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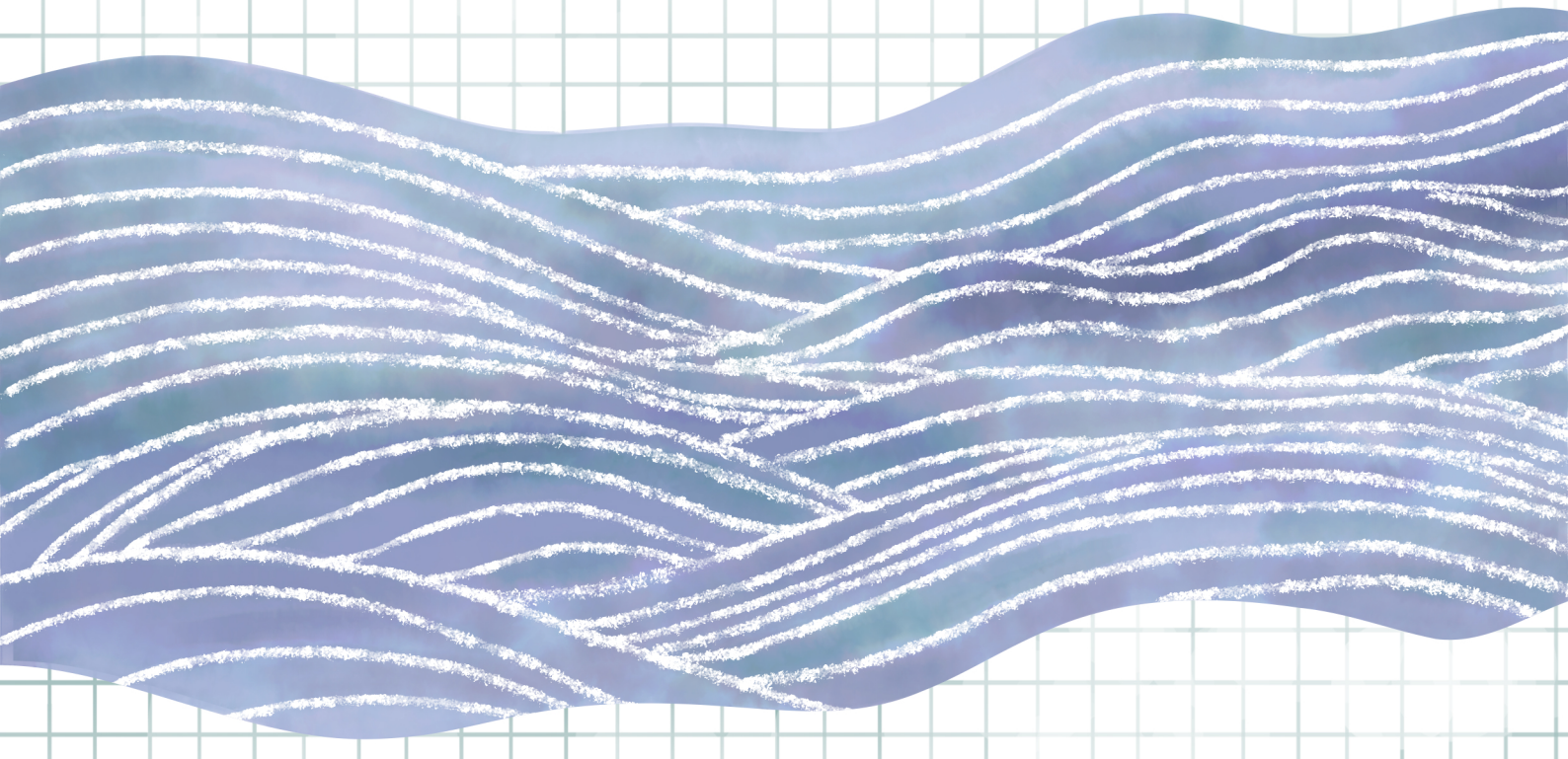
# A Compendium of Enabling Policies for Mainstreaming Agroecology



## Policy Guide

SEPTEMBER 2025

# A Compendium of Enabling Policies for Mainstreaming Agroecology

## A Thematic Guide on Landscape-Level Enabling Government Schemes and Policies

Consortium for Agroecological Transformations

CSA — Caring for those who feed the nation — Since 2004

*Prepared by* **The Consortium for Agroecological Transformations**
*hosted at* **The Centre for Sustainable Agriculture.**

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# Contents

# Acknowledgements

This enabling policy report has been compiled and authored by Mr. **Nachiket Udupa** (Independent Consultant), edited and designed by **Anhad Imaan** and **Vibhusha Gupta** from the CAT Secretariat, respectively.

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This report is an integral part of CAT's efforts in developing comprehensive knowledge products that can help further advance its larger goal of scaling, promoting and unpacking agroecology across India.

*Note: These acknowledgements have been organised in alphabetical order.*

# Introductory Background
# Context About This Report

## Agroecology as a holistic alternative

Agriculture in India, shaped by the Green Revolution paradigm, now faces multifaceted challenges, including widespread agrarian distress, ecological degradation, escalating input costs, and increased vulnerability to climate change. While most existing approaches to alternative paradigms have focused on singular aspects, such as production techniques, these piecemeal interventions have often overlooked the intricate web of ecological and structural socio-economic factors that affect agriculture. A growing consensus points towards agroecology as a holistic and sustainable alternative for achieving food and nutritional security, the prosperity of farmers (including women, smallholders, and agricultural labour), the conservation of natural resources and biodiversity, and for enhancing climate resilience.

## The landscape approach

Agroecology, however, is more than just a set of farming practices; it is a transformative approach that integrates ecological principles with social equity and economic viability[2]. Enabling a widespread transition to agroecology demands a comprehensive, integrated strategy that addresses all facets of the agricultural system simultaneously and at a meaningful scale. This recognition underpins the "landscape approach" – a strategic framework that seeks to converge diverse interventions across production, markets, social justice, and institutional support within a defined geographical area. This approach acknowledges that fundamental transformation requires coordinated efforts that transcend traditional sectoral silos and reach a critical minimum scale to generate systemic impact. A precedent for the landscape

2. Agroecology Europe. (2021, November 1). The 13 principles of Agroecology • Agroecology Europe. https://www.agroecology-europe.org/the-13-principles-of-agroecology/

approach in India is the way participatory watershed development was conceptualised initially in the 1994 guidelines.

## Role of the state

Just as the state played a pivotal role in catalysing the Green Revolution, a conscious and proactive policy environment is indispensable for fostering a transformation to agroecology. This report serves as a foundational thematic document to guide policymakers in initiating and supporting such transitions. It identifies key elements crucial for agroecological development and presents a curated collection of policy suggestions designed to create a conducive enabling environment. By analysing existing government schemes, this report aims to identify best practices and propose concrete recommendations to provide an initial direction for policy interventions for various 'elements' of transformation.

## Structure of this report

After first listing all elements of transformation that have been identified, the specific policy recommendations have been summarised in the table in the section that follows. Subsequently, the policy recommendations for each identified element of transformation have been elaborated on in one-page summaries, providing a brief overview of the broad direction in which policy thrust is needed, along with links to additional resources for further details.

# Elements for Transition to Agroecology

The elements of agroecology are based on the 13 principles of agroecology, which are underpinned by the tenets of physical and enabling infrastructure. These principles encompass sub-domains of input systems, on-farm systems, output systems, and markets, as part of physical infrastructure, as well as institutional fortification and landscape development, which fall under the category of enabling infrastructure.

| Physical Infrastructure | | | | Enabling Infrastructure | |
|---|---|---|---|---|---|
| **Input Systems** | **On Farm** | **Outputs** | **Markets** | **Landscape** | **Institutions** |
| Seed Systems | Agroforestry | Primary Processing and Value Addition | Market Linkages | Landless Farmers | Panchayati Raj Institutions |
| Agri-inputs | Digital Technologies | Storage and Cold Chains | Localised Value Chains | Women Farmers | Public Procurement Systems |
| Knowledge Inputs: Training and Extension | Agronomy and Cropping Systems | Transportation* | Consumer Awareness/Market Development | Tenant Farmers | Women SHGs |
| Water Management | Livestock Integration | | Promotion / Branding | Agricultural Labour | Farmer-Producer Organisations |
| Use of Renewable Energy | | | | Commons and Biodiversity Management | Enterprise Development |
| Capital and Finance (Farm Credit) | | | | Human Wildlife Conflict | Insurance |
| Implements and Tools | | | | Payment for Ecosystem Services | Certification |
| | | | | | Research and Development |

**Excluded from this report, as this is outside the domain of government policy.*

# Executive Summary: Table of Recommendations

*Recommendations that are existing schemes and can be accessed.*

*Recommendations that are existing schemes that need minor tweaks.*

*Recommendations that will require new allocations by decision makers.*

**Physical Infrastructure**

**Input Systems**

| Sl. No. | Element | Policy Recommendation | |
|---|---|---|---|
| 1.A.1 | Seed Systems | Community Managed Seed Systems (e.g.: GoAP & OMM) | |
| 1.A.2 | Agri-inputs | 10,000 BRCs through NMNF (e.g., Godhan Nyay Yojana) | |
| 1.A.3 | Knowledge Inputs: Training and Extension | FFS and Krishi Sakhis as CRPs through NMNF (e.g., APCNF) | |
| 1.A.4 | Water Management | Revitalising rainwater harvesting systems through MGNREGA | Additionally see SCI and PMDS under Cropping Systems (1.B.3). |
| 1.A.5 | Use of Renewable Energy | Feeder Level Solarisation through PM-KUSUM | |
| 1.A.6 | Capital and Financing (Farm Credit) | Financial inclusion through group guaranteed loans and the debt relief commission | |
| 1.A.7 | Implementations and tools | Custom Hiring Centres through SMAM and Bringing Back Draught Animals (e.g., AICRP on Increased Utilisation of Animal Energy) | |

**On Farm**

| Sl. No. | Element | Policy Recommendation | |
|---|---|---|---|
| 1.B.1 | Agroforestry | Community Managed Seed Systems (e.g.: GoAP & OMM) | |
| 1.B.2 | Convergence of SMAF, CFR and Van Dhan Yojana (e.g., National Bamboo Mission) | 10,000 BRCs through NMNF (e.g., Godhan Nyay Yojana) | |
| 1.B.3 | Digital technologies | FFS and Krishi Sakhis as CRPs through NMNF (e.g., APCNF) | |
| 1.B.4 | Digital services that ensure farmer sovereignty (e.g., Platform Commons) | Revitalising rainwater harvesting systems through MGNREGA | Additionally see Commons and biodiversity management (2.A.5). |

| Output | | | |
|---|---|---|---|
| Sl. No. | Element | Policy Recommendation | |
| 1.C.1 | Primary processing and Value Addition | Decentralised, Community-Managed Processing Units | |
| 1.C.2 | Storage and cold chains | Warehouse Receipts to enhance farmer income | |

| Markets | | | |
|---|---|---|---|
| Sl. No. | Element | Policy Recommendation | |
| 1.D.1 | Market linkages | Gramin Agriculture Markets (GrAMs) | |
| 1.D.2 | Localised Value Chains | Local procurement for MDM, ICDS and PDS (e.g., OMM) | Additionally see Public Procurement Systems (2.B.2). |

| Enabling Infrastructure | | | |
|---|---|---|---|
| **Landscape** | | | |
| Sl. No. | Element | Policy Recommendation | |
| 2.A.1 | Landless farmers | Extending DBT to include non-landed farmers (e.g., KALIA) | |
| 2.A.2 | Women farmers | Recognition and empowerment for equity | Additionally see KALIA under Landless Farmers (2.A.1), Debt Relief Commission under Capital and Financing (Farm Credit) (1.A.6) and Kudumbashree under Women SHGs (2.B.3). |
| 2.A.3 | Tenant farmers | Recognition of tenant farmers as cultivators to access farmer schemes (e.g., AP Crop Cultivator Rights Act) | |
| 2.A.4 | Agricultural labour | Labour subsidy programme for agriculture | Additionally see KALIA under Landless farmers (2.A.1) and Kudumbashree under Women SHGs (2.B.3). |
| 2.A.5 | Commons and biodiversity management | Legitimising Community Ownership and Governance of Commons and Biodiversity Registers | |
| 2.A.6 | Human-wildlife conflict | Mitigation through Integrated, Community-Led Approaches | |
| 2.A.7 | Payment for Ecosystem Services | Royalties based on practices captured during certification (e.g., Kerala paddy royalty) | Additionally see Certification (2.B.7). |

| Institutions | | | |
|---|---|---|---|
| Sl. No. | Element | Policy Recommendation | |
| 2.B.1 | Agroforestry | Community Managed Seed Systems (e.g.: GoAP & OMM) | |
| 2.B.2 | Convergence of SMAF, CFR and Van Dhan Yojana (e.g., National Bamboo Mission) | 10,000 BRCs through NMNF (e.g., Godhan Nyay Yojana) | Additionally see Localised Value Chains (1.D.2). |

