DAKSHIN
Development and Knowledge Sharing Initiative
GLOBAL SOUTH CENTRE OF EXCELLENCE

RIS
Research and Information System for Developing Countries
विकासशील देशों की अनुसंधान एवं सूचना प्रणाली

DAKSHIN Workshop Digital Technologies in Agriculture for the Global South

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Report

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Concept Note

In pursuit of addressing the complex challenges that the Global South faces in agriculture, the Development and Knowledge Sharing Initiative (DAKSHIN) is dedicated to promoting sustainable and resilient farming practices. Building on the success of its inaugural workshop on January 17, 2024, and a subsequent workshop on August 30, 2024, focusing on digital technologies in agriculture, this is the third workshop on agriculture organized by DAKSHIN. This event aims to foster cooperation and facilitate knowledge exchange among Global South countries to promote sustainable and equitable agricultural systems.

The Global South faces significant challenges in agricultural productivity, exacerbated by disruptions in global supply chains, escalating debt burdens, and food security crises intensified by the COVID-19 pandemic and geopolitical uncertainties. Agriculture in the tropics and sub-tropics in the countries of Global South struggles with poor natural resource management (NRM) practices, abiotic stress and the harsh realities of climate change, which threaten both productivity and ecosystem health. In response, sustainable agriculture offers long-term solutions by prioritizing the protection of natural resources, improving soil fertility, and promoting biodiversity. Agro-ecological approaches, which fuse ecological principles with traditional knowledge and modern agricultural practices, are particularly well-suited to the Global South. These approaches not only adapt to the Global South's unique environmental conditions but also enhance resilience to climate change and abiotic stress, supporting smallholder farmers by providing affordable, context-specific solutions. The workshop will emphasize agro-ecological principles, natural resource management, and holistic strategies that ensure agricultural sustainability. These approaches involve integrating biodiversity and ecological processes to maintain soil fertility, efficiently manage water and natural resources, implement precise agronomic practices, reduce greenhouse gas emissions, and enhance both the quality and quantity of yields.

Participants will explore ecosystem-based solutions that highlight the value of traditional knowledge and community engagement, while integrating modern

agronomic and technological practices to build resilient, self-sustaining farming systems. Insights gathered from extensive discussions with think tanks across the Global South reveal a shared commitment to sustainable and agro-ecological methods, which balance productivity with ecosystem preservation and climate resilience. Several organizations have expressed a strong interest in collaborating on these sustainable practices simultaneously leveraging technological solutions to more integrated and adaptive strategies.The workshop will delve into the intricacies of sustainable agro-ecological models, focusing on their capacity to sustain agriculture in diverse environmental and socio-economic contexts. Themes will include ecosystem-based approaches, the role of traditional knowledge, integration of agronomic and technological practices and strategies for enhancing soil health&biodiversity. The discussions will aim to engage stakeholders, think tanks, and agencies to co-create a comprehensive strategy that advances agro- ecological transitions across the Global South.

Objectives of the Workshop:

- Showcase innovative sustainable farming practices and best practices.
- Facilitate knowledge exchange and collaboration on agro-ecological approaches.
- Identify actionable policy recommendations for fostering just agricultural transitions.
- Promote natural resource conservation and ecosystem-based farming.
- Foster partnerships to implement climate-resilient and abiotic stress adaptive agricultural practices.
- Enhance environmental and social resilience through agro-ecological approaches.

Key Questions to Explore:

- How can traditional ecological knowledge be integrated into modern agricultural practices to address abiotic stress and enhance resilience?
- What strategies can enhance soil fertility, water management, and biodiversity while increasing productivity?
- How do agro-ecological transitions address the needs of smallholder farmers in diverse agro- climatic zones?
- What policy frameworks are essential for supporting sustainable agricultural practices, agro- ecological and just transitions in the agricultural sector?
- How can international cooperation and knowledge-sharing drive the adoption of sustainable farming systems in the Global South?

