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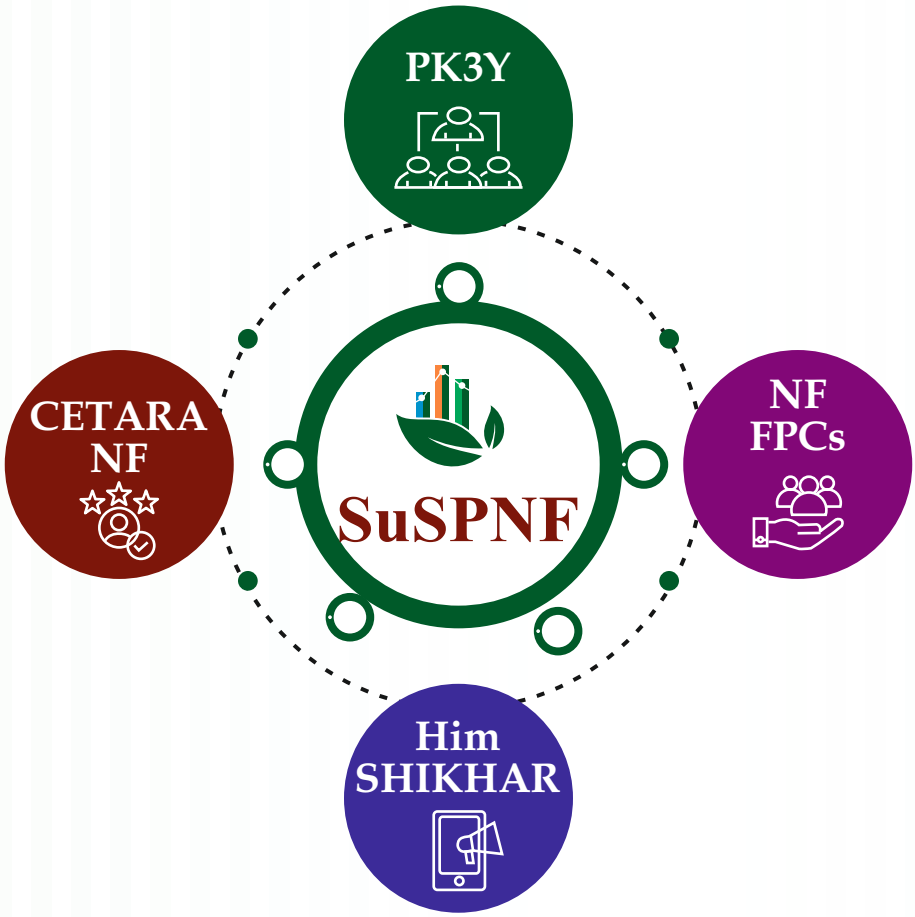
POLICY PAPER

Agroecology and Blended Finance - Fostering Resilience and Innovation in Natural Farming FPCs



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Preface

This policy paper is predicated on a straightforward yet urgent inquiry: how can smallholder farmers in mountainous regions translate sustainable agricultural methods into viable, long-term livelihoods? Within Himachal Pradesh, where the rural population exceeds 89% and agriculture employs nearly half of the workforce, the transition toward natural farming has moved beyond the experimental stage to become a key policy objective. The state has successfully engaged over 2.2 lakh farmers in chemical-free farming across more than 38,000 hectares, supported by self-certified evaluation innovation mechanisms such as CETARA-NF and the state initiative, Him-Bhog, for natural farming produce.

However, evidence suggests that ecological sustainability does not inherently guarantee economic resilience. Numerous natural farming-based Farmer Producer Companies (FPCs) in Himachal Pradesh continue to face challenges such as inadequate market linkages, limited value-added infrastructure, and insufficient entrepreneurial capacity at the farm level. Despite these FPOs/FPCs being promoted nationwide under the Central Sector Scheme, a considerable proportion suffers from deficiencies in governance, managerial weaknesses, and an inability to achieve pricing that accurately reflects the cost, quality, and climate benefits associated with natural farming.

