

POLICY BRIEF

AN AGROECOLOGY ROADMAP FOR SIKKIM

Policy takeaways from a roundtable workshop
on the future of Sikkim's Organic Mission





Introduction

The launch of the Sikkim Organic Mission in 2003 marked the beginning of a policy commitment to transform agricultural production in the Indian Himalayan state. Through various phases, this mandated organic transition was completed in 2016. Two decades later, Sikkim stands at a crossroads. As India's first fully organic state, it has achieved what most states, even nations, are striving to build. However, there are persistent and emerging challenges that must be addressed for long-term food, nutrition, and livelihood security.

Looking ahead, Sikkim's next phase on this journey must be guided by the state's vision of "One State, One Family, One Entrepreneur". This is aligned with the national vision of "Viksit Bharat" which aims to double farmers' incomes, improve food and nutrition

security, protect natural resources, and create sustainable livelihoods, thereby ensuring that the benefits of development reach every farmer.

This policy brief summarises the discussion and recommendations that emerged from a policy roundtable workshop jointly organised by the International Centre for Integrated Mountain Development (ICIMOD) and GB Pant National Institute of Himalayan Environment (GBP-NIHE), Sikkim Regional Centre in Sikkim on 30 March 2026, involving scientists, policymakers, and civil society representatives from Sikkim and parts of Indian Himalayan Region (IHR). It presents a set of recommendations to build on Sikkim's visionary organic approach and to broaden its framing using an agroecology lens.

The challenges

Only 10–11 percent of Sikkim's total geographical area is cultivable, with over three-quarters of operational holdings belonging to small and marginal farmers. The terrain is mostly steep, limiting irrigation and farm mechanisation, and at constant risk from extreme weather events and seismic activities. Population growth and high tourism influx have added a layer of complexity by increasing food demand. The state's population¹ grew by nearly 13 per cent between 2001 and 2011, reaching approximately 0.6 million in 2011. Tourism is a major contributor to the state's economy, attracting a large number of visitors each year. In 2024, approximately 1.6 million tourists visited Sikkim.²

A recent survey on nutritional intake reported average daily calorie consumption of 3052 Kcal and 3341 Kcal per capita per day in rural and urban areas of Sikkim, respectively³. A substantial share of the state's food and nutritional requirements are met through imports, with the production-consumption shortfall especially pronounced in the North and East districts⁴. Of equal concern is the burden of micronutrient deficiency in Sikkim, as reflected in the National Family Health Survey (NHSF – 5). Anaemia affects 56.4% of children, 42.0% of women, and 18.7% of men⁵. This indicates insufficient availability of nutrient-dense foods as well as differential utilisation across age groups and sexes.

After the transition to organic, Sikkim began promoting high-value crops, such as large cardamom, ginger, turmeric, and buckwheat to improve farmer's income. This resulted in notable revenue gains and strengthened the state's global recognition as a certified organic region.

Even though local produce, such as seasonal vegetables and dairy products, is largely chemical-free, imported fruits, vegetables and processed foods are widely consumed, reflecting changing dietary patterns and a continued reliance on external supplies. While the organic initiative effectively linked environmental sustainability with income generation, encouraging consumption of indigenous and locally grown food need more attention. Similarly, the ban on synthetic pesticides and fertilisers, without easy access to biological alternatives, creates an elevated risk of pest and pathogen outbreaks under changing climatic conditions.

Another challenge that came up during the dialogue is that agriculture, forestry, livestock, and watershed management departments operate without coordination, farmers receive contradictory guidance, financing flows through parallel systems, and monitoring captures only fragments of the outcomes. The workshop identified this fragmentation of evidence as a critical bottleneck for policy uptake. It also identified the lack of a clear action area on co-creation and sharing of knowledge and institutional integration in the Strategic Framework for Organic Farming in Sikkim with Long-term (10-year) Targets⁶.

The market has also produced its own paradoxes. Many of Sikkim's farmers are technically certified under group Internal Control System (ICS) mechanisms, yet they are not fully aware of their certification status or the implications for market transactions. Therefore advantage of organic certification does not always benefit the farmer at the point of sale.

¹Directorate of Census Operations, Sikkim. (2014). District Census handbook: Sikkim. Series 36, Part XII-B: Village and town wise primary census abstract (Census of India 2011). Office of the Registrar General & Census Commissioner, India.

²Ministry of Tourism, Government of India. (2025). India tourism data compendium 2025 (66th ed.). Research and Analytics Division.

³Government of India, Ministry of Statistics and Programme Implementation, National Statistics Office. (2025). Nutritional intake in India (2022–23 & 2023–24) (NSS Report No. 594). Government of India.

⁴Kumar, P., Rai, S. C., & Verma, R. (2021). Evaluating the status of gross and net food availability in special reference to carrying capacity of land of Sikkim. *Current Research in Environmental Sustainability*, 3, 100099. <https://doi.org/10.1016/j.crsust.2021.100099>

⁵International Institute for Population Sciences (IIPS), & ICF. (2021). National Family Health Survey (NFHS-5), 2019–21: India. <https://dhsprogram.com/pubs/pdf/FR375/FR375.pdf>

⁶Government of Sikkim. (2019). Organic farming in Sikkim as a strategy for sustaining ecosystem services and livelihoods: Supporting implementation of Sikkim State Policy on Organic Farming. Department of Information and Public Relations, Government of Sikkim. Technical support provided by the International Centre for Integrated Mountain Development. ISBN 978-81-938848-4-3.