Agenda

5:00pm–5:05pm	Welcome Remarks • **Professor Sachin Chaturvedi**, Director General, RIS
5:05pm–5:15pm	**India's Best Management Practices of Agro Ecology and Natural Farming** • **Dr Gagnesh Sharma**, Director, National Centre for Organic and Natural Farming- Ghaziabad, Ministry of Agriculture & Farmers Welfare, Govt. of India
5:15pm–5:20pm	**Mitigating Abiotic Stress in Agriculture: The Role of Sustainable Agro-Ecological Practices** • **Dr Ashwani Pareek**, Executive Director, BRIC-National Agri-Food and Bio-manufacturing Institute ;Professor, Jawaharlal Nehru University, India
5:20pm–5:25pm	**Agro-Ecological solutions for Sustainable Agriculture in the Global South** • **Dr UshaMina**, Professor ,Jawaharlal Nehru University,India
5:25pm–5:30pm	**Innovative Sustainable Farming Practices** • **Dr Jigmet Yangchan**, Professor cum Chief Scientist, Head Mountain Research Institute/CISIClab/DST Purse Project, University of Ladakh, India
Perspectives on Sustainable Agriculture Practices and Agro-Ecological Approaches fromThink Tanks of the Global South Countries	
5:30pm–5:35pm	• **DrLual A.Deng**, Managing Director, Ebony Center for Strategic Studies (ECSS),SouthSudan
5:35pm–5:45pm	• **Mr. Salim Said Salim**, Executive Director, Somali Institute for Development Research&Analysis(SIDRA),Somalia • **Mr Osman MohamedAli**, Agriculture and Development Expert, Somali Institute for Development Research & Analysis(SIDRA),Somalia
5:45pm-5:50pm	• **Mr Federico Bert**, Head of the Programme-Digitalization of Agri-Food Systems, Inter-American Institute for Cooperation on Agriculture(IICA), St.Lucia
5:50pm–5:55pm	• **MrAndrew Lavali**, Executive Director,Institute for Governance Reform (IGR),Freetown, Sierra Leone

5:55pm–6:00pm	• **Dr S. H. Nuwan P.DeSilva**, Senior Lecturer, Department of Crop Science, Faculty of Agriculture, University of Peradeniya, SriLanka
6:00pm–6:25pm	Open Discussion
6:25pm–6:30pm	Concluding Remarks • **Professor Gulshan Sachdeva**, Chief Coordinator, DAKSHIN,RIS

Outcomes

DAKSHIN, RIS organized an online workshop on "Sustainable Agriculture and Agro-ecological Approaches in the Global South" on January 22, 2025. The primary objective was to identify and scale up development solutions from various countries in the Global South for broader implementation, emphasizing the need for agro-ecological practices to build resilient food systems. As the third workshop on agriculture, it reflects a strong commitment to agricultural research and policy development. This session brought together diverse agro-ecological voices from across the Global South to strategize for a sustainable transition.

Prof. Gulshan Sachdeva

Coordinator, DAKSHIN

The session commenced with a welcome address by the Chief Coordinator of DAKSHIN, **Prof. Gulshan Sachdeva,** who emphasized the need to harness best practices from developing countries and implement them across the Global South. Quoting M.S. Swaminathan's insightful words *"The future of food security will depend on a combination of the ecological prudence of the past and the technological advances of today"*, he highlighted the critical role of agro-ecology in shaping sustainable agricultural practices. The event brought together distinguished participants from across the Global South, featuring panel speakers from multiple countries, including South Sudan, Somalia, St. Lucia, Sierra Leone, Sri Lanka, and other regions.

