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THE GREEN EVOLUTION

PATHWAYS FOR FOOD SYSTEM TRANSFORMATION

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Bhutan – Regional Conference on Agroecology

From Green Revolution to Green Evolution: South Asia’s Journey Toward Agroecology



In Thimphu, Bhutan, experts, policymakers, researchers, and civil society representatives from across South Asia came together to reflect on one important question: How can we transform our food systems to work with nature, not against it? While the Green Revolution fed millions, it also left behind a trail of challenges — soil degradation, water pollution, biodiversity loss, and growing vulnerability to climate change. Today, the region faces the urgent task of reimagining agriculture through the lens of agroecology — an approach that integrates

science, tradition, and sustainability to build healthier and resilient food systems.

To advance this transformation, the Welthungerhilfe (WHH) and SAARC Agriculture Centre (SAC) in collaboration with, Ministry of Agriculture and Livestock, Bhutan, hosted a three-day Regional Conference on Agroecology from 29–31 July 2025 in Thimphu. Over 55 participants from SAARC countries attended, marking a significant milestone in regional collaboration.

A Shared Vision for a Greener Future



“Bhutan is committed to a Green Evolution—embracing agroecology and resilience while urgently addressing the environmental and social challenges left by the Green Revolution.”

- Mr. Thinley Namgyel
Hon’ble Secretary, Ministry of Agriculture and Livestock, Bhutan



“We live in the era of Gene Evolution, where technology is advancing rapidly—but we must not lose sight of nature’s limits. The way forward is to create a living landscape driven by consumer demand for healthy and nutritious food.”

- Dr. Harunur Rashid
Director, SAARC Agriculture Centre (SAC)



“Strengthening regional cooperation through the exchange of knowledge, information, and technology is essential. One example is the SAARC Seed Bank, which aims to facilitate access to quality seeds among SAARC member states.”

- Mr Tanvir Ahmad Torophdar
Director, ARD and SDF, SAARC Secretariat

Conversations That Matter to Action

Through six technical sessions, participants shared experiences and practical insights on accelerating agroecology in South Asia. Discussions emphasized strengthening policies and institutions, promoting participatory research, developing local markets, and actively including women and youth. Agroecology was recognized not just as a set of farming practices but as a transformative movement connecting people, food, and nature. These conversations culminated in a shared Call to Action urging governments, civil society, and research institutions:

- Developing a regional SAARC framework for agroecology.
- Reforming agricultural subsidies to reward sustainable practices.

- Empowering local organizations and cooperatives to lead implementation.
- Expanding certification systems like Participatory Guarantee Systems (PGS); and
- Establishing a regional knowledge platform to promote research, education, and innovation.

Together, these commitments reflect a growing regional consensus that the future of food security and climate resilience lies in agroecology—an approach that nurtures both people and the planet.

Nepal - Strengthening Capacities in Karnali

Training for Transformation: Principles and Practices

By LIBIRD, Nepal

In a major step toward transforming food systems in Nepal, the Agriculture and Livestock Business Promotion Training Center (ALBPTC) under the Ministry of Agriculture, Land Management and Cooperative (MoLMAC), Karnali Province, in collaboration with the Green Evolution program organized a weeklong training “Training on Principles and Practices of Agroecology.” The training was conducted with government extension workers, policy experts, and technical professionals from agriculture, livestock and forestry sectors – creating a vibrant space for cross – sectoral learning and collaboration.

The training is aimed at equipping government extension workers with practical skills to integrate and promote agroecological practices in their local areas. Participants explored the 13 principles of agroecology, learning ways to improve soil health, boosting biodiversity, and reducing

reliance on costly external inputs. The training combined policy insights with practical expertise, building capacity to promote sustainable agroecological practices locally

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“Though I come from a forestry background, the sessions on agroforestry were especially relevant. The mix of policy and technical insights made it a well-rounded learning experience.”

- Hikmat Kumar Shahi, Forest Ranger, Forest Research and Training Center, Surkhet





Feed the soil, soil will feed plants

A movement of the Green Evolution Project towards agroecology farming

By FIVDB, Bangladesh

In Sylhet, Bangladesh, rice farming has long relied on chemical fertilizers. Rising costs and declining soil health are now major concerns, as overuse hardens the soil and depletes organic matter. According to the Soil Resource Development Institute (SRDI), soil contains less than 2% organic matter, well below the ideal 5%, signaling a need for transformative changes in local food systems.



Transforming Practice: The Story of Md. Mustofa Kamal

Md. Mustofa Kamal, a 49-year-old farmer from Vitrikhel village of Moddho Jaflong, Gowainghat, Sylhet relied on chemical fertilizers to cultivate rice. He said, **“Every year my expenses were going up, yet the land was losing its strength”** Inspired by Farmer Field Schools, Kamal began making BAOFER (Biologically Active Organic Fertilizer) using local ingredients like cow dung, rice husk, mustard oil cake, cow urine, molasses, lime, ash, and fermented foods.