This paper is based on primary interactions with leaders of Farmer Producer Companies (FPCs), policymakers, civil society organizations (CSOs), and farmers, complemented by a case study of natural farming-based FPCs fostered under the guidance of Dr. YS Parmar University of Horticulture and Forestry, Nauni, Solan, Himachal Pradesh. Rather than solely conceptualizing FPCs as platforms for aggregation, this work positions them as agricultural enterprises within a framework of sustainable agrifood systems, with a particular focus on high-value horticultural supply chains, such as those for apples and vegetables. The paper proposes a comprehensive policy framework designed to:

- Strengthen the capacities and entrepreneurial acumen of FPC members.
- Upgrade extension and advisory systems, ensuring rigorous alignment with natural farming methodologies based on agroecological production systems.
- Facilitate access to blended finance, essential infrastructure, and common service centers to effectively support aggregation and value addition activities.

- Promote stringent certification, robust traceability, and strategic branding initiatives (*e.g.*, Him-Bhog).
- Integrate FPCs with emerging digital and export-oriented markets, such as the Open Network for Digital Commerce (ONDC) and the National Programme for Marketing of Farmer Producer Organizations.

By establishing linkages among natural farming, the producer-company structure, and institutional intervention, this work seeks to contribute directly to the achievement of Sustainable Development Goal 1 (No Poverty), SDG 2 (Zero Hunger), SDG 3 (Good Health and Well-Being), SDG 8 (Decent Work and Economic Growth), SDG 12 (Responsible Consumption and Production), SDG 15 (Life on Land) and SDG 17 (Partnerships for the Goals). Furthermore, it aims to provide a replicable model for entrepreneurship-led, climate-resilient agriculture within India's ecosystems.

- Authors

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Abstract

Farmer Producer Companies (FPCs) have emerged as pivotal institutional mechanisms for augmenting farmers' income and fortifying collective action within the agricultural sector. In Himachal Pradesh (HP), where natural farming, rooted in Agroecology, is being extensively advocated as the superior alternative to chemical agriculture and high-input farming systems, the potential for FPCs to develop into self-sustaining agricultural enterprises is substantial. Nevertheless, limitations in farmers' managerial skills and entrepreneurial acumen,inadequate market linkages, insufficient institutional backing, and a dearth of value addition infrastructure impede their operational effectiveness.

In light of this context, institutions possessing scientific expertise, financial capacity, and robust infrastructure are positioned to play an indispensable role in strengthening FPCs. Key stakeholders, including State Agricultural Universities (SAUs), Krishi Vigyan Kendras (KVKs), civil society organizations (CSOs/NGOs), and Development Finance Institutions (DFI), are capable of delivering targeted interventions across areas such as capacity building, technical consultation, market access facilitation, and enterprise development, thereby enabling FPCs to operate with greater efficacy and long-term viability. Moreover, the implementation of Blended Finance coupled with innovations such as CETARA-NF is essential for the expansion of these enterprises, which are uniquely founded upon Agroecology as a comprehensive systems framework.

This policy paper examines high-value apple and vegetable supply chains from Natural Farming Farmer Producer Companies (FPCs) in Himachal Pradesh (HP), focusing on connecting marginal farmers to competitive markets. It proposes a policy framework to enhance capacity, strengthen extension services, ease access to finance and infrastructure, promote certification/traceability, and integrate FPCs with market platforms. The study emphasizes using natural farming practices for accurate cost pricing, value chain enhancement, and boosting rural entrepreneurship.

Strategic institutional support, including Blended Finance, can transform natural farming-based FPCs into economically viable and ecologically sound enterprises. This contributes to better livelihoods, environmental preservation, and inclusive rural development aligned with the United Nations Sustainable Development Goals 1, 2, 3, 8, 12, 15, and 17 for small holders.