**Institutions**

| Sl. No. | Element | Policy Recommendation | |
|---|---|---|---|
| 2.B.3 | Women Self-Help Groups | Group leasing and linkages across the value chain (e.g., Kudumbashree) | |
| 2.B.4 | Farmer-Producer Organisations | Two-Tiered FPO Model (e.g.: OMM's FPO guidelines) | |
| 2.B.5 | Enterprise Development | Creating the ecosystem to support enterprise development | |
| 2.B.6 | Insurance | Universal and nationalised farmer income insurance | Additionally see Public Procurement Systems (2.B.2). |
| 2.B.7 | Certification | Universal, extensive area certification | Additionally see Payment for Ecosystem Services (2.A.7). |
| 2.B.8 | Research and development | Farmer-Centric Participatory Research and Local Validation | |

PART I - PHYSICAL INFRASTRUCTURE

# Input Systems

# 01
# Seed Systems

Agroecological farming systems rely on high genetic diversity, resilient local varieties, and farmer autonomy in seed decisions. Yet, farmers across India are increasingly dependent on external, uniform, and often proprietary, and sometimes genetically modified seeds, especially hybrids unsuited for polycultures, dryland farming, or low-input systems. State procurement and subsidy policies focus almost exclusively on high-input "certified" seeds, marginalising traditional and open-pollinated varieties. In contrast, agroecology demands seed systems that are decentralised, participatory, diverse, and region-specific. It values seeds not as commodities but as commons, co-created by farming communities and adapted over generations.

### Policy recommendation: Community Managed Seed Systems

A seed system that ignores the farmer is blind to ecology, indifferent to justice, and can never make the farmer atmanirbhar. Alternate seed systems can be conceptualised and implemented with the following defining principles:

- Recognise farmers as seed breeders and custodians through Participatory Varietal Trials (PVT).
- Strengthen community seed banks and farmer-led seed networks through FPOs or women's SHGs.
- Ensure public research prioritises diverse, regionally adapted varieties for crops suited to agroecological conditions in each landscape.
- Training seed farmers in (i) seed treatment without using synthetic chemicals and (ii) certification for both seed certification and organic/natural certification.

There are models where such democratised seed systems have been implemented:

- The Government of Andhra Pradesh collaborated with WASSAN to procure and distribute seeds from farmers, and has extended a 75% seed subsidy to local (native) varieties suitable for local conditions, encouraging climate-resilient agriculture. Seed distribution is conducted through Mana Vittana Kendras, which are run by FPOs.
- The Odisha Millet Mission[2] integrates farmer seed trials and participatory seed development[3], reviving traditional millet varieties adapted to local soils and climates.

Additional details are in three documents whose links are provided in the footnotes.[4,5]

2. Directorate of Agriculture and Food Produciton, Odisha. (2022). SOP for Seed System for LandRaces (DAFP-SPIII-OSSC-0005-2020/01/2022). Government of Odisha.
3. WASSAN. (n.d.). How Odisha Millet Mission Revived Seed System for Landraces.
4. Lekkala, Dr. S., Leelavathi, Ms. M., & Laxmi, Ms. B. (n.d.). Community Managed Seed Systems. WASSAN.
5. Working Group on Seed Systems – RRA Network. (n.d.). THE NATIONAL INITIATIVE ON EVOLVING SEED SYSTEMS FOR TRADITIONAL VARIETIES (TVS).

# 02
# Agri Inputs

The fundamental point of differentiation between agroecology and high-external-input agriculture is the use of inputs derived from locally available natural resources. The policy of subsidising only synthetic chemical fertilisers is the most significant factor against the mainstreaming of agroecology (more information on this is provided in Annexure 2). However, for each farmer to make their own inputs would be labour-intensive and time-consuming. Hence, the concept of Bio-input Resource Centres (BRCs)[6] evolved as a nearby micro-scale place where they can procure ready-made agroecological inputs. The additional fact that agroecological inputs have short shelf-lives makes them even more suitable for such decentralised, short-value chain models, without the need for regulatory oversight, given the highly localised production and consumption cycles. The model is a win-win because while it eases farmers' access to inputs, it also provides local entrepreneurial or employment opportunities to others.

### Policy recommendation: Bio-input Resource Centres

The Government of India, under the National Mission on Natural Farming (NMNF), has announced the establishment of 10,000 BRCs nationwide. These centres aim to provide farmers with easy access to quality bio-inputs and serve as knowledge hubs for natural farming practices. The implementation framework is as follows:

- Each BRC will receive financial assistance of Rs 1 lakh under NMNF.
- BRCs will be managed by trained personnel, preferably from local farming communities, FPOs, SHGs or gaushalas, ensuring community ownership and sustainability.
- They will produce, store, and distribute bio-inputs tailored to local agro-climatic conditions and cropping patterns.
- Training programs will have to be conducted to educate farmers on the preparation and application of bio-inputs.

An innovative example of BRC implementation was the Godhan Nyay Yojan[7]a was launched by Chhattisgarh Government in 2020 with the multiple objectives of addressing stray cattle problem, giving employment to women's SHGs, making gowthan (common) valuable land for the community again by removing encroachments and creating basic infrastructure, and improving soil health in the state by providing high quality natural fertilisers to farmers through PACS. In this

6. NCNF. (n.d.). BIO INPUT RESOURCE CENTRE- A step towards catalysing transition to agroecology based farming at scale [Slide show].

7. Government of Chhatisgarh. (2020). Godhan Nyay Yojana. https://www.myscheme.gov.in/schemes/gny.

scheme, cow dung was procured at a fixed rate of Rs. 2 per kg from cattle owners / dung-collectors and compost was prepared by women's SHGs. This compost is then sold to farmers from cooperative societies at Rs. 8 per kg[8], with the price later increased to Rs 10 per kg. Furthermore, cow urine was procured at Rs. 4 per litre and used to make natural fertilisers (such as Jeevamrut) and pest control solutions (like Brahmastra). This prevented open grazing by cattle and addressed the problem of stray animals on roads. Following a change in the party in power at the state level, the scheme was shut down. The scheme has, however, been initiated in Himachal Pradesh and Jharkhand now.

8. Godhan Nyay Yojana. (2020, September 22). Times of India Blog. https://timesofindia.indiatimes.com/readers-blog/dkviews/godhan-nyay-yojana-26340/

# 03
# Knowledge Inputs: Training & Extension

Mainstream conventional agriculture was designed in a top-down fashion such that information about the latest agricultural techniques and technologies would be transmitted from the academics and researchers in universities to farmers through an extension system. This is ill-suited for agroecology for two reasons. The first is that mainstream agricultural knowledge is still based on the green revolution paradigm of high external synthetic inputs, which is antithetical to agroecology. The second is that even this system is badly broken, and most farmers now get their agri-advisories from either the marketing staff of agrochemical companies or from input dealers who sell agrochemical products.

### Policy recommendation: Farmer Field Schools and Community Resource Persons

**Farmer Field Schools (FFS):** FFS[9] are group-based learning processes where farmers conduct experiments, observe outcomes, and make decisions based on local conditions. It is a horizontal (and not top-down) pedagogical process that centres farmers. It acknowledges knowledge creation and innovation by farmers. Training of farmers to build their technical capacities is done practically at farmers' fields rather than through theoretical sessions in classroom-like environments. This is a participatory learning process where farmers engage in experiential learning and observe field conditions to make informed decisions about crop management. Special efforts must be made to include groups (like women and Dalits, for example) that usually get excluded in community processes like FFS.

**Community Resource Persons (CRPs):** The other component of alternative extension systems promoted in agroecology is the use of local (agroecology) experienced CRPs as trainers and extension personnel instead of the conventional method of extension staff who are 'qualified' in mainstream green revolution agriculture technologies. Andhra Pradesh's Community Managed Natural Farming (APCNF) is the ideal case study for this approach. As the name suggests, this programme seeks to democratise the shift to agroecology by making it a people's movement. It aims to do this by putting the onus of growing and spreading the knowledge of agroecological methods on the community through the use of CRPs and FFS. Experienced local agroecology farmers as CRPs — provide continuous support to peers, facilitating the adoption of natural farming practices. This peer-led model has proven effective in scaling sustainable agriculture practices. The National Mission on Natural Farming seeks to scale these concepts to the national level through 30,000 women CRPs called Krishi Sakhis, in convergence with the National Rural Livelihood Mission (NRLM). All agroecology landscapes could seek to use the provisions in Annexure VI of

9. Farmer Field Schools (FFS) | Department of Economic and Social Affairs. (n.d.). https://sdgs.un.org/partnerships/farmer-field-schools-ffs

the NMMF guidelines[10]. The CRPs themselves also require regular capacity building about the latest techniques in agroecology. For this, they will require periodic training from research and development centres, including practitioner fields, where agroecology knowledge is collated, vetted, and disseminated.

*See also: Research and Development.*

10. NMNF. (2025). National Mission on Natural Farming: Operational Guidelines.

# 04
# Water Management

The Green Revolution paradigm is primarily based on hybrid seeds that perform well under specific conditions that require timely agrochemical inputs and irrigation. There is little resilience when conditions do not permit the ideal package of agricultural practices to be followed. Therefore, after the green revolution, investments in agriculture were disproportionately focused on irrigation infrastructure (such as promoting drip irrigation through the Pradhan Mantri Krishi Sinchayee Yojana, in addition to large dams), and water management was not a priority for mainstream agriculture. One consequence of this is the high energy consumption for agricultural irrigation and the associated salinisation of soils due to excessive irrigation. Another consequence of the spread of this water-abundance mindset to non-irrigated areas is the unsustainable mining of groundwater for agriculture (through borewells, etc.), which is leading to alarming declines in groundwater levels.

### Policy recommendation: Revitalising rainwater harvesting systems

The Revitalising Rainfed Agriculture Network (RRAN) has long been advocating for looking beyond irrigation systems when developing water policies. The need of the hour is to prioritise recharge of plummeting groundwater levels through the following methods:

- Traditional water bodies are numerous in number and are in a highly dilapidated condition. A structured revival of these tanks, as well as other larger local water bodies, is needed through the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA).
- Small-scale, farmer-led water harvesting: MGNREGA also enables the creation of assets for water management (such as wells and farm ponds) on the lands of marginalised individuals and communities, and this must be prioritised.
- Maintenance: Mechanisms must be defined for the maintenance of water bodies, soil and water conservation assets, and desiltation /silt application.
- Community governance: Local participatory governance and the establishment of norms regarding water access, use, and first claims, along with related institutional mechanisms, must be integral to the policy developed for each agroecological landscape. Pani Panchayats were pioneered in Maharashtra and have been institutionalised by law in Odisha[11], which recognises women as independent water users—regardless of land ownership.

JIVA, a NABARD scheme, has converged watersheds with natural farming. Two components of the National Mission for Sustainable Agriculture (NMSA) are 'Rainfed

11. Garg, A., & Mishra, A. (2025). Women of the Water: How Odisha's women are reclaiming what's truly theirs. In https://www.undp.org/india/blog/women-water-how-odishas-women-are-reclaiming-whats-truly-theirs. UNDP.