Prof. Sachin Chaturvedi

Director General, RIS

extended his gratitude to all attendees and underscored the significance of knowledge-sharing initiatives in advancing sustainable agriculture. He emphasized the urgency of adopting agro-ecological and sustainable farming practices to address key challenges faced by agricultural systems in developing countries. These challenges include heavy reliance on chemical inputs leading to soil degradation, limited market access for smallholder farmers, low resource-use efficiency coupled with rising input costs, unregulated intensive cultivation of non-ecological crops, and the growing impacts of climate change, such as extreme weather events and water scarcity. He stressed that agricultural systems must align with Sustainable Development Goal 2 (Zero Hunger) while ensuring food quality and nutrition. Additionally, he highlighted the need to develop ecological norms tailored to the realities of the Global South, rather than adopting frameworks imposed by developed nations.

Dr. Gagnesh Sharma

Director of the National Centre for Organic and Natural Farming, Ministry of Agriculture & Farmers Welfare, Govt. of India

He shared insights on India's efforts in promoting organic and natural farming. He discussed the National Mission for Natural Farming, which is a flagship initiative by the Government of India. The mission aims to support small and marginal farmers in transitioning to sustainable farming, develop low-cost certification systems for organic and natural farming, formulate standards for agro-ecological practices, and reduce dependency on chemical inputs while promoting regenerative agriculture. Dr. Sharma emphasized that the adoption of natural farming practices can significantly enhance soil fertility and reduces production costs for farmers. He highlighted the Pre-Monsoon Dry Sowing technique in Andhra Pradesh, which allows seeds to be sown before regular cultivation, ensuring better crop resilience and productivity. A fundamental objective of natural farming is improving soil health by enhancing its nutrient-supplying capacity. This is achieved by increasing organic carbon content, promoting microbial activity, and improving soil organic matter. These elements contribute to sustainable farming by fostering a balanced ecosystem within the soil.

Dr. Sharma also underscored the role of mulching in natural farming. Farmers can use different types of waste such as straw, dry leaves, semi-dry plant residues, and weed biomass to conserve soil moisture and suppress weeds. These mulching techniques are adaptable to different agro-climatic regions, including coastal areas, hilly terrains, and sub-temperate zones. The adaptability of natural farming techniques to local environmental conditions is crucial for their success. Dr. Sharma stressed that different regions require customized approaches to ensure maximum benefits. One significant aspect of natural farming is water conservation, which involves enhancing the natural infiltration rate of rainwater and minimizing wastage of resources.

The Government of India is actively promoting natural farming by leveraging the expertise of progressive farmers, referred to as Champion Farmers. Several national resource organizations, such as the National Centre for Organic and Natural Farming and MANAGE, are responsible for training these champion farmers. Training programs are conducted at the block and state levels to ensure a widespread adoption of best practices. A significant contribution has been made by Krishi Sakhi, trained extension workers under the Ministry of Rural Development, who facilitate the dissemination of knowledge at the grassroots level. As part of the training initiative, over 60,000 Krishi Sakhis have undergone intensive five-day training sessions in both online and offline modes. These trained extension workers act as local master trainers, reaching out to millions of farmers across the country. The objective is to establish a strong network of trained individuals who can guide others in adopting natural farming techniques effectively.

One of the challenges in natural farming is ensuring the availability of essential bio-inputs, particularly cow dung and cow urine, which are integral to organic fertilizers. Dr. Sharma mentioned the establishment of Bio-Input Resource Centers to address this issue. This initiative will make bio-inputs more accessible and affordable for small-scale farmers, ensuring that they can adopt natural farming without financial strain.

Prof. Ashwani Pareek

Executive Director, BRIC-National Agri-Food and Biomanufacturing Institute, India and Professor at Jawaharlal Nehru University,

Prof **Ashwani Pareek** underscored the pressing need for sustainable agricultural practices, particularly in the Global South, where abiotic stresses such as water scarcity, soil degradation, and climate variability pose significant challenges. He emphasized that while these issues are global, solutions must be localized to suit the unique social, economic, and environmental contexts of different regions.

One of the critical challenges in climate-resilient agriculture is the alarming depletion of groundwater resources, as seen in Punjab, which was once the epicenter of the Green Revolution. Over the past eight years, approximately 106 cubic kilometers of groundwater has been extracted, severely affecting water availability and soil health. Furthermore, abiotic stresses such as drought, soil salinity, and nutrient deficiencies contribute to an estimated 70% loss in potential crop yield, highlighting the urgent need for sustainable interventions.