Keywords: Farmer producer company/Organisation (FPC/FPO), natural farming, blended finance, sustainable food systems, CETARA-NF, zero hunger.

1. Introduction

By 2050, the global food system faces a paradox: it must feed 9.7 billion people - a 50% increase-despite existing abiotic/biotic stresses, decreased biodiversity, soil degradation, extreme heat, and drought. Furthermore, persistent hunger, affecting 828 million, highlights that the problem is about who produces food and how, not just volume (FAO et al., 2022).

Agriculture is central to this crisis. While essential, it contributes 24% of global greenhouse gas emissions and uses 70% of freshwater (IPCC, 2022; World Bank, 2022). Climate change threatens productivity, with each Celsius degree of warming projected to cut global yields by 3.1% to 7.4%. Compounding this, nearly one-third of the world's soils are degraded, a figure potentially rising to over 90% by 2050 (IPCC, 2022; FAO, 2015, 2020).

In India, agriculture continues to sustain 42.3% of the population and contributes approximately 18.2% to the Gross Domestic Product (GDP). Nevertheless, the majority of farmers operate on small, fragmented landholdings, resulting in low productivity, significant post-harvest losses, and inadequate market integration (GoI, 2023). . While the average growth rate has recently remained above 4%, this expansion has not consistently translated into substantive income improvements or enhanced resilience for many smallholders. The prevailing high-input, chemical-based farming paradigm frequently exacerbates debt burdens, degrades soil health, and exposes farmers to volatile market conditions and price fluctuations.

Natural farming a tool kit provided by Subhash Palekar, a quiet revolution minimizing synthetic inputs and restoring soil health, offers a low-cost, climate-resilient alternative, especially for hill states where chemical-intensive farming is posing serious threat to economic viability of the farmers. In Himachal Pradesh, a state with a large rural population and agriculture-dependent workforce, natural farming is evolving into a policy-driven approach for sustainable mountain agriculture.

However, a shift in food production methods constitutes only a partial resolution. If farmers continue to market their produce as anonymous, fragmented entities, they will remain vulnerable to functioning as price takers rather than bona fide entrepreneurs. This necessitates the establishment of Farmer Producer Organizations (FPOs). The Farmer Producer Company (FPC) framework, initially by the Alagh Committee and later expanded under the Government of India's Central Sector Scheme for FPOs/FPCs (Alagh, 2000), aims to transform smallholders into collective enterprises. This transition is intended

to enhance their collective bargaining power, mitigate transaction costs, and improve access to markets, essential inputs, and credit facilities. As of 2026, India has over 10,000 FPCs, which receive support through equity grants, credit guarantees, and capacity-building initiatives. 1,175 FPOs are registered as 100% women-membered entities. Over 56.32 lakh farmers are now registered under this specific central scheme (PIB, 2026). Nevertheless, a considerable number continues to confront challenges such as suboptimal governance structures, limited managerial competence, and a deficiency in clear entrepreneurial direction.

In Himachal Pradesh, the fundamental imperative extends beyond merely implementing natural farming practices to establishing a Sustainable Food Systems Platform for Natural Farming (SuSPNF) (Chandel et al., 2021). This platform is designed to strengthen the entrepreneurial capacity of Farmer Producer Companies (FPCs) based on natural farming principles. The specific challenges encountered in this domain often involve deficiencies in business acumen, branding capabilities, and market intelligence. FPCs generally operate in geographically vast and secluded regions, characterized by inadequate connectivity, restricted transportation, and underdeveloped infrastructure for value addition. Consequently, a notable asymmetry exists between on-farm sustainability, achieved through natural farming methodologies, and off-farm commercial viability via market-linked entrepreneurship. This disparity frequently results in produce being confined to local or informal markets, thus failing to attain its true market valuation.