Area Development' and 'On-Farm Water Management'. Details about the provisions are provided in footnote[12] . Additionally, agroecology encourages increasing the soil organic carbon content, which improves its water retention. Furthermore, agroecology promotes diverse and mixed cropping systems, resulting in lower water requirements. Some specific agricultural practices, which also help in water and soil management, have been skipped here because they are covered elsewhere in this report.

**See also: SCI under Agronomy and Cropping Systems.**

12. Maheswari, K. S., & Rani, B. R. (Eds.). (2021). Training Programme on Revitalization of Rainfed Agriculture with special reference to Natural Resource Management (ISBN: 978-93-91668-03-7). National Institute of Agricultural Extension Management.

# 05
# Use of Renewable Energy

Energy is required to power farm equipment, such as tractors, and to draw water using electricity or diesel pumpsets for irrigation. Additionally, energy is needed for processing to add value. Even farmers practising agroecology might use electric or diesel pumpsets to irrigate their farms. Policies of providing farmers with free electricity, even if only intermittently for limited hours, and the difficulty in obtaining agricultural electricity connections have led to indiscriminate groundwater exploitation. This mindset has spread to even areas without electricity connections, leading to groundwater overexploitation through the use of diesel pumpsets, despite the high costs (in addition to the pollution they cause). So much so that there is a term to describe this called the 'Energy-Water-Agriculture Nexus'[13]. The case study of Dhundi Solar Irrigation Cooperative (DSIC) in Gujarat demonstrates that introducing solar-powered pumps has made irrigation cheaper than using diesel pumps, yet this has led to even greater groundwater depletion, which sometimes renders the installed solar pumps unviable. Therefore, it becomes crucial to address any policy interventions in energy through this lens. Revival of draught animal power, covered in later sections, also provides time-tested traditional mechanisms for meeting energy needs.

### Policy recommendation: Revitalising rainwater harvesting systems

Due to the risks of groundwater depletion associated with solar pumps at individual farmer fields, the Feeder Level Solarisation under Component C of Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan (PM KUSUM) is recommended. State governments can explore providing additional funding from State Action Plans on Climate Change (SAPCCs). Solar power at the feeder level can be used as a community managed commons to do the following: (i) pump water from community managed traditional water harvesting structures, like the village tank or lake, to individual farmers on a rotational basis (and any use of water over and above is paid for by the farmer), (ii) power common community cold-stores or processing centres (for millet processing, oil extraction, etc), and (iii) powering community health centers, schools and other such community infrastructure. The solar panels could be installed on common lands (only where space is available without cutting trees), with approximately 1 hectare (depending on the region's sunlight intensity) required for about 500 kW of production. The advantage of opting for a common-pooled option is the lower transaction cost and easier maintenance. It is also in line with the landscape approach being advocated for agroecological transformation.

SwitchON Foundation has developed material[14] for training on solar energy and has experience and expertise on the use of solar power for agroecology.

13. Gulati, M., Saraswat, K. S., Upadhyay, G., Sharda, N., & Kanungo, H. (2019). Energy-Water-Agriculture Nexus: Grow Solar, Save Water, Double the Farm Income. World Bank.
14. Introduction to Solar Energy & Solar Water Pumping Systems. (2021). SwitchON Foundation.

# 06
# Capital & Financing (Farm Credit)

It has been over 75 years since India gained independence, but the percentage of farmers who get formal agricultural credit is less than 60%. Data also indicates that many non-farmers avail themselves of agricultural credit intended for farmers. More than 40% of agricultural credit is still estimated to come from the informal sector, leaving farmers vulnerable to high lending rates. Further, that farming is not remunerative[15] is not news either. As a result, farmers who do access credit, whether formal or informal, are often unable to repay it.

### Policy recommendation: Agricultural financial inclusion and debt relief commission

Initiatives for Development Foundation (IDF), Bangalore, has financed farmers with a group guaranteed loan provided by public sector banks. At least 50% of all small and marginal farmers, including oral lessees and tenant farmers, lacked proper land document titles and were excluded entirely from formal lending. Their programme provides Kisan Credit Cards to farmers, and IDF staff are responsible for processing applications, deposits, withdrawals, renewals, crop insurance claims, as well as financial literacy and planning. The low-interest rate of approximately 9.9% p.a., which includes a facilitation fee for IDF, is significantly lower than moneylender interest rates of 24-36% to even 60%. IDF has built a portfolio of over Rs. 150 crores through more than 1.5 lakh borrowers, and, based on the guidelines provided by IDF. Details may be found in Annexure C of the footnote[16].

As mentioned earlier, even after receiving credit, a mechanism for debt relief must be in place when necessary, as agriculture is a hazardous enterprise and is often not economically viable at present. Here, Kerala's case-by-case permanent debt relief model[17] offers an alternative[18] to indiscriminate loan waivers.

In addition to the above, it is essential to note that agroecology employs a fundamentally different philosophical approach compared to the conventional approach. The latter creates cash-flow problems for farmers because it necessitates that they first invest money upfront on hybrid seeds and agrochemical inputs, with the risk that the investment may be lost if the crop fails. Hence, this paradigm is dependent on credit and crop failures can put farmers into a debt trap. Agroecology, however, encourages farmers to use saved seeds and inputs prepared on

15. Et. (2017, June 18). Farming of food crops is not remunerative: MS Swaminathan. The Economic Times.
16. Public Policies to Make Markets Work for Rainfed Farmers: Challenges and Solutions
17. PRS Legislative Research (PRS). (2007). The Kerala Farmers' Debt Relief Commission Act, 2006.
18. MK, N. (2018b, December 27). Kerala's alternative to farm loan waivers has lessons for India. Mint.

the farm, therefore requiring fewer (although not zero) financial resources for agriculture and reducing the economic risk due to crop failure. In this way, agroecology seeks to prevent monetary problems rather than to cure them. However, to support agroecology, there is a need to transition from the scale of finance for a single crop to the scale of finance for an entire farm with multiple crops.

# 07
# Implements & Tools

India's agricultural mechanisation efforts have primarily focused on large, fossil-fuel-dependent, male-oriented machinery, often ill-suited for the smaller plots of agroecological farming systems that rely on women's labour. Heavy equipment can compact soil, disrupt beneficial microbial life, and is financially prohibitive for small and marginal farmers. This mechanisation has also displaced women's labour from agriculture in many places. Agroecology promotes practices that are often more labour-intensive; the rising cost and scarcity of labour pose a significant challenge. This creates a critical need for accessible, affordable, and appropriate implements and tools that enhance efficiency and reduce druggery without compromising ecological principles or farmer livelihoods.

### Policy recommendation: Custom Hiring Centres and Bringing Back Draught Animals

**Agroecology-Adapted Custom Hiring Centres (CHCs) / Farm Machinery Banks (FMBs):** Repurpose existing CHCs and village-level FMBs to prioritise and stock a diverse range of agroecology-specific implements. These include:

- Specialised Weeding Tools: Manual and small power-operated weeders to reduce dependence on herbicides.
- Precision Sowing/Planting Tools: Dibblers and multi-row seed drills, suitable for mixed cropping and diverse seed sizes, ensure optimal plant density and uniformity.
- Soil Health Management Tools: Broadforks for aeration and loosening soil without inversion, and mulching equipment for biomass management.

These centres, ideally managed by Farmer-Producer Organisations (FPOs) or Women Self-Help Groups (SHGs), would provide affordable rental services, overcoming individual ownership costs. This is a component of the Odisha Millet Mission and can be undertaken with significant financial assistance (up to 80% for FPOs/SHGs) through the Sub-Mission on Agricultural Mechanisation.

**Bringing Back Draught Animal Power:** Incentivise reintroduction of rearing of indigenous draught animals (bullocks) for farm operations. This aligns with low-input agroecology by reducing fossil fuel usage, providing farmyard manure, and integrating livestock into the farming system. This can be achieved by giving subsidies to enterprises that serve as service providers for procuring and training indigenous draught animal breeds, as well as for acquiring bullock-drawn implements. In states like Karnataka and Andhra Pradesh, there's a resurgence in bullock usage and Rajasthan and Jharkhand have schemes to incentivise bullock usage[19] too. The All India Coordinated Research Project on Increased Utilisation of Animal Energy has developed bullock-drawn sprayers (subsidised in Karnataka by 50%), seed drills, and even electricity-generating carts, showcasing viable alternatives. Redirecting 10-15% of existing mechanisation scheme budgets towards agroecology-specific tools and draught animal revival could initiate significant change without major new outlays.

19. Shagun. (2022, March 4). Bullish turn: The return of the bullock to India's farms. Down to Earth.

PART I - PHYSICAL INFRASTRUCTURE

# On Farm

# 01
# Agroforestry

Agroforestry is not usually considered when drafting agriculture policy. However, trees and forests can provide multiple benefits to agriculture, particularly within an agroecological framework. At a time of climate change, trees play a crucial role in sequestering carbon. Environmentally, they are also helpful since they provide habitat for pollinators and beneficial insects, and contribute to local ecological balance and biodiversity. Their roots burrow deep underground, tapping into soil nutrients that are inaccessible to the shallower roots of crops. When trees shed their leaves, this leaf litter, when composted, serves as a rich source of nutrition for crops. In this way, they not only increase soil organic carbon but also help reduce soil erosion and enhance water retention, while also acting as windbreaks along farm borders. Appropriate trees can also serve as a source of livelihood and income through the production of fodder, timber, and fuelwood. Other trees, such as neem or pongamia (karanj), provide raw materials for preparing on-farm inputs, including bio-pesticides. Additionally, trees like Glyricidia provide biomass for soil amendments.

### Policy recommendation: Convergence of SMAF, CFR and Van Dhan Yojana

The Sub-Mission on Agroforestry (SMAF)[20], launched in 2014-15 under the National Mission for Sustainable Agriculture (NMSA), promotes tree planting on farmlands by farmers. However, its full potential, particularly in linking with local livelihoods and traditional knowledge, remains underutilised.

Similarly, while the Forest Rights Act (FRA)[21], 2006 recognises Community Forest Resource (CFR) Rights, their implementation is poor, hindering community-led conservation and resource management. District-level agroforestry plans that explicitly integrate CFR areas and traditional agroforestry practices could be developed. This should be led by Gram Sabhas, ensuring local community ownership and alignment with their needs and customary practices. In areas where applicable, the recognition and strengthening of CFR must be made an integral component of all agroforestry promotion schemes. Funds from SMAF and other relevant schemes should prioritise villages where CFRs have been recognised and where Gram Sabhas are actively involved in agroforestry planning.

In areas near forests, the Van Dhan Yojana, implemented by TRIFED, aims to provide market linkages for Minor Forest Produce (MFP) collected by Adivasi communities, offering a pathway for income generation from forest-based resources. Under this scheme, Van Dhan Vikas Kendras (VDVKs) are operational across various states,

20. Dept. of Agriculture, Cooperation & Farmers' Welfare , GOI. (2016). Sub Mission on Agroforestry: Operational Guidelines: Under National Mission for Sustainable Agriculture (NMSA). GOI.
21. Rules of FRA: Ministry of Tribal Affairs, GOI. (2006). Forest Rights Act, 2006. GOI.

facilitating the collection, processing, and marketing of MFPs by tribal communities, showcasing the potential for livelihood generation from forest resources. The work done by Amhi Amchya Arogya Sathi in Maharashtra to get communities to plant jamun trees along roadsides, through the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), is an example of how local species can provide both ecological benefits and economic returns. The National Bamboo Mission (NBM)[22] is another example of how the government has implemented these concepts at scale.