Dr. Pareek outlined three major strategies for enhancing agro-ecological practices. The first, soil health management, involves adopting conservation agriculture techniques such as minimum tillage, crop residue retention, and crop rotation to prevent soil degradation. Additionally, integrating agro-forestry systems can enhance soil fertility, prevent erosion, and create favorable microclimates. The application of biochar is another crucial measure, improving soil structure and increasing water retention capacity.

The second strategy focuses on water resource management. Dr. Pareek emphasized the importance of rainwater harvesting, which is particularly vital for rain-fed agricultural systems, enabling water storage during dry seasons. He also highlighted the promotion of drip irrigation, sprinkler irrigation and other efficient water management systems as essential measures to optimize water use, minimize waste, and ensure long-term agricultural sustainability.

The third strategy involves leveraging technology and genetic innovations to improve resilience and productivity in the face of climate change. This includes the development of stress-tolerant crop varieties capable of withstanding adverse environmental conditions and the adoption of precision agriculture tools such as remote sensing and GIS to enhance resource utilization and increase efficiency in farming operations.

Prof. Usha Mina

Professor at Jawaharlal Nehru University

Prof Usha further expanded on the subject of agroecology and its role in addressing climate change, particularly in the Global South. She traced the origins of permaculture to the 1970s, when Australian scientists pioneered the concept, and discussed how it has evolved into institutionalized research through permaculture institutes.

She provided examples of Indian entrepreneurs who have successfully implemented permaculture-based farming models, including Open Shell Farm and Aanandaa Permaculture Farm. Dr. Mina also elaborated on the three core components of agroecology: its scientific foundation, its practical applications, and its role as a social movement advocating for sustainable farming.

The Food and Agriculture Organization (FAO) has developed a framework for assessing agro-ecological practices, which Dr. Mina outlined in detail. The framework covers key dimensions such as diversity, knowledge sharing, synergies, resilience, and sustainability. She emphasized the need for India to adopt a national agro-ecological strategy, citing the case of Sikkim's successful transition to 100% organic farming as an exemplary model for sustainable agriculture. Furthermore, Dr. Mina stressed the importance of strengthening agro-ecological enterprises and commodity markets to counter the dominance of industrial agriculture. Prof. Usha Mina advocated for the integration of traditional knowledge with scientific innovations to strengthen community-based practices, stressing the importance of social movements, food sovereignty, and community engagement

Dr. Jigmet Yangchan

Professor cum Chief Scientist, University of Ladakh, an expert in soil and water engineering

Dr. Jigmet Yangchan presented her extensive research on sustainable agriculture in high-altitude regions, particularly Ladakh. She identified key agricultural constraints, including climate change impacts, resource limitations, soil degradation, water scarcity, and inadequate infrastructure for value addition. Given Ladakh's extreme climatic conditions, with temperatures ranging from -35°C to 37°C, she emphasized the importance of resilient farming systems such as agro-horticulture and agro-pastoral practices. To address these challenges, she has led several innovative interventions, including the installation of automatic weather stations at 15,000 ft to provide climate data, pest and disaster advisory systems to reduce agricultural losses, and the successful transformation of barren land in the Changthang region into cultivable fields.

Dr. Yangchan has introduced composting techniques to improve soil fertility and the use of solar panels for groundwater extraction and micro-irrigation. She pioneered vermicomposting in extreme cold (-30°C), mushroom cultivation to combat malnutrition,

and natural farming techniques for livestock, training 500 farmers in Ladakh. Her water conservation efforts include restoring the traditional Zing system and developing artificial glaciers to improve water availability. To enhance productivity, she has implemented solar-powered drip irrigation, developed low-cost greenhouses, and promoted agroforestry, successfully planting 3,000 trees in harsh conditions. She has also focused on value addition, particularly for Pashmina wool, and has established market linkages for farmers. Through capacity-building initiatives, she has trained farmers and youth in sustainable practices, monitored technology adoption, and conducted nutritional awareness programs for women and children. Notably, her breakthroughs in extreme climate farming include successful mushroom and tomato cultivation at 16,700 ft near the China border, demonstrating the feasibility of agriculture in one of the world's most challenging environments.