This scenario necessitates decisive institutional intervention. Organizations such as State Agricultural Universities (SAUs), Krishi Vigyan Kendras (KVKs), non-governmental organizations, and formal financial institutions do not merely dispense advice; they function as entrepreneurship incubators for Farmer Producer Companies (FPCs). These entities are capable of assisting FPCs in the transition to NF-based FPCs by furnishing the requisite sustainable food systems framework. Furthermore, they possess the capacity to establish brands centered on "zero-chemical" or "natural food" narratives. Their support encompasses facilitating access to credit and digital platforms for direct marketing, and strengthening governance, leadership, and financial literacy among farmer directors.

In light of this context, this policy paper addresses a central inquiry: What targeted institutional interventions can be implemented to enhance the entrepreneurial capacity of FPCs focused on natural farming within Himachal Pradesh in specific and India at large?

This study is dedicated to delineating a clear trajectory for establishing robust, market-driven, and sustainable agri-enterprises within India's small holding farmers' ecosystems. It seeks to achieve this objective by seamlessly integrating

the ecological imperatives of natural farming with the institutional efficacy provided by FPCs, and by cultivating an elevated entrepreneurial perspective among the farming community. The core premise posits that the enduring viability of small holders farming systems will be predicated not merely upon technological advancements, but significantly upon the collective capacity of farmers and institutions to collaboratively formulate entrepreneurial strategies in the face of climate risk, resource scarcity, and fierce global market competition.

Vegetable based natural farming

2. Natural farming - An entrepreneurial tool for Himalayan agroecology

Himachal Pradesh is defined by a diverse and delicate agro-climatic landscape, encompassing the full spectrum of agroclimatic conditions found across the Himalaya, with elevations extending from subtropical lowlands to temperate, alpine, and cold desert region. The state is characterized by specific rainfall regimes, truncated cultivation periods in elevated areas, and frequent microclimatic variability, rendering agriculture highly dependent on location and susceptible to climatic volatility. For entrepreneurial agricultural producers, this context transforms natural farming (NF) into a robust business paradigm, curtailing reliance on external inputs and facilitating access to premium markets for NF based products. Given these circumstances, the state government has proactively encouraged smallholders to establish profitable, autonomously viable enterprises as a foundational element of its agricultural strategy, providing support through targeted schemes, financial incentives, and inter-institutional cooperation.

The advancement of natural farming has been significantly supported by Dr. YS Parmar University of Horticulture and Forestry, Solan, the State Project Implementing Unit (SPIU), Shimla, and the Agricultural Technology Management Agency (ATMA) under the flagship scheme of Agriculture, Department, Govt of Himachal Pradesh "*Prakritik Kheti Khushhal Kisan Yojana* (PK3Y)". These organizations are responsible for conducting comprehensive training programs, providing expert technical guidance, and implementing capacity-building initiatives. Their efforts aim to facilitate farmers' understanding and adoption of chemical-free, soil-regenerative farming practices. Furthermore, they offer assistance to smallholders in transitioning from chemical-intensive agricultural systems to ecologically sustainable cultivation modes through structured field demonstrations, specialized farmer schools, and targeted extension support.

Conventional chemical agriculture is significantly constrained by topography, which affects the timely availability and cost-effectiveness of agrochemical inputs. This often leads to disruptions in cropping schedules and elevates financial risk. Conversely, NF is predicated entirely on non-synthetic materials: chemical fertilizers, fungicides, herbicides, and insecticides are substituted with on farm based various decoctions. These are prepared from locally available resources such as local plant leaves (non-edible to livestock), herbs, domestic cow (preferably indigenous cow) dung and urine, chili, tobacco, and garlic, often sourced from the farmers' own land. NF prioritizes the conservation of biodiversity, the enhancement of soil health, and the improvement of soil fertility

through practices including crop rotation, mulching, composting, and reduced tillage (Yankit et al., 2024). The overarching objective is to establish self-sustaining and resilient agroecosystems that are environmentally sound, climate-resilient, and economically sustainable over the long term.