22. https://nbm.da.gov.in/Documents/pdf/Concept_Note_Bamboo_25&Feb.pdf

# 02
# Digital Technologies

In the digital-first era that we are now in, digital technologies are becoming the platforms on which economic actors operate. By capturing the spacing in which financial transactions occur and creating the rules of the game, in many sectors (such as e-commerce, media, communication, and transport), neither of the two parties transacting is necessarily better off compared to the pre-digital era. However, the digital platform, which now acts as the middleman, rakes in billions from each transaction. For example, ride-hailing apps initially promised to revolutionise urban transport by making cheap and affordable transportation literally available at people's doorsteps. These companies initially offered high rates to drivers, enticing them to buy cars, and then left them with EMIs that they could not easily walk away from. Once people's habits changed, these companies slowly raised prices, making those who hailed these services worse off than before, while also reducing the percentage going to drivers as companies increased their own commissions. In this way, companies are making money while both drivers and riders are worse off than they were before. On another front, reports indicate that neighbourhood grocery stores are closing in large numbers after e-commerce has taken over, and small traders are struggling with significant losses. One is not against digital technologies, but there is a need to approach them with an open mind and a critical eye. Farming is already a loss-making enterprise, and non-farm economic actors, such as digital platforms, should not exacerbate the situation further against farmers.

### Policy recommendation: Digital services that ensure farmer sovereignty

The solution is not to shy away from digital technologies but to adopt them in a manner that retains farmer sovereignty. The Platform Commons Foundation aims to do precisely this. Their stated goal is to create an All-India Digital Farmer Collective that will own and operate the Commons successfully[23][24], which is their end-to-end digital solutions platform for agriculture. They offer a model for farmer-owned and community-managed digital infrastructure, promoting equitable access and collective benefit. The current government policy formulation for digital agriculture is not aligned with this philosophy. What is needed is a government-created agri-tech platform, like UPI, with the following features:

- The stated needs for digital solutions should begin with farmers, articulated by them as their use cases.
- Decentralised data management and access empower farmer collectives, FPOs, and local agricultural bodies to contribute to and access the system, ensuring data

23. Gambhir, S. (2025, April 10). Commons.Farm - Platform Commons. Platform Commons. https://platformcommons.org/commons-farm/
24. Markify Seller. (n.d.). https://commons.farm/markify-seller/commons-home

accuracy and ownership.

- Control over the choice of the algorithms that determine data flow, data visibility and value creation using data must be with farmers.
- Algorithms must be biased towards collectivisation, local value chains and advisories based on agroecological values.
- Interoperability across stakeholders to facilitate seamless data exchange for scheme and service delivery across various market players.
- Ensuring that all digital tools and advisory content are available in multiple local languages and accessible formats (e.g., voice-based interfaces for users with low literacy).

# 03
# Agronomy & Cropping Systems

The cropping and production systems that stemmed from the Green Revolution primarily prioritised higher yields. The irony is that there is an overwhelming wealth of evidence that not only does agroecology not result in lower yields, but also in better nutrition, soil health, and incomes. Much of this information is available in compilations by the Alliance for Sustainable and Holistic Agriculture (ASHA) in February 2015 and the Centre for Science and Environment in February 2022[25]. The latter, apart from looking at other research, also systematically analyses the results from the All India Network Project on Organic Farming (AINP-OF) from 2004 to 2019, which is a pan-India research project conducted by the Indian Council of Agricultural Research (ICAR) through the Indian Institute of Farming System Research (IIFSR), Modipuram. With 20 collaborating centres across 16 states, they have developed organic packages of practices for 76 cropping systems[26]. However, they studied conventional intercrop systems using hybrid seeds. The choice of cropping systems by farmers is often not based on local agroclimatic factors, as it ideally should be, but on policy incentives from the government and market factors. The latter will also need to adapt to promote appropriate cropping systems, which have been considered in the section 'Public Procurement Systems'.

### Policy recommendation: Local agro-climatic resource-based & scientifically validated mixed systems

Given climate change, there is an urgent need to develop cropping systems based on the local agroclimate of each landscape. There is a lot to learn from traditional mixed cropping systems in each region, such as Navdanya and Barah-anaaj, and these systems should be documented systematically. At the same time, however, one must not romanticise agroecology as only farming methods that have been followed for generations. Traditional practices can also be further improved based on the modern understanding of the underlying science, such as soil microbial biochemistry. The conventional mindset of viewing the agricultural universities and research centres as the sources of knowledge creation, which is then transmitted to farmers, must also be shed. Farmers should be recognised as innovators and sources of knowledge, and they should be the final validators of new technologies and techniques. This aspect is covered in the section 'Research and Development'.

The System of Crop Intensification (SCI), a technique that emphasises wide spacing of single plants at a younger age, intermittent irrigation, inter-cultivation and enriching soil

25. Khurana, A., Mohammad, A. H., & Kumar Singh, A. (2022). EVIDENCE (2004–20) ON HOLISTIC BENEFITS OF ORGANIC AND NATURAL FARMING IN INDIA. Centre for Science and Environment.
26. PROMOTING ORGANIC FARMING. (n.d.). https://www.pib.gov.in/PressReleasePage.aspx?PRID=2080191

organic matter, is one such example. The way it was popularised for rice in Tamil Nadu by the state holds lessons that should be taken to spread other agroecological cropping systems similarly.

The Odisha Millets Mission has an SOP for organic cultivation, which can be accessed **here**.

# 04
# Livestock Integration

Livestock are integral to agroecological systems, contributing to soil health, nutrient cycling, and diversified farm incomes. However, dominant agricultural policies often prioritise intensive, dairy-centric models, neglecting extensive, indigenous livestock systems and the rights of pastoral communities. This oversight leads to environmental degradation, loss of indigenous breeds, and marginalisation of traditional livestock keepers. A shift towards integrating extensive livestock systems is crucial for fostering sustainable and resilient agroecological landscapes—for example, promotion of backyard poultry through Tribal Sub Plan (TSP) funds by WASSAN[27].

Extensive livestock systems, characterised by reliance on grazing in common lands and integration with agriculture, are vital for small and marginal farmers, especially in rainfed regions. They provide multiple products (milk, meat, wool, manure) and ecological services (soil health). Despite their significant contributions, these systems receive inadequate policy support and public investment. The shrinking of commons and reduced access to customary grazing resources further threaten these traditional practices and the livelihoods of pastoral communities.

### Policy recommendation: Mainstream Extensive Livestock Systems

There is an urgent need to recognise extensive livestock systems as a cornerstone of agroecology, essential for nutrient recycling, soil fertility, and farm resilience. Integrating them explicitly into state agricultural and rural development policies, moving beyond a narrow focus on milk production, is the need of the hour. Prioritising the conservation and promotion of indigenous livestock breeds, which are more resilient to local climate conditions and diseases, is required by incentivising selective breeding programs for these breeds. This involves shifting the research focus from milk production alone to also cover other aspects, such as draught power. For this, the National Livestock Mission (NLM) guidelines will need to be redesigned to explicitly support the procurement and training of indigenous draught animals, as outlined in the section on ‘Implements and Tools’.

Additionally, decentralised preventive animal healthcare systems, leveraging para-workers, Community Livestock Health Workers, or Pashu Sakhis (as seen in states such as Madhya Pradesh, Andhra Pradesh, Odisha, Jharkhand, and West Bengal), need to be established and strengthened. This reduces mortality rates and improves the overall health of livestock in extensive systems. There also needs to be capacity building of farmers by Pashu Sakhis on animal housing, hygiene and certification standards.

Simultaneously, the customary rights of

27. Directorate of Animal Husbandry, Govt. of Andhra Pradesh. (2019). Desi BYP Boosts Family Nutrition & provides Income for Marriage Celebrations. Retrieved August 30, 2025.

pastoral communities to access and utilise traditional grazing routes and common lands have to be formally recognised and protected to prevent the diversion of grazing lands for other purposes.

**See also: Commons and biodiversity management**

# Outputs

# 01
# Primary Processing & Value Addition

For diverse, often unique, produce derived from agroecological systems, the current processing landscape is ill-suited. Without accessible, localised primary processing, the economic benefits of sustainable farming practices remain largely unrealised by farmers, while consumers face limited access to healthy, minimally processed agroecological products. Farmers practising agroecology, who grow a wider variety of crops (e.g., traditional grains, diverse pulses, fruits, and vegetables), often lack local and segregated facilities for essential primary processing steps such as cleaning, grading, de-husking, basic milling, or initial packaging. This forces them to sell their produce as raw materials in conventional markets, where the premium for sustainably grown, high-quality products is not realised.

### Policy recommendation: Decentralised, Community-Managed Processing Units

The Odisha Millet Mission (OMM) offers a leading example of systematic integration of primary processing into an agroecological value chain. OMM has successfully facilitated the establishment of decentralised primary processing units, often managed by Women Self-Help Groups (WSHGs), for de-hulling, cleaning, and basic processing of millets at the village level. This initiative has not only reduced drudgery for women farmers but has also significantly enhanced local value addition, facilitated local consumption, improved the marketability of millets, and ensured better returns for millet farmers. This approach rests on two pillars:

- Village / Cluster-Level Facilities: Prioritise the establishment of small-scale, multi-crop primary processing units situated at the village or cluster level. These units should be equipped for essential primary processing activities, including cleaning, sorting, grading, de-hulling (crucial for millets and coarse grains), basic milling, oil extraction from oilseeds, and initial packaging.
- Empowering Farmer Collectives: Provide robust financial and technical support to Farmer-Producer Organisations (FPOs), Self-Help Groups (SHGs), and other farmer collectives to own, operate, and manage these processing units. This approach fosters local economic empowerment, ensures equitable distribution of benefits, and leverages collective action for sustainability.

For this, there are two schemes for primary processing by the Ministry of Food Processing Industries (MoFPI) which could be leveraged:

- PMFME Seed Capital for SHGs[28]: Actively promote and facilitate access to the Pradhan Mantri Formalisation of Micro Food Processing Enterprises (PMFME) scheme's Seed Capital for SHG members.

28. Ministry of Food Processing Industries. (n.d.). SEED CAPITAL TO SHG. https://mofpi.gov.in/pmfme/seed-capital-shg.

This scheme provides a grant of Rs. 40,000 per eligible SHG member engaged in food processing, intended for working capital and the purchase of small tools.

- PMFME Common Infrastructure Support[29]: This scheme provides a credit-linked grant of 35% (with prescribed limits) for common infrastructure such as premises for assaying, sorting, grading, warehouses, cold storage at farm-gate, and standard processing facilities. This infrastructure should be designed to support multiple small-scale agroecological producers on a hiring basis. The scheme also supports DPR preparation and training.

29. Ministry of Food Processing Industries. (n.d.). COMMON INFRASTRUCTURE. https://mofpi.gov.in/pmfme/seed-capital-shg

# 02
# Storage & Cold Chains

Small and marginal farmers often face a critical cash flow crisis immediately after harvest. They need funds for household expenses, debt repayment, and preparing for the next cropping cycle. Without access to formal credit against their produce, they are compelled to sell at prevailing low market prices, losing potential income that could be gained by waiting for better market conditions. Post-harvest losses, especially for fruits, vegetables, and other perishables, further exacerbate their economic vulnerability. A lack of adequate storage and cold chain infrastructure, coupled with limited access to credit against stored produce, forces farmers to sell their harvests at low prices, undermining their economic viability. Traditional decentralised storage mechanisms, such as golas (as they are referred to in Bihar and Jharkhand), made of local materials, have fallen into disrepair and require revival efforts.

### Policy recommendation: Warehouse Receipts to enhance farmer income

This policy brief proposes strategic interventions in storage and cold chain development, with a core emphasis on leveraging warehouse receipts, to empower farmers to secure better prices and improve their livelihoods. Establish and expand a robust system for Negotiable Warehouse Receipts (NWRs) to enable farmers to deposit their produce in accredited warehouses and obtain bank loans against these receipts. This provides crucial immediate liquidity, allowing farmers to defer sales until market prices are more remunerative. Incentivise banks and financial institutions to streamline NWR-backed loan processes for small and marginal farmers, ensuring quick disbursement and farmer-friendly terms. The Credit Guarantee Scheme for e-NWR-based Pledge Financing (CGS-NPF, notified by the Ministry of Finance, Government of India, aims to provide guarantee coverage to banks and financial institutions for loans extended against e-NWRs. This scheme reduces the credit risk for lenders, encouraging them to provide more financing to farmers and Farmer Producer Organisations (FPOs) against their stored produce, thereby enhancing access to post-harvest credit. Empowered FPOs can manage or facilitate access to these warehouses for their members, potentially acting as aggregators and guarantors of their members' access to these warehouses. Safe Harvest[30] has dealt with such cash flow issues by involving formalised financial arrangements with channel partners and bank guarantees, offering insights into how liquidity can be channelled without directly burdening FPOs with restrictive loans, allowing farmers to take "calibrated risks".