Last rainy season, Kamal tested BAOFER across 150 decimals: 12 decimals with BAOFER only, 13 with BAOFER + chemicals, and 125 with chemicals only. The results were clear rice grown with BAOFER alone, which was taller, greener, and healthier, providing extra fodder and reducing costs by BDT 1,000. The integrated plot also increased harvests and reduced input costs.

“

With BAOFER, I see hope. My goal is to gradually convert all my land to organic farming and inspire others to do the same.

- Md. Mustofa Kamal, Farmer

Expanding Change

Inspired by him, neighbor Md. Yeasin Ali applied BAOFER to his cucumber fields, cutting costs by BDT 17,000. Neighboring farmer Md. Yeasin Ali soon adopted the same approach. Through his Participatory Guarantee System (PGS) group, he now promotes organic practices, proving that feeding the soil is truly feeding the future.

Change at Glance

- **Input Cost: Only 7-8 BDT/kg to produce BAOFER locally.**
- **Savings: Farmers reduced cultivation costs by up to BDT 17,000 per season.**
- **Soil health: Organic matter increased from <2% to nearly 4%.**
- **Yield: 10–15% higher crop productivity observed.**



Goals for the Planet: How a Village Football Match Sparked a Green Revolution in Jharkhand

By Anindita Kundu & Nidhi Joshi, Abhivyakti Foundation, India

The monsoon sky over Basuliya village in Jharkhand was thick with excitement on World Ozone Day, 16th September 2025. The Green Evolution team used the village's favorite sport to spread a vital message: protecting the environment, like winning a game, requires teamwork.

Eight village teams competed fiercely. Between matches, farmers and youth gathered for quick, interactive sessions on eco-friendly practices —using bio-inputs, natural fertilizers and pesticides that nurture the soil. As the ball rolled across the field, so did ideas — about greener farming, cleaner air, and healthier food.

Around 500 villagers attended, with 70 farmers actively engaging in demonstrations. Young volunteers ran logistics, referred to games, and spread sustainability messages, taking pride in shaping their community's future. By the final whistle, strangers became teammates, and players turned into eco-champions.

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“We learned that teamwork doesn't just win games,” one farmer said, “it saves our soil too.”

The event beautifully blended sport, spirit, and sustainability, connecting local action to global goals — from Zero Hunger to Climate Action. In Basuliya that day, football wasn't just a game — it was a movement, a reminder that the world's greatest goals are the ones we achieve together.

Growing Possibilities, Nurturing Self-Reliance

By Prity Maji, Pravah, India

The Bio- Resource Centre (BRC) has become more than just a local hub for agricultural innovation, it's a story of self-reliance, circular economy and community – driven growth.

Established with a simple yet transformative goal, the BRC set out to reduce the farmers' dependency on costly chemical inputs and help them shift towards eco-friendly sustainable practices. The solution emerged from within the community itself — the BRC began producing and supplying bio-inputs such as Beejamrit, Jeevamrit, Ghan Jeevamrit, Agnistra, Dasparni, Bahubeej Mishra, Mathastra, Vermicompost, and Super Vermicompost.

But that was just the beginning. Farmers associated with the BRC soon started growing and selling vegetable seedlings—from brinjal and tomato to chili and cauliflower—transforming themselves from input buyers to entrepreneurial suppliers.

Today, the BRC has become a marketplace of opportunity, linking small and marginal farmers directly to local buyers ensuring better prices and stable incomes. Access to local bio- inputs, has also lowered their cultivation costs – a double win for both sustainability and profit. Beyond the numbers, the initiative has rekindled rural entrepreneurship. Young farmers are returning to agriculture with renewed hope, proving that when communities value nature' resources, they don't just grow crops – they grow possibilities.





The Kunyu: Reviving Nepal's Ingenious Maize Storage Tradition

By Jagdish Chandra Dhami, LIBIRD

In the hilly regions of Nepal, maize is the most important crop, surpassing rice and wheat in both cultivation area and total production. Serving food, animal feed, and fodder, maize is vital for the food security and livelihoods of farming families. Grown during the rainy season, it is harvested from August to mid-September, but preserving the grain for months ahead remains a key challenge.

A field visit to Dailekh showcased a brilliant indigenous technique addressing this challenge: storing intact maize cobs in a structure known as the Kunyu. This method is a testament to generations of accumulated wisdom, offering a sustainable and effective way to protect the harvest. The process begins after harvest, where farmers preserve the maize cobs whole instead of immediately shelling them, a labor-intensive task. The cobs are meticulously bundled and stacked around a central wooden or bamboo pole, which is supported by a forked stand, elevating the entire structure approximately 3-4 feet above the ground. This elevation acts as the first line of defense against ground moisture and small animals.