Natural farming has gained significant relevance due to its environmental sustainability, contribution to climate change mitigation, preservation of biodiversity and soil health, improvement in human health, economic resilience for smallholders, and assurance of long-term productivity (Vashishat et al., 2021). This approach aligns with the broader imperative to diminish reliance on external inputs, enhance water management efficiency, and conserve the soil and water-holding capacity within vulnerable farm ecosystems.

- **Importance of Sustainable Agriculture in Hill Ecosystems**

Natural farming has demonstrated enhanced resilience within agroecosystems through the augmentation of biodiversity, the improvement of soil structure and fertility, and the reduction of reliance upon chemical inputs. NF systems exhibit superior adaptability to the climatic variability, pest fluctuations, and edaphic stresses characteristic of rainfed farm ecosystems. The provision of knowledge, technical skills, and institutional support to farmers reinforces their capacity to adopt and refine such sustainable agricultural practices (Divyanshu et al., 2024).

The escalating consumer awareness of, and preference for, food production methods that are chemical-free and sustainable have generated significant market opportunities for natural farming produce. Instances of local success and the establishment of demonstration plots facilitate the exchange of knowledge among agricultural producers, researchers, extension personnel, and actors

District-wise information of 'Prakritik Kheti Khushhal Kisan' Yojana from 2018-19 to 2024-25

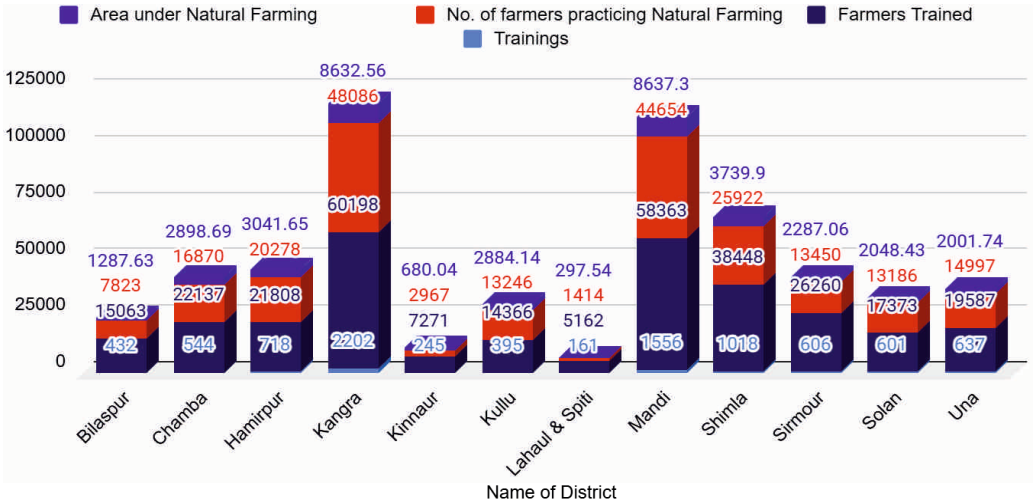

Figure 1. District wise-Area, NF farmers (No.), Trainings Conducted, and Farmers Trained (Source: State Project Implementing Unit-Shimla, Department of Agriculture, Himachal Pradesh)

within the value chain. This, in turn, encourages broader adoption and enhances the flow of natural-farming outputs into both formal and informal markets. Farmers who practice natural farming frequently utilize direct marketing channels (refer to Figure 1) and establish localized partnerships, such as village-level sale points, farmers' markets, and community-based procurement systems, to access a wider consumer demographic.

Nevertheless, this transition is also confronted with emerging marketing challenges, notably the necessity to cultivate consumer confidence and substantiate the authenticity of chemical-free production methods. To alleviate these impediments a Sustainable Food Systems Platform for Natural Farming (SuSPNF) has been established under PK3Y Yojana. This platform constitutes the singular global model offering a comprehensive, integrated system that encompasses production, certification, value addition, and market access. By ensuring traceability and authenticity, SuSPNF strengthens both consumer reliance and the economic sustainability of producers' agricultural operations (Chandel et al., 2021).