For perishable produce that requires cold storage, the Ministry of Food Processing Industries offers a scheme called "Integrated Cold Chain and Value Addition Infrastructure". The National Cooperative Development Corporation (NCDC) also provides financial assistance for the establishment and modernisation of cold storage units, particularly for horticulture produce.

30. Ramachandran, V. (2025, May 15). Agroecology- Agribusiness dialogues. Agribusiness Matters. https://www.agribizmatters.com/p/agroecology-agribusiness-dialogues

PART I - PHYSICAL INFRASTRUCTURE

# Markets

# 01
# Market Linkages

The challenges of market linkages are two-fold for farmers practising agroecology. The first is that market linkages are poor in most parts of India, even for 'mainstream' farmers, especially small and marginal farmers who usually have minimal quantities of surplus produce for sale. Farmers practising agroecology face the double whammy of having to find marketing channels within these limited and inefficient traditional channels that recognise their produce as distinct from other mainstream products.

### Policy Recommendation: Gramin Agriculture Markets (GrAMs)

Traditional local haats served as a market commons [31]that was available to all to participate in, and the government sought to support them as GrAMs. GrAMs should ideally function as farmer-consumer retail markets and collection/aggregation points, linked to secondary markets (hubs) and processing/ value addition chains, with participation from FPOs and other farmer groups. Since it is not feasible for individual marginal farmers, with small quantities of produce for sale, to go to distant markets, such GrAMs can serve as locations where local traders can purchase and aggregate produce from small farmers in a particular area. By serving this function, GrAMs could be a key logistical part of the entire value chain. Each GrAM should also have a separate and dedicated section for agroecological produce.

In his 2018-19 Budget speech, the then Union Finance Minister Arun Jaitley announced an ambitious plan to upgrade 22,000 rural haats into GrAMs and strengthen their physical infrastructure using schemes like MGNREGS and the Agri-Market Infrastructure Fund (AMIF). According to Devinder Sharma, a renowned researcher on Indian agriculture, "India currently has around 7,000 APMCs [Agricultural Produce Market Committees], while what we actually need are about 42,000 markets. Developing new markets requires substantial resources. However, strengthening existing rural haats into GrAMs is a good step, as rural haats are already in place."[32] It is unfortunate that, although announced in 2019, there has been little to no uptake in this scheme, which is set to remain operational until FY 2025-26. There is an urgent need to advocate for the continuity of this scheme and ensure that it is actually implemented on the ground.

In addition to GrAMs, other means to improve market linkages, especially in semi-urban areas, are: (i) Creation of dedicated spaces and support for weekly or periodic farmers' markets. (ii) Facilitation of Community Supported Agriculture (CSA) models where consumers directly subscribe to a farmer's produce for a season. (iii) Support for FPOs and rural entrepreneurs to set up small organic retail outlets for direct sales of agroecological produce.

**See also: Public Procurement Systems.**

31. Ecociate. (n.d.). 7 Reasons why Panchayat owned Haat Bazaars are Common Resources. The Pulse of the Village.
32. Patel, S. (2025, June 27). Rural haats to GRAMs: 2025 audit reveals budget gap. Frontline. https://frontline.thehindu.com/the-nation/agriculture/rural-haats-grams-failure/article69739285.ece

# 02
# Localised Value Chains

Conventional agricultural value chains in India are often lengthy, fragmented, and controlled by intermediaries, resulting in significant post-harvest losses, low remunerative prices for farmers, and inflated costs for consumers. This system disincentivises diverse, local production, favouring instead uniform, distant, and often chemically-intensive supply.

### Policy Recommendation: Local procurement for Mid-Day Meals (MDM), Integrated Child Development Services (ICDS) and Public Distribution Systems (PDS)

The state could mandate and incentivise government institutions (schools for MDM, anganwadis under ICDS, and even the PDS) to procure locally grown, agroecologically produced, and culturally appropriate food directly from Farmer-Producer Organisations (FPOs) and Self-Help Groups (SHGs). Odisha Millet Mission (OMM) has successfully demonstrated this by integrating millets into the state's PDS, MDM, and ICDS schemes, which the National Food Security Act 2013 allows.

For example, ragi ladoo has been included in the ICDS for children in the anganwadis of two districts. However, the data shows that as the demand for these ladoos increased in the districts[33], there was a need to source millets from nearby districts. Nonetheless, the entire value chain is relatively local, with the ragi ladoo mix being prepared by SHGs[34]. Similarly, ragi biscuits are also being piloted in MDM and ICDS. Additionally, 14 districts that are part of the programme also provide ragi through the PDS. There are also provisions for FPOs and SHG federations to operate as block-level procurement agencies[35].

The OMM guidelines specifically state, "Preference shall be given to the blocks where production and consumption are higher, millet pre-cleaning / processing units are operational", showing how the programme is consciously attempting to localise value chains. Additional details may be found in the OMM guidelines here.

In Danteawada, Chhattisgarh[36], the district administration plans to integrate organic produce into school midday meals, the Integrated Child Development Scheme and the Public Distribution System. Such interventions have almost no additional budget implications, and they mainly involve realigning existing procurement guidelines to prioritise locally grown, agroecologically produced food.

**See also: Public Procurement Systems.**

33. Odisha Millets Mission, UNWFP. (n.d.). MAINSTREAMING MILLETS Policy Brief 1: A Case for Inclusion of Millets in Social Safety Nets. https://milletsodisha.com/uploads/files/wfh/POLICY-BRIEF-1.pdf
34. NITI Aayog. (n.d.). Health and Insights Practice Insights Vol II.
35. Dept. of Agriculture and Farmers' Empowerment. (2021, September 21). Guidelines Odisha Millets Mission.
36. Rohini Krishnamurthy. (2025, March 1). Organic move. Down to Earth. https://www.downtoearth.org.in/agriculture/organic-move

PART II - ENABLING INFRASTRUCTURE

# Landscape

# 01
# Landless Farmers

Following the recommendation of the National Commission on Farmers (better known as the "Swaminathan Commission"), the Government of India adopted a National Policy for Farmers wherein the definition of farmer[37] includes all agricultural operational holders, cultivators, agricultural labourers, sharecroppers, tenants, poultry and livestock rearers, fishers, beekeepers, gardeners, pastoralists, non-corporate planters and planting labourers. It also includes persons engaged in various farming-related occupations, such as sericulture, vermiculture, and agroforestry. The term also includes tribal families/persons involved in shifting cultivation and in the collection, use and sale of minor and non-timber forest produce. Even the Report of the "Committee on Doubling on Farmer's Income" recommends being inclusive when defining the term farmer[38]. All non-landed categories of farmers, despite being acknowledged as such, are excluded from schemes purportedly for farmers, as the eligibility criteria for these schemes often require ownership of agricultural land.

### Policy recommendation: Extending direct benefit cash transfer programmes to include non-landed farmers

In addition to the central government's PM-KISAN, states such as Andhra Pradesh, Chhattisgarh, Haryana, Jharkhand, Odisha, Telangana, and West Bengal have implemented other direct benefit cash transfer programmes, which do not encompass all categories of farmers as defined in the National Policy for Farmers. However, Odisha's KALIA (Krushak Assistance for Livelihood and Income Augmentation) scheme stands out in being the most inclusive since it also includes landless farmers (like agriculture labourers, livestock farmers, fisherfolk, beekeepers, etc) and, in addition to DBT, also provides other support such as life insurance and loans. States like Haryana have recently begun leasing gram panchayat land to tenant farmers for the practice of natural farming.

In KALIA, the DBT is made to the account of the 'head of the household'. However, it is strongly recommended that the DBT be made either to a joint account operated by the farmer and their spouse, or to the woman in the family. This would ensure that the contributions of women farmers, who are often rendered invisible for various reasons, are expressly recognised and compensated.

Unlike organic or natural farming, agroecology goes beyond production methods to also consider the economic and social dimensions of agriculture. This is articulated in the 13 principles of agroecology[39] and is a stated goal for CAT. Such inclusive programmes that bring in non-landed farmers into the fold of agricultural schemes are strongly recommended to ensure economic and social justice.

Additional details about KALIA may be found **here.**

37. Desk, H. N. (2023, September 28). Watch | Who is a farmer? [Video]. The Hindu.
38. Committee on Doubling Farmers' Income, Department of Agriculture, Cooperation and Farmers' Welfare, Ministry of Agriculture & Farmers' Welfare. (2018). Report of the Committee on Doubling Farmers' Income Volume 13: "Structural Reforms and Governance Framework": "Strengthening the Institutions, Infrastructure and Markets that Govern Agricultural Growth." Ministry of Agriculture & Farmers Welfare. Retrieved August 30, 2025.
39. Agroecology Europe. (2021, November 1). The 13 principles of Agroecology • Agroecology Europe.

# 02
# Women Farmers

Despite constituting over 76.95% of the agricultural workforce[40], women farmers in India face systemic marginalisation. Their identity as "farmers" is frequently unrecognised, as evidenced by the fact that only 14% of the operational landholdings are in women's names[41]. This invisibility translates into limited or no access to institutional credit, government schemes, extension services, and decision-making platforms, resulting in them bearing a disproportionate share of the burden of agrarian distress.

### Policy recommendation: Recognition and empowerment for equity

- Recognition and entitlements: As mentioned in 'Landless Farmers', operationalise a gender-inclusive definition of 'farmer' that recognises women in agriculture, irrespective of land ownership. After formal recognition, as in the section on 'Tenant Farmers', women must get equal access to the support systems provided by the government to farmers.
- Ensure accountability to implement existing laws on property rights. The legal provisions of the Hindu Succession Act Amendments 2005, as well as the Forest Rights Act 2006, which ensure women's rights over land and forest resources, should be strictly implemented, with accountability held by the concerned officials.
- Debt relief: Provide one-time debt relief for vulnerable women farmers, particularly women from households affected by farmer suicide, including support for their children's education and securing inheritance rights. This can be done through the mechanism of the debt relief commission outlined in the section 'Capital and Financing: Farm Credit'.
- Inclusion in decision-making: In APCNF, much of the initial engagement was with male farmers. However, due to a limited response and low conversion, they changed their approach in 2017 and partnered with women's SHGs. Experience from Kudumbashree and the Odisha Millet Mission also demonstrates that women play a crucial role in establishing agroecology; therefore, there should be a focus on ensuring adequate representation of women everywhere. Gender Transformation Agroecology[42] is an approach where the agroecology paradigm consciously builds for women's leadership in the transformation, and addresses their practical and strategic needs. As per clause 11.3[43] of the operational guideline of the 'Formation and Promotion of 10,000 Farmer Producer

40. NCNF, MAKAAM and RRA. (n.d.). Gender Transformative Agroecology Roadmap: A Roadmap for Advancing Inclusive & Gender-Equitable Transformation in Agroecology Movement.
41. NCNF, MAKAAM and RRA. (n.d.). Gender Transformative Agroecology Roadmap: A Roadmap for Advancing Inclusive & Gender-Equitable Transformation in Agroecology Movement.
42. NCNF, MAKAAM and RRA. (n.d.). Gender Transformative Agroecology Roadmap: A Roadmap for Advancing Inclusive & Gender-Equitable Transformation in Agroecology Movement.
43. Women's participation in farmer producer organisations. (n.d.). Retrieved August 30, 2025, from https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=2037661

Organisations (FPOs)' scheme, in the Board of Directors (BoD) and Governing Body (GB), as the case may be, there shall be adequate representation of women farmer members. One should go further and ensure that PACS and FPOs have at least 50% female membership and directors, whether they are landowners or not.