The stack is then thatched with a mat-like covering made from local leaves such as Siru or Colocasia, providing waterproof protection while allowing air circulation to prevent mold. To deter rodents, farmers add a natural barrier of sharp pine leaves or wild needle plants beneath the cobs.

Kunyu offers multiple practical benefits. By storing unshelled cobs, farmers avoid the time-consuming work



of threshing immediately after the hectic harvest. The shelling can be delayed for 2-3 months and done during the winter, a relatively leisure time, thus distributing the annual workload more evenly. Storing maize in Kunyu allows for continued, gentle drying. The well-ventilated environment ensures the cobs dry uniformly, which prevents the growth of aflatoxins and makes the kernels easier to remove later, resulting in cleaner grain and better-quality seeds. As maize is considered a warming food consumed mostly in winter, this practice contributes significantly to household food security. This sustainable model requires no external materials.

As climate risks rise, such indigenous methods hold timeless lessons for food security.

Why It Matters

- Prevents Post – Harvest Loss
- Maintains Seed Quality for Next Planting

The 'Amruta Anna'- Divine Rice Journey from Koraput to Puri

By Pragati Koraput, India

Nestled in the Eastern Ghats of southern Odisha lies Koraput, a land where farming is not just an occupation — it's a way of life deeply woven into the region's culture and traditions. Renowned as a center of origin and diversity for Asian rice, the region is home to countless indigenous rice landraces. Traditionally, farmers would sell only rice, never paddy, preserving these precious varieties within the community.

For over two decades, Pragati has worked to revive and promote indigenous rice varieties, helping farmers conserve, cultivate, and market them through farmer collectives. In collaboration with the Department of Agriculture, and the Shree Jagannath Temple Administration (SJTA) has now evolved into the "Amruta Anna" scheme- a government effort to prepare Mahaprasad, the divine offering to Lord Jagannath, using organic indigenous rice.

In the first phase, the farmers cultivated 80 hectares of organic aromatic rice, with plans to expand to 5,000 hectares within five years.

The impact is already rippling beyond temple walls. With growing consumer awareness, Koraput Kalajeera rice is finding its way to niche markets across India and abroad. In August 2025, the first institutional linkage saw 3.6 metric tons of premium Kalajeera rice shipped to Gurgaon, marking the start of a new market era.

The impact is already reaching beyond temple walls. Growing consumer awareness has brought Koraput Kalajeera rice to niche markets across India and abroad. In August 2025, 3.6 metric tons of premium rice were shipped to Gurgaon, marking the start of a new market era.

As policy dialogues continue to build frameworks for certifying and supporting traditional landraces, Koraput's farmers stand at the forefront of a quiet revolution — one that celebrates biodiversity, honors heritage, and nourishes both body and spirit. Koraput's Divine Rice is no longer just a meal — it's a movement.





Agroecology: A Holistic Approach to Our Food Systems

Interview with Dr. Sultan Ismail



Dr. Sultan Ahmed Ismail is an ecologist and environmental scientist, Advisor and former Director of the EcoScience Research Foundation, Chennai, India. He has shaped Tamil Nadu's policies on organic farming, land use, water, and waste management, and has been recognized internationally for his contributions to sustainable agriculture and the earthworm industry.

“Technology should assist the farmer, not replace them.” Agroecology is often misunderstood, says Dr. Sultan. “Many assume it’s simply agricultural ecology, but it is so much more.” Agroecology is a holistic approach to nurturing our environment, integrating ecological, economic, social, and sustainable food systems.

“Local knowledge, involve youth, empower marginalized groups, and ensure supportive policies, particularly in marketing and product promotion.” Highlighting discussions at the SAARC meet in Bhutan, which showcased the immense diversity of local knowledge. “This knowledge must be supported through financial and policy frameworks,” he says, “so governments can help integrate new technologies while maintaining ecological integrity and social equity”. He also notes that agroecology is often fragmented into subfields—permaculture, organic farming, natural farming, biodynamic farming, -but rather than competing, these

systems should be integrated, giving farmers freedom of choice and creating successful models for every ecosystem.

“Our goal is one earth, where ecosystems, agriculture, and agroecology are perfectly integrated for future generations.” Preserving heirloom seeds and local knowledge is essential for future food security. Sultan calls for a collective effort: sharing knowledge, integrating technologies ethically, supporting local communities, and co-creating policies



“Together, we can advance agroecology for one earth, where ecosystems, agriculture, and communities thrive for generations to come.”

Regional Cooperation Insights

Q: What are the best ways to advance regional cooperation on agroecology in South Asia?

A: “South Asia already has several development networks and platforms, yet much of this work remains siloed, with resources and knowledge underutilized. We could leverage these existing networks to create a ‘network of networks.’”