- **Initiation and Progression of Natural Farming in Himachal Pradesh**

  The implementation of natural farming in Himachal Pradesh has progressed from a localized, experimental phase to a structured, statewide initiative. This transition is robustly supported through coordinated efforts in training, institutional outreach, and overall management. The variation in district-level implementation patterns is a direct consequence of the state's inherent agro-climatic diversity and the differential intensity of extension activities across various regions.

  The implementation of natural farming in Himachal Pradesh summarizes four key progress points:

  - Trainings conducted (Total: 9,115)
  - Farmers trained (Total: 3,06,036)
  - Farmers practicing natural farming (Total: 2,22,893)
  - Area under natural farming (Total: 38,437 hectares)

Trainings have been successfully conducted across all 12 districts, with the objective of educating and sensitizing farmers regarding chemical-free, soil-regenerative methodologies. The highest volume of sessions has been conducted in Kangra (2,202), followed by Mandi (1,556) and Shimla (1,018). This concentration is attributable to the comparatively larger agricultural populations and the robustness of the existing extension networks in these regions. Conversely, Lahaul & Spiti and Kinnaur, characterized by challenging topography and lower population density, have conducted fewer training sessions, yet nonetheless exhibit a clear dedication to the program's objectives.

These efforts have reached in excess of 3,06,000 farmers throughout the state. Kangra (60,198) and Mandi (58,363) once again emerge as leading contributors, which is consistent with their higher agricultural intensity and farmer density. Even smaller districts, such as Hamirpur (21,808) and Chamba (22,137), registered significant participation, suggesting that awareness generation has successfully permeated diverse agro-ecologies.

Approximately 2,22,893 trained farmers, constituting about 73% of the total, have successfully transitioned to natural farming practices. This substantial conversion rate underscores a genuine commitment of the Institutions and confidence developed among the farmers, when supported by accessible extension services and practical demonstrations. Kangra (48,086) and Mandi (44,654) contribute the largest numbers of practitioners. Notably, Hamirpur exhibits a particularly high rate of adoption, with 20,278 out of 21,808 trained farmers adopting natural farming, indicating effective implementation at the ground level and a high degree of farmer confidence.

The area currently under natural farming cultivation spans 38,437 hectares. Mandi (8,637.3 ha) and Kangra (8,632.56 ha) are the leading districts in terms of land dedicated to this system, followed by Hamirpur (3,041.65 ha) and Shimla (3,739.9 ha). Natural farming has also been successfully established in ecologically constrained districts such as Lahaul & Spiti (297.54 ha) and Kinnaur (680.04 ha), thus demonstrating its adaptability to high-altitude and fragmented landscapes (Source; PK3Y-SPIU, 2025).

3. National emergence of cooperatives and the evolution of FPO/Cs for sustainable agriculture

Agricultural cooperative societies possess a deep-rooted history, evolving from ancient, community-based systems of resource-sharing to contemporary, market-integrated producer organizations. For instance, in the Eastern Mediterranean during the Ottoman period, guilds and localized networks functioned as precursor cooperatives, enabling cultivators to pool labour resources, manage assets jointly, and coordinate activities related to both production and marketing (Dimitrios et al., 2019; Ierapetritis, 2017). These antecedent structures facilitated the establishment of resilient farming communities capable of enduring climate volatility, price fluctuations, and social disruptions. Subsequently, in Europe and North America, agricultural cooperatives formalized this operational model, thereby granting smallholders enhanced access to credit, processing infrastructure, and markets, and allowing for collective negotiation of more equitable prices under cooperative or "fair trade" frameworks (Birchall, 1997).