**See also: KALIA under Landless Farmers, Crop Cultivator Rights under Tenant Farmers, Debt Relief Commission under Capital and Financing (Farm Credit) and Kudumbashree under Women SHGs.**

# 03
# Tenant Farmers

Agroecology is meant to be a form of agriculture that can be sustained in the long term. However, practices like sharecropping, land leasing, and tenant farming, where the person may only cultivate the land for a few years, disincentivise investing in the productivity of the land, such as increasing organic carbon, which is a slow, multi-year process. Instead, it promotes a more extractivist mindset where the objective is to mine as much of the existing soil nutrition during the period of the tenancy or lease, leading to lower fertility in the long term. This occurs because tenant farmers often lack institutional support or official recognition of their status as farmers, despite incurring additional costs in their farming enterprises, including lease rent and high-interest private credit. They are therefore more desperate to recover the expenses incurred and are more risk-averse.

Lessee farmers are typically excluded from most government schemes, including credit, insurance, disaster compensation, income support, DBT schemes, and subsidy programs for seeds and drip irrigation. They face the economic double whammy of not benefiting from various government schemes and, in addition, have to pay some form of rent. Hence, while agriculture today is not very profitable on its own, tenant farmers face higher costs and lower benefits, putting them in an even more precarious position.

The exact extent of tenancy is challenging to estimate and underreported because, for historical reasons mentioned below, these arrangements are often informal or even illegal in some states. Nonetheless, official figures from the government's Situational Assessment Survey of Agricultural Households show that tenancy has been rising, with the national average in 2018-19 estimated to be around 17.3%. Surveys by civil society indicate that these estimates reflect only 25-50% of the reality due to underreporting.

### Policy recommendation: Recognition of tenant farmers as cultivators, enabling access to schemes for farmers

Earlier land-to-the-tiller policies deterred landowners from formally leasing their land, as they feared they would lose it. This lack of formal tenancy has left tenants without formal documentation to access government programmes. Therefore, it is recommended that, like the Andhra Pradesh Crop Cultivator Rights Act, 2019, states enact laws that give recognition to tenant farmers. However, requiring the landowner's signature, as stipulated in the AP law, must be removed, as landowners are hesitant to register their tenancy formally. Instead, recording consent of the landowner, even through non-written means, such as oral leases verified by the government through Gram Sabhas, must be accepted. The government should be responsible for identifying the real cultivators and providing them with an identity. Such recognised tenant farmers should get access to the same support systems provided by the government to farmers. Kudumbashree has also pioneered the enabling of formal contracts for tenant farmers.

**See also: KALIA under Landless Farmers and Kudumbashree under Women SHGs.**

# 04
# Agricultural Labour

Agroecology demands more labour compared to chemical-intensive farming. It is less mechanised, relies on manual techniques for weeding, mixed cropping, and composting—all of which are labour-intensive. So, the shift to agroecology is impeded by rising labour costs.

### Policy recommendation: Establishing a labour subsidy programme for agriculture

The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) was established to provide workers with an additional, alternative source of employment beyond traditional agricultural work. Hence, including agricultural work within the existing norms of MGNREGA would be against the law in both letter and spirit. However, state governments may make provision for providing additional days of employment from their own funds[44]. Odisha has provided a further 200 days in certain migration-prone blocks. Under the Rajasthan Minimum Guaranteed Income Act, 2023, an additional 25 days of employment have been provided throughout the state. Chhattisgarh delivers a further 50 days of work.

What is being proposed here is to retain the first 100 days for asset-building or watershed works without diluting the existing core entitlements, and then to leverage the existing MGNREGA delivery mechanism for additional days of employment as seasonal agricultural work, paid for by the government as an in-kind labour subsidy. Small and marginal workers could use this subsidy to work on their own farms, while large farmers could engage external labourers through this scheme. Another alternative delivery mechanism, apart from MGNREGA, is to replicate the Food Security Army model of Kerala as Bio-service Resource Centres (like the Bio-input Resource Centres).

**See also: KALIA under Landless Farmers and Kudumbashree under Women SHGs.**

44. Expanding scope of Mahatma Gandhi National Rural Employment Guarantee Scheme. (n.d.). https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=2113754

# 05
# Commons & Biodiversity Management

Commons – shared natural resources like grazing lands, forests, and water bodies – are fundamental to the livelihoods, identities, and agroecological practices of millions, particularly marginalised communities and pastoralists. Commons are critical sources of inputs for agroecology, ranging from fodder for livestock, which provides plant nutrition in the form of manure, to various ingredients (such as neem leaves) for agroecological concoctions. However, these vital resources are under severe threat from encroachment, privatisation, ecological degradation, and exclusionary governance models. Existing legal frameworks often fall short in recognising community rights and integrating traditional management practices, leading to a decline in biodiversity and increased vulnerability for dependent populations.

### Policy recommendation: Legitimising Community Ownership and Governance of Commons and Biodiversity Registers

1. Enact and rigorously implement state-level laws that formally recognise and protect all categories of commons (land-based, water-based, etc) as community resources, explicitly defining their inalienable status. This must go beyond mere consultation to mandate prior informed consent of Gram Sabhas for any diversion or acquisition of common lands, especially in Scheduled Areas.

2. Formalise and protect traditional grazing routes, seasonal migration paths, and access to minor forest produce for pastoral, nomadic, and forest-dependent communities. Prevent their disruption by development projects or land privatisation, ensuring that their traditional practices, which often contribute to biodiversity, are sustained. Mandate specific and equitable representation for communities historically dependent on commons, including pastoral and nomadic communities, in Biodiversity Management Committees (BMCs), gram sabhas, and other local governance bodies responsible for commons management.

3. Elevate People's Biodiversity Registers (PBRs), created by BMCs at the local level, to a legally binding status as primary documents for local biodiversity knowledge, traditional practices, and resource use. These registers should be mandatory references for all regional development planning, land use changes, and resource allocation decisions.

4. Directly link BDRs to Access and Benefit Sharing (ABS) mechanisms under the Biological Diversity Act, 2002. Ensure that communities receive fair and equitable monetary and non-monetary benefits from the commercial utilisation of their traditional knowledge and biological resources documented in the PBRs. This will provide a strong incentive for communities to maintain and enrich these registers actively.

5. Provide extensive training and resources to BMCs and local communities for adequate documentation, data management, and utilisation of BDRs.

An example of commons, such as water in

this case, being governed through these principles is the Hiware Bazar, details of which can be found here.

# 06
# Human-Wildlife Conflict

Suppose one were to ask any farmer anywhere in India, what they consider the biggest hurdle in agriculture is. In that case, the most common response is an increase in attacks by wild herbivores. Human-wildlife conflict (HWC) results in significant losses for local communities, including crop damage, livestock depredation, injuries, and even fatalities. Concurrently, retaliatory killings and habitat intrusion threaten wildlife populations and biodiversity. Existing compensation mechanisms are often inefficient and fail to address the underlying causes of conflict or incentivise coexistence. This problem is exacerbated by the shrinkage of natural habitats, fragmentation of wildlife corridors, and increased pressure on common resources.

## Policy recommendation: Mitigation through Integrated, Community-Led Approaches

**1. Prevention by Habitat Restoration and Corridor Management:** Prioritise scientific habitat restoration of degraded forest areas and the creation/maintenance of viable wildlife corridors. This includes casting seed balls of traditional, indigenous species within reserve forest areas to enrich the food stock for wild herbivores, thereby reducing their reliance on agricultural lands. Ensure that human settlements are not impacted, or that they are adequately compensated and that resettlement is provided as necessary. Integrate traditional knowledge and practices of local communities, particularly indigenous and pastoral groups, into HWC management strategies. Their historical understanding of animal behaviour and ecological patterns can offer valuable insights.

**2. Mitigation at the community-level through a two-fold measure:** Through the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), the following could be undertaken:
(i) Construction of Protective Infrastructure: Rather than each farmer having to spend on fencing, integrate the construction and maintenance of village boundary protection measures (e.g., bio-fencing, wildlife-friendly barriers, trenches) through MGNREGA. This will provide local employment and create physical deterrents.
(ii) Daily Vigil & Monitoring: Establish a dedicated local cadre who could be compensated through MGNREGA who would be responsible for daily/nightly patrolling of village boundaries, early detection of wildlife movement, and immediate reporting of incidents. Their role would be crucial in preventing damage and facilitating rapid response, fostering a sense of shared responsibility for coexistence.

**3. Compensation through Support-cum-Reward (SuR) Mechanisms:** Adopt and scale the SuR model[45], for which funding could come from the State Disaster Response Funds (SDRF). According to the SuR model,

45. Joshi, P., Dahanukar, N., Bharade, S., Dethe, V., Dethe, S., Bhandare, N., & Watve, M. (2021). Combining payment for crop damages and reward for productivity to address wildlife conflict. Conservation Biology, 35(6), 1923–1931. https://doi.org/10.1111/cobi.13746

farmers self-report their production, which is endorsed by neighbouring farmers, ensuring honesty through self-interest and social punishment for dishonesty. Compensation is proportional to both the average production deficit of the group and the individual farmer's productivity. Therefore, while individual farmers are incentivised to increase agricultural effort and inputs, even in the face of wildlife damage, leading to significant yield increases (e.g., a 2.5-fold increase in test villages), compensation is based on average losses faced by all farmers. The system fosters trust within the community and with external agencies by minimising intermediaries.

# 07
# Payment for Ecosystem Services

Current agricultural policies prioritise commodity production, often neglecting vital ecosystem services like clean water, fertile soil, and biodiversity. Farmers are rarely compensated for their environmental stewardship. Frequently, carbon credits are touted as the solution. Carbon credit mechanisms, especially offsetting, create a moral hazard. They allow polluters to continue damaging the environment by purchasing "credits" from others' conservation efforts, undermining the imperative for direct emission reduction and commodifying the right to pollute. What is being advocated here instead is the "Polluter Pays" Principle. Payment for Ecosystem Services (PES) schemes should be funded by environmental taxes on harmful activities and industries (e.g., taxes on chemical inputs, carbon taxes, levies on excessive water extraction). These taxes would generate dedicated revenue to reward agroecological farmers and others for the positive externalities they provide.

### Policy recommendation: Royalties based on practices captured during certification

The agricultural practices being undertaken by a farmer can be captured during the certification process. Based on the specific practices (and their associated principles) being undertaken by a farmer, a specified amount per practice, as determined by the government, can be transferred to the farmer. The budget for this can come from levying environmental taxes on activities that harm the environment. This will have two benefits: Disincentivise practices that harm the environment and collect more taxes the more nature is destroyed, thereby making more funds available to support restorative practices.
Incentivise farmers to get certified because, even if they do not get a premium for their produce, they will still get compensated for protecting and improving the environment through the adoption of prescribed ecosystem services, such as biodiversity conservation, enhanced groundwater recharge, reduced water pollution, improved soil health and carbon sequestration, etc.

Kerala's example: Despite receiving rainfall three times the national average, the per capita availability of water (1,248 m3/person/year) in Kerala is lower compared to arid regions like Rajasthan (1,829 m3/person/year). A significant reason for this is the poor water retention capacity, resulting in a decline in groundwater recharge. Conversion of paddy lands is said to have impacted water recharge functions, leading to water scarcity. Wetland paddy fields are considered natural reservoirs that hold standing water and help in groundwater recharge. Therefore, in 2020, the Government of Kerala announced a royalty of Rs. 2,000 per hectare to farmers who cultivated paddy as an incentive to help recharge the groundwater. This amount was subsequently raised to Rs. 3,000 per hectare

in FY 2022-23[46]. Meghalaya also has a PES scheme.

Additional details on Kerala's paddy royalty scheme may be found **here** (in Malayalam).

46. Directorate of Agriculture Development and Farmers' Welfare. (2022). Govt. circular: Agriculture Department-Rice Development Scheme 2022-23- Administrative sanction received-working instructions issued- Reg. Retrieved August 30, 2025, from

PART II - ENABLING INFRASTRUCTURE

# Institutions

# 01
# Panchayati Raj Institutions

As outlined elsewhere in this document, panchayats play a crucial role in the transition to agroecology. Some of the proposals elaborated on in other sections include leasing of land either by verifying individual tenant farmers (covered in Section 2.A.3 on Tenant Farmers) or facilitating group leasing, as done by Kudumbashree in Kerala (covered in Section 2.B.3 on Women SHGs). This section examines the core function of panchayats in relation to agroecology.