The way forward

The Food and Agriculture Organization (FAO) defined agroecology as a holistic and integrated approach that blends ecological and social principles in the development and re-design of sustainable agrifood systems. It seeks to optimize the interaction between plants, animals, humans, and the environment while promoting socially inclusive food systems, empowering individuals to make informed decisions about their dietary preferences and the sources of their food⁷.

Cognizant of the above facts, the agroecological pathway could be an appropriate next step for Sikkim. As participants at the roundtable highlighted, in the context of Sikkim, agroecology offers an appropriate pathway to build on the state's successful organic farming initiative by moving beyond input substitution towards a whole-systems approach. Agroecology can strengthen biodiversity conservation, enhance climate resilience, improve soil health, promote traditional knowledge, diversify livelihoods, and create more inclusive and resilient food systems. Further, by integrating scientific innovation with Indigenous knowledge, promoting agroecology farming systems, strengthening value chains, and fostering youth- and women-led enterprises, Sikkim can shepherd in a new era of inclusive rural prosperity.

The policy recommendations below have been summarised from the group discussions and dialogue.

1. **Strengthen the science-policy-and practice interface through continuous dialogue among researchers, policymakers, practitioners, and communities.** A government-led, institutional mechanism could facilitate coordination among stakeholders, ensure coherence among departments working with farmers, and ensure that research outputs inform policy decisions and enable learning from each other's work.
2. **Institutionalise agroecology within state planning frameworks.** A structured agroecology roadmap must be developed with short-term,

medium-term, and long-term strategies to guide policy formulation, planning and implementation. This could form the basis for context-specific pilot projects addressing knowledge and evidence generation, public procurement of agroecological produce, institutional restructuring, and incentives for agroecology practice.

3. **Communicate a participatory, officially adopted definition of agroecology.** The interpretation of agroecology in varied ways risks incoherence in policy, planning, and implementation. Similarly, the absence of an evidence base was identified as a critical bottleneck. A landscape-level, participatory baseline covering soil health, water, biodiversity, farm income, input dependency, and traditional knowledge systems across all agro-climatic zones could be commissioned to address this.
4. **Niche crops, wild edibles and agrobiodiversity.** At the food system level, the dialogue called for: (a) identifying niche/local food systems and neglected and underutilised species (NUS) to contribute to nutritional and food security; and (b) promotion of crops like large cardamom and mushrooms that are well-suited to agroforestry systems, as well as avocado, walnut, and chestnut that offer high-value non-perishable diversification opportunities. It also called for preserving local crop varieties, medicinal plants, and foraged foods to maintain nutritional diversity instead of relying on single-commodity imports.
5. **Improve market access, quality standards, and certification.** Aggregation through collective institutions such as self-help groups (SHGs) and farmer collectives to improve market access. By consolidating produce, ensuring quality standards, and facilitating bulk supply, these institutions can bridge the gap between farmers and retailers. The dialogue also called for investing in digitally enabled traceability, certification awareness campaigns, and FPO/

⁷Food and Agriculture Organization of the United Nations. (2026). Agroecology Knowledge Hub. <https://www.fao.org/agroecology/en>

SHG aggregation linkages to address awareness and credibility gaps and expanding certification to cover the full agroecological produce basket, including non-primary crops.

6. Reduce food waste and strengthen circularity.

Take appropriate actions to curb food waste and loss by creating opportunities for food processing in the bioeconomy and recycling or use of discarded produce for composting and nutrient recycling, thereby reducing reliance on external inputs.

7. Support livelihood diversification for resilience. Farm-to-fork experiential tourism, agroecological homestays, and cultural food experiences could be promoted leveraging Sikkim's diverse landscapes and production systems. Yak herding, cardamom agroforestry, horticulture, and agriculture can be recast as tourism assets – to diversify and strengthen livelihoods and offer unique visitor experiences.

8. Strengthen climate advisory and support services. Increase farmers' access to quality soil testing labs, community seed banks,

weather monitoring, digital infrastructure, and biological inputs through farmer collectives and research institutions. Support participatory research, climate-resilient variety development, diversified farming systems, and integrated pest management to mitigate the increasing risk of pests and crop failure with a changing climate.

9. Strengthen stakeholder coordination to align Sikkim's organic transformation with the national vision of Viksit Bharat and the state's development goals, ensuring integrated efforts toward doubling farmers' income and building a sustainable, inclusive rural economy.

10. Localised markets and education: The dialogue called for strengthening short food supply chains and integrating agroecology concepts directly into local school curricula. Localised markets are critical for promoting sustainable food systems and supporting small and marginal farmers, offering spaces for them to sell directly to consumers, reducing the costs and dependencies on intermediaries, and fostering producer-consumer relationships.

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