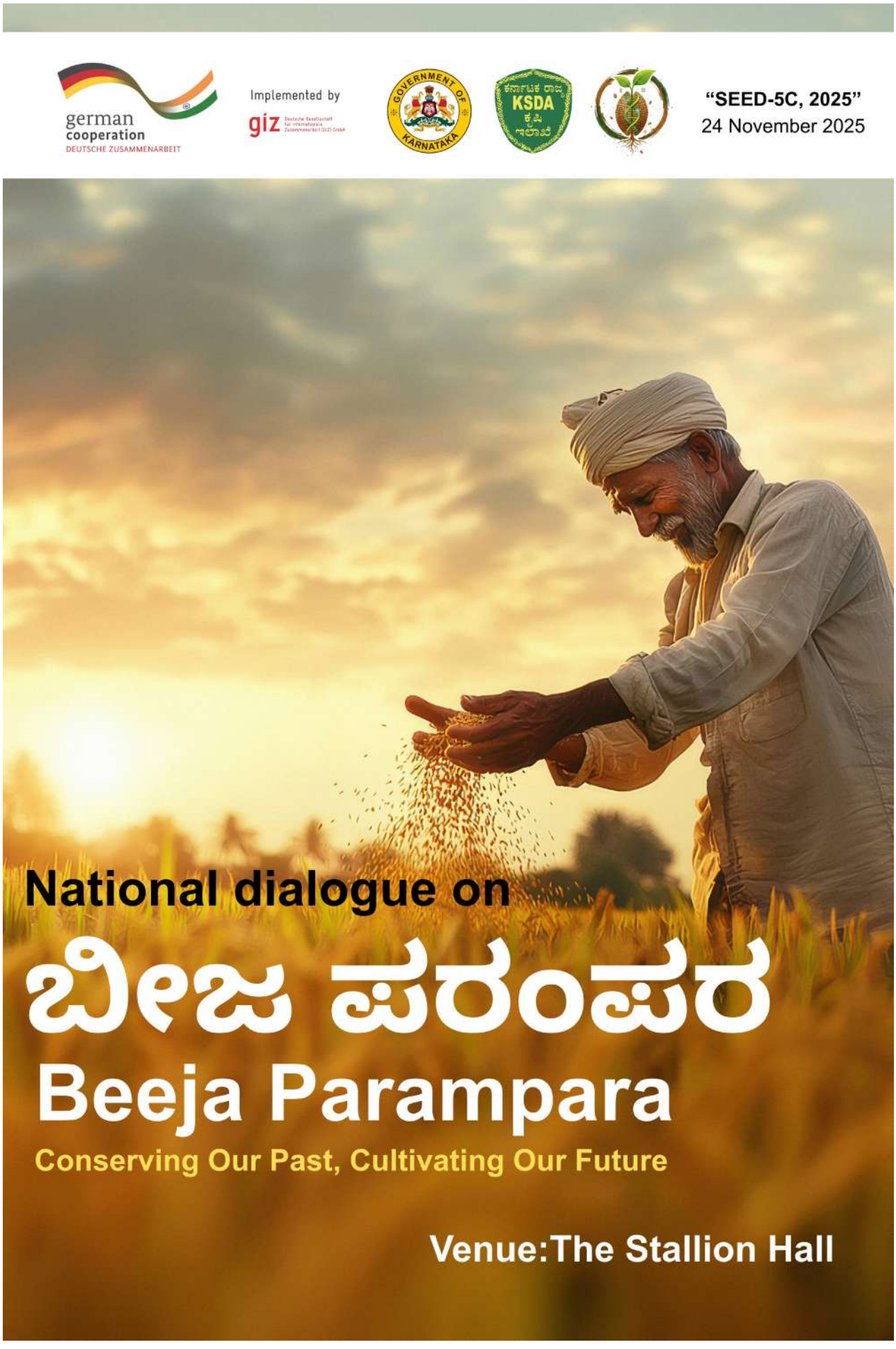
18:00 – 19:00: Tea

<u>26th November 2025 (Field trip)</u>

08.00 – 10.00: **Field Visit to germplasm** collection and demonstration plots in GKVK, UAS Bengaluru

10.00 – 18.00: **A field visit to Mandya** to explore paddy landrace demonstration and conservation trail plots, showcasing traditional crop diversity and community-led conservation practices.