A fundamental and distinguishing feature of agroecology is that there is no one-size-fits-all solution. The inherent philosophy of agroecology encourages the localisation and customisation of practices to suit the local agroclimate, geography, landscape, and biodiversity. For this reason, decentralisation and participatory processes at the grassroots must be an integral part of the agroecology planning and governance. The Panchayati Raj Institutions (PRIs) evolved to perform precisely such a role and, therefore, lend themselves to it naturally. Specifically, the Gram Panchayat Development Plan (GPDP) has been conceptualised to facilitate such democratic practices which give a voice and role to the people closest and most affected by what happens in their village.

### Policy recommendation: Mandate participatory micro planning through GPDP

The Gram Panchayat Development Plan (GPDP) is a comprehensive development plan of the Gram Panchayat. It is prepared through a participatory process involving all the stakeholders, matching people's needs and priorities with available resources. Preparation of the GPDP is mandatory for Gram Panchayats in India to obtain government funds allocated for various rural development spheres. Panchayats have resources but lack professional support to utilise them effectively. Therefore, civil society organisations should partner with panchayats for support and technical assistance.

A 'Micro Plan' is an integrated, participatory development plan for a village, based on its natural resources, including soil, water, forests, and animals, that involves the local community. The micro plan also focuses on conservation-based sustainable livelihood development of the community. The micro planning process has evolved to help people understand their interdependence with natural resources, thereby empowering them by building their capacity for problem-solving. The integration of agroecological principles in the GPDP ideally should begin with social mapping (identifying the most vulnerable and their current assets) and natural resource mapping, followed by outlining areas for crop and livestock farming while considering local livelihoods. Based on these aspects, a needs assessment is conducted for the village, identifying specific infrastructure development projects, such as check dams, ponds, and animal sheds, in particular locations. Given climate change, even shelters for farmers and labourers to rest in shade during times of extreme weather, during certain times of the day, could also be planned.

# 02
# Public Procurement Systems

The Green Revolution took firm root in Punjab, Haryana, and western Uttar Pradesh due to an assured market for farmers' produce through government procurement. Mainstreaming agroecology will also need something similar, not just in green revolution pockets but all over the country. As a leading example, the recent establishment of a dedicated section for crops grown through natural farming in the Gurgaon grain market[47] demonstrates a clear path forward for integrating sustainable practices into the formal market system.

### Policy recommendation: Either guaranteed procurement or bhavantar for one hectare per farmer

To create a procurement system that is more inclusive, resilient, and supportive of sustainable agriculture, we propose the following measures:

**1. Assured Procurement of a Diversified Basket of Crops:** Introduce a policy of guaranteed procurement at Minimum Support Price (MSP) for all farmers for a wide range of crops, including cereals, millets, pulses, oilseeds, as well as vegetables like tomatoes, potatoes, and onions. This procurement should be available to every farmer for produce from a total equivalent area of up to one hectare. This measure offers a significant incentive for farmers to diversify their crop portfolios and shift away from monocropping. Guaranteeing an assured market for a variety of crops reduces risk, enhances nutritional security, and promotes ecological resilience on a large scale.

**2. Implement a Price Deficit Payment (PDP) Scheme *(Bhavantar)*:** Where direct physical procurement is not feasible, a PDP *(Bhavantar)* should be made a legal guarantee. Under this system, the government would pay farmers the difference between the announced MSP and the average market price. As evidenced by experiences in states like Haryana[48], while the scheme is a work in progress, it offers a way to guarantee a floor price for farmers without the logistical overhead of physically acquiring and storing produce. This allows market forces to operate while ensuring low prices do not exploit farmers.

**3. Establish Dedicated Market Infrastructure for Organic and Natural Farming:** Mandate the establishment of separate, dedicated sections within existing Agricultural Produce Market Committees (APMCs) for crops cultivated through organic or natural farming. This model, similar to the initiative in Gurgaon, should be replicated nationwide. This infrastructure is vital for validating and commercialising the shift to sustainable

47. Jha, B. (2025, July 7). New grain market to buy crops grown through natural farming in Gurgaon. The Times of India.
48. Yadav, Y. (2021, November 3). Haryana's deficit payment scheme still a work in progress, I learnt in my mandi visits. ThePrint.

agriculture.

**See also: Localised Value Chains, where local procurement of millets in Odisha and paddy in Dantewada, Chhattisgarh, is being done for mid-day meals, ICDS and PDS.**

# 03
# Women SHGs

While women Self-Help Groups (SHGs) have emerged as powerful vehicles for socio-economic empowerment in rural India, their full potential in driving agroecological transitions is yet to be fully realised. Conscious policies towards this end can help in leveraging women's inherent knowledge and collective strength.

### Policy recommendation: Group leasing and linkages across the value chain

A comprehensive policy framework to empower Women SHGs as central actors in facilitating, implementing, and sustaining agroecological transformations would involve:

**1. Land Access:** Facilitate long-term leasing of fallow lands, uncultivated government lands, or pooled private lands to women's SHGs for collective agroecological farming. Provide support for land development (e.g., through MGNREGA convergence). Kerala's experience with Kudumbashree is an excellent example of this, where panchayats are involved in the leasing process to add legitimacy to informal leases[49]. In this model, forward linkages for buying back organic produce from group farming have been established. The replication of this model can be ensured through a Government Order.

**2. Training & Capacity Building:** Develop specialised modules for SHG members on agroecological principles, diversified cropping systems (e.g., Navdanya, Barahanaj), bio-input production, seed saving, sustainable water management, and the use of appropriate tools. Empower Community Resource Persons (CRPs), particularly women, to provide continuous peer-to-peer learning.

**3. Bio-input Production & Distribution:** Support SHGs in establishing and managing Bio-input Resource Centres (BRCs), producing and distributing organic fertilisers (e.g., vermicompost from the Godhan Nyay Yojana model), and bio-pest repellants.

**4. Community Seed Banks:** Facilitate SHG-led community seed banks for the conservation, multiplication, and exchange of diverse, locally adapted, and open-pollinated seeds, which are vital for mixed cropping systems.

**5. Decentralised Processing & Marketing:** Incentivise SHGs to establish and operate small-scale, decentralised processing units for value-added agroecological products (e.g., millet processing as seen in Odisha Millet Mission) and supply the finished product to anganwadis as a part of the Integrated Child Development Scheme (ICDS) and the Mid-Day Meals (MDM) in local schools.

Kudumbashree's model of group leasing

49. GROUP LEASING APPROACH TO SUSTAIN FARMING AND RURAL LIVELIHOODS: THE JOURNEY OF WOMEN FARMERS IN KUDUMBASHREE KERALA. (n.d.). Policy Reform for Agricultural Transformations.

of land by women is a unique approach. Under this model, SHGs lease land for a period exceeding three years. The local gram panchayat becomes a party to this transaction in which a formal contract is registered under the Indian Contract Act of 1872[50]. The formal contract helps collectives of people experiencing poverty and landlessness access formal services, such as credit and insurance, that they would otherwise be excluded from. Over 91,000 SHGs farmed more than 18,000 hectares until December 2024.

50. Bera, S. (2025, January 31). Economic Survey 2025 gives a thumbs up to Kerala land leasing model. Mint.

# 04
# Farmer Producer Organisations

Farmer-Producer Organisations (FPOs) can act as key enablers in the transition to agroecology by providing critical bio-inputs, facilitating market linkages, and ensuring fair returns, thereby making sustainable farming models economically viable. However, the traditional "one-size-fits-all" model often fails, especially in rainfed areas, due to the complex, diverse, high-risk nature of farming. Key challenges include: (i) Weak Institutional Design, (ii) Limited Market Integration, and (iii) Lack of Specialised Support.

### Policy recommendation: Two-Tiered FPO Model

What is being recommended, therefore, is a policy based on a two-tiered FPO design, as outlined in 'Public Policies to Make Markets Work for Rainfed Farmers: Challenges and Solutions', integrated with the successful strategies of the Odisha Millet Mission (OMM)[51].

**Tier 1: Grassroots-Level (Type 1) FPOs:** Encourage the formation of Type 1 FPOs at the village or cluster level with a special focus on enabling the participation and leadership of women farmers. These FPOs will be responsible for production-level activities, including: (i) Procurement of quality seeds and other bio-inputs, (ii) Renting out agri-equipment, (iii) Extension and training on agroecological practices, (iv) Production of bio-inputs at a local level, (v) Aggregation of raw output and primary processing (e.g., cleaning, grading, packing). This decentralised approach, similar to the OMM's promotion of FPOs in specific blocks, builds on local knowledge and strengthens community-level collective action.

**Tier 2: Specialised (Type 2) FPOs further in the value chain:** Support creation of larger, second-level organisations (Type 2 FPOs or Federations) acting as a hub for multiple Type 1 FPOs. These entities will handle: (i) Procurement of aggregated produce from Type 1 FPOs, (ii) Large-scale storage, secondary processing, and value addition, (iii) Branding and marketing of products, and (iv) Connecting with national and international buyers and markets. This model enables Type 1 FPOs to focus on their core competencies at the production level, while leveraging the economies of scale and market access provided by Type 2 FPOs. Current schemes are only for Type 1 FPOs, and schemes for Type 2 FPOs are needed.

To help these FPOs establish themselves, two other measures are suggested:

**1. Provide Strategic Financial Support and Capacity Building:** Establish a dedicated fund to provide seed capital to both Type 1 and Type 2 FPOs. This funding should support the development of the business plan and initial operational costs. A significant focus should be placed on continuous capacity building for FPO board members and staff in areas such as business management, financial literacy,

51. Guidelines for the Promotion of FPOs under the Odisha Millet Mission are available here:

marketing, and storage practices that do not involve the use of synthetic chemicals.

**2. Integrate FPOs into Government Schemes and Procurement:** Mandate the direct procurement of agroecological produce from Type 1 supplying to Type 2 FPOs to store, process and further supply for government programs like the Public Distribution System (PDS) and mid-day meal schemes.

# 05
# Enterprise Development

The transition to agroecology requires more than just changes at the farm level; it demands the creation of a supportive and resilient ecosystem of enterprises. To enable a large-scale shift to low-cost, sustainable, and farmer-centric agroecology, it is imperative to build robust, decentralised, and locally-owned enterprises. These enterprises will not only create new income streams and employment opportunities but also provide essential services that make the agroecological model economically viable and attractive for more farmers.

### Policy recommendation: Creating the ecosystem to support enterprise development

A successful transition to agroecology hinges on a few critical elements, all of which can be addressed through a strategic approach to enterprise development. (i) Input Production: A shift away from synthetic fertilisers and pesticides requires a parallel development of local bio-input production enterprises. These could include community-based units for producing vermicompost, bio-pesticides, and traditional seed varieties. (ii) Processing and Value Addition: To ensure farmers receive fair prices, enterprises for local processing, packaging, and value addition are essential. This could include units for milling, oil extraction, and the creation of processed foods from agroecological produce. (iii) Market Linkages: Enterprise development is crucial for connecting farmers to consumers. This includes establishing Farmer-Producer Organisations (FPOs) to aggregate produce and negotiate better prices. It also involves creating localised markets and retail outlets that bypass intermediaries, ensuring fresh produce and a direct link between producers and consumers.

The approach of Development Alternatives (DA) and its Indian Micro Enterprises Development Foundation (IMEDF), offers a powerful and proven framework for building a robust enterprise ecosystem for agroecology.

**1. Transfer of Innovative, Technology-Based Business Models:** The government and partner organisations should identify and promote proven, low-cost business models for agroecological enterprises by providing blueprints and technical support for establishing community seed banks, decentralised solar-powered drying and processing units, bio-input production centres, etc.

**2. Targeted Capacity Building and Skill Development:** Launch a national program for entrepreneurship training in agroecology. This program should go beyond farming techniques to include business planning, financial literacy, marketing, and supply chain management.

**3. Facilitating Credit and Financial Linkages:** Establish a dedicated fund or credit guarantee scheme for agroecological micro-enterprises. This would provide initial capital and working capital to entrepreneurs who

often lack collateral or access to formal credit channels.