Salim Said Salim

Executive Director of the Somali Institute for Development Research and Analysis (SIDRA)

He highlighted the significant challenges and opportunities in Somalia's agricultural sector. He emphasized that Somalia, recovering from three decades of civil war, remains one of the poorest countries in the Global South, with agriculture as its second-largest economic contributor after livestock. He underscored the interdependence of agriculture, livestock, and fisheries in Somalia's economy. He pointed out critical challenges such as inadequate political support, poor agricultural policies, absence of reliable data, and limited access to modern technology, particularly in irrigation and climate adaptation. He noted that post-harvest losses remain a major issue, with up to 40% of agricultural produce wasted due to traditional storage methods. He stressed the need for Somalia to learn from international best practices in irrigation

Osman Mohamed Ali

Agriculture and development expert, SIDRA, Somalia

He highlighted the agricultural context of Somalia within the broader challenges faced by the Global South, particularly in food security and sustainable agricultural practices. He stressed Somalia's reliance on rain-fed agriculture, which makes it highly vulnerable to climate change impacts such as unpredictable rainfall patterns. Emphasizing the need for both immediate food shortage solutions and long-term resilience-building against climate adversities, he advocated for sustainable agricultural practices, particularly cultivating resilient crops like sorghum, millet, and legumes. Additionally, he highlighted the potential of date cultivation in Northern Somalia as an underutilized yet valuable option for food security and economic growth. He stressed the importance of policy reforms that focus on investment in agricultural research, infrastructure development, and capacity building.

Furthermore, he proposed integrating solar energy solutions for irrigation to enhance productivity and improve water management. Advocating for collaborative platforms to share knowledge, research, and technological advancements in agriculture, he concluded by emphasizing the necessity for favorable policies that promote land tenure security, credit access, and alternative energy sources.

Federico Bert

Head of the Programme-Digitalization of Agri-Food Systems, Inter-American Institute for Cooperation on Agriculture (IICA), St. Lucia

Federico Bert provided an overview of Latin America and the Caribbean's role in global food security and sustainability. He highlighted the region's agricultural strengths, including possessing 28% of the world's arable land, accounting for 27% of total global agri-food exports, holding 35% of the world's freshwater reserves, and housing 50% of the world's known biodiversity. He discussed Argentina's leadership in sustainable agriculture, particularly its extensive adoption of no-tillage practices, which cover 90% of its cropland and contribute to reducing soil erosion while improving water infiltration. He introduced cover crops as a key sustainability strategy to enhance soil carbon levels and mitigate erosion. He shared an example from Trinidad & Tobago on permaculture practices, emphasizing water harvesting from storms and floods, the use of vetiver grass for erosion control, and composting agricultural waste to improve soil health. Additionally, he emphasized the role of digital technologies in enhancing sustainable agricultural practices, highlighting the increasing use of mobile-based digital advisory services to improve farmers' decision-making and productivity. He discussed the adoption of precision agriculture techniques, such as the use of drones for precision spraying of herbicides, which has led to up to 80% savings in pesticide use, and AI-based mapping for targeted agricultural interventions. He concluded by underscoring the importance of leveraging digital innovations to support knowledge-sharing and sustainable agricultural growth.