Annexure 2 - Posters



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C Custodians
Farmers who safeguard traditional seeds across generations.

O Origins
Honouring where each landrace comes from and the stories it carries.

N Native
Focusing on locally adapted crops that thrive in their home landscapes.

S Seeds
The living heritage that sustains culture, nutrition, and biodiversity.

E Ecology
Ensuring seed conservation strengthens natural ecosystems.

R Resilience
Supporting crops and communities that withstand climate challenges.

V Varieties
Celebrating the diverse landraces enriched by centuries of selection.

A Ancestral
Recognizing the deep traditional wisdom behind seed keeping.

T Tradition
Preserving cultural practices linked to sowing, harvesting, and food.

I Indigenous
Uplifting knowledge rooted in local, tribal, and farming communities.

O On-farm
Encouraging conservation directly in farmers' fields where seeds evolve.

N Nurture
Caring for biodiversity so it continues to nourish future generations.

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GOVERNMENT OF KARNATAKA

KSDA

C **Collaborative Breeding**
Strengthening crop improvement through farmer–researcher partnerships.

U **Upland & Diverse Fields**
Promoting crop diversity blocks that support climate-resilient farming.

L **Locally Adapted Seeds**
Selecting varieties that evolve naturally within farmers' environments.

T **Trials Led by Farmers**
Empowering farmers to conduct field trials and choose the best performers.

I **Inclusive Participation**
Engaging women SHGs, youth, and FPOs in seed and crop governance.

V **Varietal Selection**
Refining crops through participatory selection across landscapes.

A **Agroecological Practices**
Building resilience through soil health, biodiversity, and ecological farming.

T **Traditional Knowledge**
Integrating community wisdom into modern cultivation approaches.

I **In-situ Evolution**
Growing seeds in their native fields to strengthen adaptive traits.

O **On-farm Conservation**
Sustaining crop diversity directly within farmers' production systems.

N **Nurturing resilience**
Strengthening communities by cultivating climate-ready landraces.

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C Culinary Heritage

Celebrating traditional recipes that keep indigenous food cultures alive.

O Oral Traditions
Preserving food stories passed down through generations.

N Nutrition Awareness
Promoting diverse diets rooted in landraces for better health.

S School Gardens
Engaging children in growing, tasting, and valuing traditional foods.

U Underutilized Crops
Reviving forgotten landraces that offer rich nutritional benefits.

M Memory Foods
Reviving dishes that reconnect communities with their culinary heritage.

P People-led Initiatives
Showcasing women, communities, and youth driving food revival movements.

T Traditional Recipes
Reintroducing dishes that connect communities to their cultural roots.

I Indigenous Ingredients
Highlighting locally grown crops that enrich health and biodiversity.

O On-plate Diversity
Encouraging colourful, varied meals that reflect ecological richness.

N Nourishing Communities
Improving well-being and local economies through culturally rooted diets

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C — Community Enterprises
Strengthening farmer-led seed businesses rooted in local ownership.

O — Open Markets
Expanding access to fair and transparent value chains for traditional seeds.

M — Market Linkages
Connecting custodian farmers to buyers through sustainable trade networks.

M — Micro-entrepreneurship
Encouraging small, decentralized seed ventures that empower rural households.

E — Ethical Trade
Promoting fair pricing, quality assurance, and responsible seed commerce.

R — Regional Branding
Leveraging GI tags and heritage labels to enhance market value.

C — Cooperative Models
Enabling farmers to collectively manage production, marketing, and profits.

E — E-platforms
Using digital marketplaces to scale the reach of local and indigenous seeds.

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Collective Action

Bringing together farmers, institutions, and policymakers to strengthen seed sovereignty.

C

O
Open Dialogue
Encouraging transparent discussions across sectors for inclusive decision-making.

L
Legal Frameworks
Supporting stronger implementation of PPVFRA and Farmers' Rights.