**4. Integration into Local Markets:** Create policies that favour the procurement of goods from agroecological micro-enterprises for government schemes (e.g., mid-day meals) and public institutions.
5. Promoting Cluster Development and Institutional Collaboration: Encourage the formation of enterprise clusters where producers, processors, and retailers are co-located, creating a supportive ecosystem for mutual learning and growth.

# 06
# Insurance

The agricultural sector faces escalating risks from climate change, market volatility, and pest outbreaks. While agricultural insurance schemes are crucial safety nets, existing frameworks, notably the Pradhan Mantri Fasal Bima Yojana (PMFBY), have been plagued by issues, leaving a significant portion of the farming community vulnerable and pushing them into deeper debt. Widespread dissatisfaction with PMFBY has been expressed[52], with several states even opting out due to budgetary burdens and scheme rigidities.

### Policy recommendation: Universal and nationalised farmer income insurance

**1. Universal insurance and disaster compensation:** Move towards a universal, opt-out crop insurance model that covers all farms with multiple crops, including horticulture and diverse agroecological systems (as opposed to current schemes for only single crops). The goal should be maximum coverage for all cultivators, including tenant farmers. Maintain and enhance state-level disaster compensation mechanisms (e.g., through State Disaster Response Funds) that provide immediate, fixed-amount relief to all affected farmers, triggered by prompt government declarations of extreme weather events or calamities. While insurance primarily covers crop loans and repayment of the principal and interest, compensation is meant to augment the net income, which is reduced due to extenuating circumstances.

**2. Accountable Public Insurer:** Explore establishing a single, state-owned or public-sector-led agricultural insurance entity with a strong ground presence and adequate staff, rather than relying on multiple private companies, which, in turn, sub-contract ground operations to private contractors. This can enhance accountability and foster trust among farmers.

**3. Simplified Protocols with Grievance Redressal:** Demystify insurance processes, simplify policy documents, and ensure all information is available in local languages. Establish robust, accessible, and time-bound grievance redressal mechanisms at the district level, with mandatory representation from farmer organisations.

**4. Optimised Crop Cutting Experiments (CCEs):** Implement a balanced approach to CCEs. While a sufficient number of CCEs is crucial for accurate yield assessment and fair payouts, an excessive number can lead to significant delays in payouts. Hence, representative random sample CCE surveys can be undertaken instead of CCEs for each claim.

**5. Comprehensive Risk Coverage:** Expand

52. Committee reports. (n.d.). PRS Legislative Research. https://prsindia.org/policy/report-summaries/pradhan-mantri-fasal-bima-yojana-an-evaluation

insurance coverage beyond yield loss to include losses due to pest/disease outbreaks (with clear, farmer-friendly diagnostic protocols) and price fluctuations (e.g., through pilot Farmer Income Insurance schemes). Extend coverage to post-harvest losses, including those incurred during sun-drying and other processing outside of the farmer's field, and explore linking with local storage and processing infrastructure. Livestock insurance also needs to be increased manifold.

**See also: Public Procurement Systems.**

# 07
# Certification

Farmers growing agroecologically (and thereby producing safer food) must have their produce certified. In contrast, those using harmful chemicals when farming don't need to do so, which is a reflection of society's expectations about the safety of food. We don't seem to feel cheated about unsafe food, but feel cheated when possibly safer food might be sold at a higher price.

### Policy recommendation: Universal, extensive area certification

One way to straighten the current obtuse state of affairs is to universalise quality assurance. During the certification process, based on the practices being adopted, the farmer could be:

- Organic or natural or both
- Following Good Agricultural Practices (GAP) or any other additional standards, with transparency on what GAP actually means, is conveyed to consumers.
- Undertaking specific measures (like those that lead to carbon sequestration, water conservation, biodiversity enhancement, etc) that qualify the farmer to receive Payment for Ecosystem Services (PES). PES funds could be used to fund such certification processes
- As using synthetic inputs, but safe for consumption, or as using synthetic inputs and not safe for consumption

After the certification process, the farmer might fall into more than one of the categories above, although some of them are mutually exclusive. Currently, certification can be expensive because inspectors travel from far away, and if the farmer does not receive a commensurate premium in the market, undergoing the certification process can actually result in a loss. By universalising certification, it can be an activity undertaken by local government authorities, possibly from the agriculture department, as a last resort if no one else is available from existing certification mechanisms (such as peer farmers, retailers, or others in the value chain, consumers, etc.). Since the people performing the inspection will be local, the costs are expected to decrease significantly. Such universal quality assurance systems must have decentralised testing facilities at the district and block levels, where the cost of testing is borne by the government, with refunds provided if the produce is found to be in contravention of statutory provisions. They must also have robust, transparent, and verifiable mechanisms for tracing the final product in the market back to the source, in case any product fails testing at labs.

When undertaking landscape-level transitions to agroecology, landscape-based Large Area Certification (LAC) should be the primary approach for entire agroecological regions. This involves certifying an entire geographical unit (e.g., a village, cluster of villages, or a block) as organic/natural, rather than individual farms. The advantages of this approach are that it:

1. Reduces the cost of individual farm certification, making it more affordable for all farmers.

2. Easier regulation of synthetic, chemical inputs within the designated area.
3. Fosters peer pressure and collective responsibility among farmers, discouraging non-compliance.

**See also: Payment for Ecosystem Services.**

# 07
# Research & Development

Mainstream agricultural academia in India, apart from being wedded to the intensive synthetic input paradigm of agriculture, is also steeped in the belief that innovation originates within its institutions and must then be disseminated to farmers. Consequently, invaluable farmer-led innovations, essential for context-specific agroecological transitions, often remain undocumented and unvalidated by formal science. Agroecology, however, recognises farmers as innovators in their own right and, instead, strives to systematise and validate new innovative practices developed by farmers. To successfully transition to widespread agroecology, a fundamental reorientation of research and development (R&D) priorities is imperative, one that actively integrates farmer knowledge, fosters decentralised research, and ensures the scientific validation of sustainable practices.

### Policy recommendation: Farmer-Centric Participatory Research and Local Validation

**1. KVKs as Decentralised Research Hubs:** Establish and strengthen institutional mechanisms within KVKs and State Agricultural Universities (SAUs) for systematically documenting, studying, and scientifically validating new agroecological practices developed by farmers. This must involve genuine farmer participation in research design, data collection, and interpretation, ensuring that research questions are grounded in the realities of farmers. The Krishi Vigyan Kendra (KVK), Sindhudurg[53], Maharashtra, provides an exemplary model. Its proactive engagement in promoting natural farming demonstrates how KVKs can build farmer capacity through direct engagement and on-farm trials.

**2. Systematising Knowledge through Collaboration with Centres of Excellence:** Andhra Pradesh Community Natural Farming (APCNF) has extensively collaborated with numerous national and international research institutions and universities to scientifically validate, document, and systematise knowledge about various natural farming practices[54]. This collaborative model is critical for evidence-based policymaking and broader adoption. To the extent possible, each agroecological landscape must invest in long-term, on-farm agroecological field trials to generate robust data on the productivity, profitability, and ecological benefits of various practices over extended periods and across diverse agro-climatic zones. At present, there are a handful of places that integrate traditional ecological knowledge with modern scientific inquiry. Some of these are (i) Indo-German Global Academy for Agroecology Research & Learning (IGGAARL)[55], (ii) Gujarat Natural Farming Science University, and

53. Activities. (n.d.). https://kvksindhudurg.com/activities/
54. Rythu Sadhikara Samstha. (2024, July 25). Publications - Andhra Pradesh Community managed natural farming. Andhra Pradesh Community Managed Natural Farming.
55. Rythu Sadhikara Samstha. (2024a, April 12). Academy - Andhra Pradesh community managed natural farming. Andhra Pradesh Community Managed Natural Farming.

(iii) Dr YS Parmar University of Horticulture and Forestry[56]. While it is not possible to have one such centre of excellence in each agroecological landscape, wherever feasible, each landscape should collaborate with one such centre for scientific inputs, such as Participatory Varietal Selection, documentation of best agronomic practices, and crop systems tailored to the particular landscape's agroclimatic conditions.

56. Tribune News Service. (2024, December 22). YS Parmar varsity among 7 natural farming hubs under Central scheme - The Tribune.

# *Annexure - I*
# Major References


1. Report of Task Force on Organic and Non-Chemical Farming (Ministry of Agriculture & Farmers Welfare, Government of India, 2016)
2. Public Policies to Make Markets Work for Rainfed Farmers: Challenges and Solutions. (Unpublished. Revitalising Rainfed Agriculture Network)
3. A Draft of the Karnataka State Policy for Organic Agriculture. (Unpublished. Urs, K., Krishna, P., & Suresha, K.P.P., 2024)
4. Policies to support organic agriculture and agroecology in the framework of the United Nations Decade of Family Farming 2019–2028. (FAO, 2025)
5. Committee on World Food Security (CFS) Policy Recommendations on Agroecological and Other Innovative Approaches for Sustainable Agriculture and Food Systems that Enhance Food Security and Nutrition (CFS, 2020)
6. Operational Guidelines: National Mission on Natural Farming (Ministry of Agriculture & Farmers Welfare, Government of India, 2024)
7. Scaling up of Ecological Farming in India: Proposals & Road Map of ASHA (Alliance for Sustainable & Holistic Agriculture, 2015)
8. Discussion notes from the Kisan Swaraj Sammelans in 2016, 2018 and 2022, as well as various other policy proposals (Alliance for Sustainable & Holistic Agriculture)
9. Operational Guidelines: National Mission for Sustainable Agriculture (Ministry of Agriculture & Farmers Welfare, Government of India, 2014)
10. National Agroforestry Policy (Ministry of Agriculture & Farmers Welfare, Government of India, 2016)
11. Operational Guidelines: Sub-Mission on Agroforestry (Ministry of Agriculture & Farmers Welfare, Government of India, 2016)
12. Operational Guidelines of Sub-Mission on Agricultural Mechanisation (Ministry of Agriculture & Farmers Welfare, Government of India, 2024)
13. A Roadmap for Advancing Inclusive & Gender-Equitable Transformation in Agroecology Movement (National Coalition for Natural Farming (NCNF), Mahila Kisan Adhikar Manch (MAKAAM), Revitalising Rainfed Agriculture - The RRA Network, 2025)

# *Annexure - II*
# Fertiliser Subsidy

The existing fertiliser subsidy of Rs. 1.92 lakh crore for FY 2024-25[57] supports only farmers using synthetic fertilisers and is regressive, in the economic sense that larger farmers benefit more. Based on the number of farmers in agriculture alone (excluding allied sectors), which is the same as the number of beneficiaries under PM-KISAN, at 9.5 crores, the subsidy works out to approximately Rs. 20,000 in fertiliser subsidy per farmer. This is arguably the biggest impediment to the scaling of agroecology.

In response to the rising prices of fertilisers in the international market following the COVID-19 pandemic and the Russia-Ukraine war, the government initiated the PM-PRANAM scheme to encourage state governments to reduce their use of synthetic fertilisers. Furthermore, in certain regions designated as organic, such as the state of Sikkim or the district of Dantewada in Chhattisgarh, the sale of artificial fertilisers is banned.

The government could consider reallocating the amount being spent towards subsidising synthetic fertilisers for other purposes. For example, taking a national average wage rate of Rs. 250 for FY 2024-25[58], this works out to 80 days of labour per farmer. Therefore, 80 days of in-kind labour subsidy instead of the fertiliser subsidy can be given, making it uniform (i.e., not regressive) and benefiting all farmers (agroecological or otherwise).

Another alternative way of re-alloting the fertiliser subsidy would be to use it to universalise procurement or price deficit payment (bhavantar) of crops from up to one hectare per farmer (as detailed under element 2.B.2 Public Procurement Systems) at the higher MSPs (after adjusting MSP for the higher input costs due to higher unsubsidised fertiliser costs).

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57.. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2116214
58. https://nreganarep.nic.in/netnrega/all_lvl_details_dashboard_new.aspx

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