Andrew Lavali

Executive Director, Institute for Governance Reform (IGR), Sierra Leone,

He provided insights into the broader sociopolitical and economic challenges in fragile states, with a particular focus on Sierra Leone. He emphasized the need to look beyond technical agricultural solutions and consider historical, political, and social factors that impact agricultural productivity. He recounted Sierra Leone's past as a significant agricultural producer and exporter, particularly in rice, before its decline due to policy failures and conflicts. He highlighted the role of governance and policy decisions in shaping agricultural outcomes, citing examples of state-controlled price monopolies that

discouraged farming and led to urban migration. Providing a historical perspective, he discussed how traditional agricultural practices were lost over time due to sociopolitical shifts. He stressed the importance of addressing youth unemployment and economic vulnerabilities in fragile states to ensure sustainable agricultural development. Urging think tanks and policymakers to develop holistic strategies tailored to fragile contexts, he emphasized the necessity of considering climate change, governance issues, and economic realities. He concluded by advocating for a multidimensional approach to agricultural revival that combines governance reforms, policy changes, and community engagement.

S.H. Nuwan P. De

Silva, Senior Lecturer, Department of Crop Science, Faculty of Agriculture, University of Peradeniya, Sri Lanka

He presented on sustainable agricultural practices in Sri Lanka. He provided an overview of Sri Lanka's agricultural sector, emphasizing its 2000-year-old history and its current contributions to GDP and employment. He discussed key challenges in Sri Lankan agriculture, including soil degradation, climate change, water scarcity, and biodiversity loss. He introduced traditional agricultural systems that are still in practice today, such as the Ellanga system, which is a cascade of water tanks used for irrigation that ensures water conservation, soil preservation, and biodiversity protection, and the Kandyan home garden system, a sustainable agroforestry practice that combines economic crops with biodiversity conservation, contributing to food security and environmental resilience. He emphasized the role of community involvement in these traditional systems and how they foster social harmony and climate resilience. Concluding, he advocated for integrating traditional and modern agricultural practices to enhance sustainability and resilience in the face of climate change.

Julio Jimenez Peña

National Committee of International Relations Scholars (CONERI), Dominican Republic

he Highlighted the strategic importance of agriculture, noting that 600,000 hectares were allocated for agricultural production in 2017. Identifying environmental, social, and economic challenges facing the sector, he discussed various sustainable agriculture initiatives aligned with the broader Latin American agricultural movement. He presented three German-supported projects aimed at rural community development. The first project focused on coffee leaf rust issues and climate-resilient production models, including reforestation and crop diversification. The second project addressed subsistence farming challenges through agro-ecological family gardens, soil conservation, and organic fertilization. The third project was implemented in river basins facing severe environmental crises, focusing on soil recovery, water management, and agricultural diversification. He emphasized the role

of international and NGO support in strengthening food security and rural empowerment while identifying challenges related to organizational consolidation and market access.

Dr. S.S. Reddy

Advisor (Agriculture), DAKSHIN

He appreciated the session and emphasized partner-centric approaches to addressing agricultural challenges. He highlighted the emergence of localized, resource-efficient, sustainable agro-ecological practices and stressed the importance of climate resilience and adaptation strategies. Additionally, he proposed a collaborative paper on agro-ecological voices of the Global South.

The session concluded with a Q&A segment, addressing various inquiries from the audience. Dr. Jigmet Yangchan responded to a question about land rights for women in agriculture in Leh, explaining that under the Hindu Succession Act (1956), land rights are equally distributed among men and women. She shared a personal example of gender equality in property inheritance. Additionally, she discussed the feasibility of cultivating medicinal plants in high-altitude regions, suggesting the utilization of barren land for medicinal plant cultivation due to its long growth cycles. She stressed that waiting 4-5 years for yield on cultivable land is not viable for farmers.

Dr. Gagnesh Sharma, Director of the National Centre for Organic and Natural Farming, noted a major shift towards medicinal plant cultivation and planned to discuss further strategies for integrating medicinal plant farming with traditional crops. Ashwani Pareek discussed the benefits of cultivating staple crops alongside medicinal plants, mentioning successful co-cultivation practices in northeastern India and highlighting government efforts to promote such initiatives for improved farmer livelihoods.