The SAARC Agriculture Centre (SAC) can act as a pivotal hub, linking research and extension systems across countries”. SAC could help develop and disseminate evidence-based solutions for smallholders and policymakers, addressing common challenges such as limited understanding of agroecology and weak research capacity.”

Kesang: “To strengthen cooperation, I feel a common platform like SAARC can bring governments together for discussions, while research institutes generate data, evidence, and case studies to showcase successful practices. Once governments are in the loop—with a commitment to study, experiment, replicate, and demonstrate agroecology in action, it becomes more likely to scale up”. She adds that action research led by communities, NGOs, and farmer groups is critical. These groups can drive both upscaling and wider adoption, ensuring that practical knowledge reaches the grassroots.”

- Ms Kesang Tshomo, Specialist, Department of Agriculture, MOAL, Bhutan



Madhur Gandhi is a professional development passionate about rebuilding local food systems through livelihood interventions. At IFOAM-Organic International, he supports roadmap strategy development for scaling agroecology in Bhutan, Nepal, and India. He has previously worked on millet and organic cotton initiatives.



Soil Testing and Analysis for Sustainable Agriculture in Dhanusha District of Madhesh Province, Nepal (2025)

By Archana Yadav, Devraj Gupta, WHH Nepal

Soil fertility underpins agricultural productivity, yet in Nepal's Madhesh Province, imbalanced nutrient management continues to degrade soil health. The Civil Society for Nature-Based Local Agri-Food Systems (CS4FS) Project conducted a soil testing survey across three municipalities: Ganeshman Charnath & Sahidnagar Municipalities and Janaknandani Rural Municipality targeting climate-vulnerable and agriculturally intensive wards. In total, 500 samples were collected from representative wards with diverse cropping systems and varying irrigation conditions, capturing the agro-ecological heterogeneity of Dhanusha District.

The survey revealed widespread phosphorus (P) deficiency, medium but uneven nitrogen (N) levels, and significant variation in potassium (K) status. Zinc (Zn) deficiency emerged as the most common micronutrient gap, while magnesium (Mg) deficits were concentrated in specific areas such as Sahidnagar. Organic matter content was moderate but insufficient to sustain soil microbial diversity

and long-term fertility. Rhizobium populations were low to moderate, limiting natural nitrogen fixation in legumes.

The study recommends site-specific nutrient management rather than blanket fertilizer use, including lime or gypsum for pH correction, incorporation of farmyard manure and compost, band placement of phosphorus, balanced nitrogen application, and targeted micronutrient supplementation. Legume rotations, Rhizobium inoculation, and green manure crops are advised to restore biological activity and improve nutrient cycling.

These findings contribute to food system transformation by showing how localized diagnostics can inform climate-resilient, resource-efficient practices. Integrating soil biology with nutrient management strengthens ecological integrity while ensuring productivity. Evidence-based soil fertility management thus becomes central to building resilient, inclusive, and sustainable local agri-food systems.





Innovative Fly Control

By Wave Foundation, Bangladesh

In Niltak, Joymontop Union, Singair Upazila, Manikganj, farmers are using simple, eco-friendly tools and techniques to protect crops, reduce chemical use, and build a healthier food system. These photos highlight how low-cost innovations and farmer-led practices are bringing agroecology to life in the field.



A sex pheromone trap catches harmful insects (fly), helping farmers protect vegetables without using chemical pesticides. (Captured by: Md. Estiak Islam)

Md. Azad (participant of the Green Evolution project) in Niltak ties up vegetable vines on a bamboo & rope frame, showing how proper crop care can increase harvest and reduce pest attacks. (Captured by: Sourav Kanti Das, CAAC-GE)



Monir Hossain (a lead farmer of Green evolution installing a pheromone trap in his mix crop vegetable field. (Captured by: Sourav Kanti Das, CAAC-GE)

A new Ceranock trap introduced by Agriculture Unit of WAVE foundation, helps control female flies— Unlike the usual sex pheromone traps for male flies. Each unit costs about 100 taka and lasts for at least one cropping season. (Captured by: Md. Estiak Islam, AE-GE)



Seed Storage/Sorting/Drying Practices

By Pravah, India



Preserving heritage through traditional seed storage — a timeless practice ensuring purity, protection, and prosperity for future harvests.

Seed drying technique



1. Traditional seed drying — farmers sun-dry seeds in open fields, using natural sunlight to preserve quality and prepare them for safe storage.
2. Harnessing solar power for modern seed storage — ensuring proper drying, ideal moisture, and long-lasting seed vitality through eco-smart innovation

Seed sorting technique

1. Traditional seed sorting — farmers use the winnowing basket to separate impurities and select clean, healthy seeds for storage and next-season sowing
2. Modern seed sorting — advanced seed separators are used to efficiently remove impurities and ensure uniform, high-quality seeds for better germination and yield.



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