L
Long-term Support
Ensuring sustained institutional and financial backing for community seed systems.

A
Accountability
Promoting responsible governance and equitable benefit-sharing.

B
Benefit-sharing
Ensuring communities receive fair recognition and rewards for their knowledge.

O
Open Partnerships
Building collaborations across public, private, and civil society actors.

R
Resource Mobilization
Expanding funding opportunities for seed conservation and community enterprises.

A
Advocacy
Advancing policy reforms that protect custodians and biodiversity.

T
Trust-building
Encouraging colourful, varied meals that reflect ecological richness.

I
Institutional Mechanisms
Improving structures that guide seed policy, certification, and registration.

O
Ownership by Communities
Empowering farmer groups to lead decision-making in seed governance.

N
National Priorities
Aligning seed sovereignty efforts with India's food security and climate agendas.

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FiBL

LANDRACES: A VITAL RESOURCE FOR SUSTAINABLE FARMING

Landraces are traditional, farmer selected crop varieties that carry centuries of genetic wisdom uniquely suited to the specific soils, climate, and cultural practices of their region.

WHY LANDRACES MATTER

Rich Genetic Diversity

Harbour rare and unique traits crucial for adapting to climate change, pests, and emerging crop diseases.

Naturally Climate-Resilient

Locally adapted over decades, thrive in harsh conditions with **minimal inputs** and resilience to abiotic and biotic stresses.

Foundation for Future Breeding

Their diverse gene pool is essential for developing **climate smart, pest-tolerant, and nutrient-rich varieties** for tomorrow's agriculture.

Better Nutrition & Public Health

Many landraces contain higher fibre, minerals, and antioxidants—supporting the fight against **malnutrition, diabetes, obesity, and lifestyle disorders.**

Protect Cultural & Seed Heritage

They safeguard age-old farming traditions, culinary practices, and community identity, keeping **indigenous knowledge alive** for younger generation.

"Landraces are not just seeds they are living heritage, climate solutions, and nutrition for the future generation."


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LANDRACES PROJECT – JOURNEY AT A GLANCE
1. Multi-Stakeholder Planning
Group discussions with Department of Agriculture, GIZ & FiBL to co-create the roadmap.
2. District-Level Workshops
Training, awareness, and farmer mobilisation across regions.
3. Forgotten Foods Competitions
Celebrating traditional recipes at district & state levels.
4. Cultural Revival at ITF 2025
Launch of the Landrace Song & creation of the Landrace Pavilion.
5. Digital Innovation for Seeds
Development of a mobile app to document landraces across Karnataka.
6. Field Data Collection
On-ground surveys, farmer interviews & sample documentation.
7. Web Portal Development
Statewide online platform for landrace information & access.
8. Gene Bank at GKVK, UAS Bengaluru
Systematic conservation of seed diversity for future generations.
9. Field Evaluation Studies
Testing performance, traits & climate resilience of landraces.
10. Mass Outreach & Awareness
Radio talks, media campaigns & community engagement.
11. National Recognition
Presentation of the project at the P4C Event, New Delhi (GIZ).
12. Establishment of forgotten food shop, release of landrace varieties

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LANDRACES PROJECT – WORKFLOW OVERVIEW

1. Mobile App Deployment

Digital tool launched to capture landrace details across Karnataka.

2. Field Data Collection & Surveys

Farmer interactions, on-farm observations and sample documentation.

3. Central Data Pool Creation

Compiling field information into a unified state database.

4. Establishment of Gene Bank

Seed samples stored and preserved at GKVK, UAS Bengaluru.

5. Seed Segregation & Classification

Organising samples based on traits, regions, and crop types.

6. Scientific Team Allocation

15 scientists assigned to lead evaluation and analysis.

7. Comprehensive Evaluation Studies

Multi-level assessment for scientific validation, including:

- DUS Characterisation (Distinctness, Uniformity & Stability)
- Genome Evaluation (genetic fingerprinting)
- Nutritional Profiling (macro & micronutrient analysis)
- Varietal Selection (identifying promising lines)
- Varietal Release (formal process for registration & promotion)

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"SEED-5C, 2025"
25 November 2025