In the closing remarks Prof. Sachdeva summarized the workshop discussions. Expressing gratitude to participants for their contributions, the chairperson noted that the discussions would lead to concrete outcomes such as research proposals, technology transfers, and specific projects. Emphasizing the importance of knowledge sharing and learning from different regional experiences, the session concluded with interest expressed in future discussions on medicinal plant cultivation and its economic benefits for farmers.

Key Strategies and Recommondations for Scaling Agro-ecology

The workshop identified the following key strategies for scaling agro-ecology:

- *Soil and Water Conservation*: Practices like rainwater harvesting, contour farming, and mulching were prioritized to rejuvenate natural resources. Additionally, promoting organic soil amendments, such as composting and vermiculture, can help improve soil fertility and structure, enhancing long-term sustainability.
- *Strengthening Social Movements*: Empowering smallholder farmers through alliances and participatory governance was emphasized for large-scale transitions.
- *Climate-Resilient Technologies*: Region-specific innovations were recommended to ensure equitable access and sustainability. The use of drought-resistant crop varieties and agro-forestry systems is particularly beneficial in areas prone to climate extremes such as droughts and floods.
- *Indigenous Knowledge Integration:* Linking and reviewing indigenous knowledge, tradititional practices with modern tools like precision farming, climate-smart technologies and Spatial Information technologies.
- *Fostering Regional Knowledge Exchange and Collaborative Solutions:* Fostering dialogue and sharing best practices between countries with similar agro ecologies.

A participatory, collaborative approach was emphasized:

- Engaging in peer-to-peer learning across countries and institutions to exchange agro-ecological policies.
- Documenting cost-benefit analyses of agro-ecology to strengthen advocacy.
- Showcasing best practices and developing holistic monitoring frameworks.
- Encouraging dialogue between scientists, policymakers, and practitioners for co-learning.

Key Recommendations that emerged during workshop for Scaling Agro-ecology

- *Restructure Incentives:* Align government support to reward outcomes like ecosystem services and productivity, not just yields.
- *Focus on Rainfed/Dryland Areas:* Begin with rainfed regions, which already practice low-resource agriculture and can benefit significantly from the transition.
- *Generate Rigorous Evidence:* Invest in long-term comparative studies to showcase the advantages of sustainable agriculture.

- *Expand Perspectives:* Broaden stakeholder understanding of agro-ecological approaches through awareness campaigns and education.
- *Short-Term Transition Support:* Provide initial financial and technical support to communities affected by agro-ecological transitions.
- *Integrate Sustainable Agriculture into Data Systems:* Ensure that SAPs are visible and monitored at national and regional levels.
- *Public-Private Partnerships:* collaboration between government agencies, private sector players, and local communities to scale up initiatives such as natural farming, agro-forestry, and climate-resilient technologies.
- *Strengthening Participatory Governance and Farmer Empowerment***:** creating inclusive policy frameworks that empower local communities and farmers and providing farmers with the tools, knowledge, and networks necessary to engage in decision-making processes about their agricultural practices and the allocation of resources.
- *Leveraging ICT, Remote sensing, Soft computing and AI for Smallholder Farmers***:** Utilizing digital tools for weather forecasting, crop advisories, soil and natural resource management, agricultural governance, crop health, pest detection, and precision agriculture to deliver timely, data-driven insights that optimize farming practices and enhance productivity.
- *Embracing Renewable Energy for Sustainable Farming:* This can be done by integrating renewable energy sources like solar-powered irrigation, wind energy for water pumps, and bioenergy.

The time to act is now. Agro-ecology represents more than a method of farming; it is a movement for equity, sustainability, and resilience. Agro-ecology is a key enabler for achieving key SDGs by enhancing smallholder livelihoods (SDG 1), building resilient food systems (SDG 2), reducing synthetic input dependency (SDG 12), mitigating climate change through carbon sequestration (SDG 13), and restoring biodiversity (SDG 15). It fosters global partnerships (SDG 17). By driving investments in agro-ecological practices, stakeholders can revolutionize food systems, align with global and national objectives for climate resilience and food security, and empower self-reliant communities. Think tanks and agencies of the Global South play a pivotal role in scaling sustainable practices, addressing systemic challenges, and fostering grassroots networks. DAKSHIN advocates for scaling up sustainable practices, addressing systemic challenges, and fostering grassroots networks. Through these efforts, the Global South can lead the world in creating food systems that are ecologically sync, inclusive, and climate-resilient. Let us unite to amplify the agro-ecology narrative, drive systemic change, and secure a sustainable agricultural production system.

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RIS specialises in issues related to international economic development, trade, investment and technology. It is envisioned as a forum for fostering effective policy dialogue and capacity-building among developing countries on global and regional economic issues. The focus of the work programme of RIS is to promote South-South Cooperation and collaborate with developing countries in multilateral negotiations in various forums. Through its following centres/forums, RIS promotes policy dialogue and coherence on regional and international economic issues.

The word "DAKSHIN" (दक्षिण) is of Sanskrit origin, meaning "South." The Hon'ble Prime Minister of India, Shri Narendra Modi, inaugurated DAKSHIN – Global South Centre of Excellence in November 2023. The initiative was inspired by the deliberations of Global South leaders during the Voice of the Global South Summits. DAKSHIN stands for Development and Knowledge Sharing Initiative. Hosted at the RIS, DAKSHIN has established linkages with leading think tanks and universities across the Global South and is building a dynamic network of scholars working on Global South issues.

AIC at RIS has been working to strengthen India's strategic partnership with ASEAN in its realisation of the ASEAN Community. AIC at RIS undertakes research, policy advocacy and regular networking activities with relevant organisations and think-tanks in India and ASEAN countries, with the aim of providing policy inputs, up-to-date information, data resources and sustained interaction, for strengthening ASEAN-India partnership.

CMEC has been established at RIS under the aegis of the Ministry of Ports, Shipping and Waterways (MoPS&W), Government of India. CMEC is a collaboration between RIS and Indian Ports Association (IPA). It has been mandated to act as an advisory/technological arm of MoPSW to provide the analytical support on policies and their implementation.

FITM is a joint initiative by the Ministry of Ayush and RIS. It has been established with the objective of undertaking policy research on economy, intellectual property rights (IPRs) trade, sustainability and international cooperation in traditional medicines. FITM provides analytical support to the Ministry of Ayush on policy and strategy responses on emerging national and global developments.

BEF aims to serve as a dedicated platform for fostering dialogue on promoting the concept in the Indian Ocean and other regions. The forum focuses on conducting studies on the potential, prospects and challenges of blue economy; providing regular inputs to practitioners in the government and the private sectors; and promoting advocacy for its smooth adoption in national economic policies.

FIDC, has been engaged in exploring nuances of India's development cooperation programme, keeping in view the wider perspective of South-South Cooperation in the backdrop of international development cooperation scenario. It is a tripartite initiative of the Development Partnership Administration (DPA) of the Ministry of External Affairs, Government of India, academia and civil society organisations.

FISD aims to harness the full potential and synergy between science and technology, diplomacy, foreign policy and development cooperation in order to meet India's development and security needs. It is also engaged in strengthening India's engagement with the international system and on key global issues involving science and technology.

As part of its work programme, RIS has been deeply involved in strengthening economic integration in the South Asia region. In this context, the role of the South Asia Centre for Policy Studies (SACEPS) is very important. SACEPS is a network organisation engaged in addressing regional issues of common concerns in South Asia.

Knowledge generated endogenously among the Southern partners can help in consolidation of stronger common issues at different global policy fora. The purpose of NeST is to provide a global platform for Southern Think-Tanks for collaboratively generating, systematising, consolidating and sharing knowledge on South South Cooperation approaches for international development.

DST-Satellite Centre for Policy Research on STI Diplomacy at RIS aims to advance policy research at the intersection of science, technology, innovation (STI) and diplomacy, in alignment with India's developmental priorities and foreign policy objectives.

— Policy research to shape the international development agenda —

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