In the contemporary era, cooperatives have evolved into institutional vehicles for collective entrepreneurship, serving not merely for risk mitigation but for value creation. Presently, agricultural cooperatives and other producer-owned institutions continue to exert influence on national policies, delineate food-value chains, and fortify rural economies by ensuring that smallholders partake in the surplus they help generate (Singh, 1998; Dimitrios et al., 2019).

- **The Cooperative Movement in India**

The roots of the formal cooperative movement in India can be traced back to the late 19th century when mounting distress and severe indebtedness among farmers led to the Famine Commissions of 1880 and 1901, which recommended the establishment of rural agricultural banks. In 1892, Frederick Nicholson was appointed to explore the introduction of land banks. This culminated in the enactment of the first Cooperative Credit Societies Act in 1904, which provided a legal identity for the formation of agricultural credit cooperatives under government sponsorship.

To address the limitations of the 1904 Act, which was restricted only to credit societies, the Cooperative Societies Act of 1912 was passed (GoI-MoC, 2025). This expanded the scope to include non-credit societies and federations of cooperatives. Shortly after, the Maclagan Committee (1914) recommended building a strong three-tier cooperative credit structure comprising primary societies at the base, Central Cooperative Banks, and Provincial Cooperative Banks. The movement received further impetus through the Government of

India Act of 1919 (Montague-Chelmsford Reforms), which transferred "Cooperation" to a provincial subject, allowing provinces to enact their own cooperative legislations. As cooperatives expanded across borders, the Multi-Unit Cooperative Societies Act of 1942 was enacted to regulate societies whose operations extended to more than one province (Singh, 2016).

After Independence in 1947, the government recognized cooperatives as a preferred instrument for planned economic development and social justice, making them a central component of India's Five-Year Plans (GoI, 2002). A watershed moment occurred with the All-India Rural Credit Survey Committee (Gorwala Committee) in 1951, which recommended an integrated system of rural credit and active state partnership in cooperative institutions.

During this era, cooperatives diversified significantly. Inspired by the success of the Khera District Cooperative Milk Producers Union (Amul) formed in 1946, the government set up the National Dairy Development Board (NDDB) in the 1960s to replicate the Anand pattern of milk cooperatives nationwide, heavily boosting the White Revolution. The Green Revolution also provided a major push, as agricultural cooperatives became essential for distributing fertilizers, seeds, and processing outputs. A significant milestone in this developmental trajectory is the Amul-style dairy cooperative movement, during the 1940s. The successful industrial action by milk producers, culminating in the establishment of primary village societies and Amul, demonstrated the potential of collective action to transform smallholder dairy farming into a profitable, vertically integrated agri-enterprise (GoI-MoC, 2022).

To streamline multi-state operations and replace the 1942 legislation, the Multi-State Cooperative Societies (MSCS) Act of 1984 was enacted to govern genuine multi-state societies uniformly. By 1990, recognizing the need to democratize the movement and reduce excessive state control, the Planning Commission appointed an Expert Committee headed by Choudhary Brahm Perkash. The committee finalized a Model Cooperatives Act in 1991, which aimed to build self-managed, self-reliant, and autonomous cooperatives, prompting several states to adopt parallel, progressive cooperative laws.

This precedent established the conceptual framework for modern Farmer Producer Organizations (FPOs) and Producer Companies (FPCs), whose structure judiciously combines the democratic ethos of cooperatives with the legal clarity and professional management inherent in corporate entities (Trebbin & Hassler, 2012).

- **The Shift Towards the Year 2000 and the Dawn of FPOs/FPCs**

In India, where agriculture constitutes the core of the rural economy and sustains approximately 70% of rural households, the cooperative model has historically functioned as a pivotal mechanism for rural development. The contemporary

narrative of India's agrarian cooperatives traces its origins to late 19th and early 20th-century initiatives aimed at mitigating rural indebtedness and extending credit through cooperative societies. Subsequently, cooperatives expanded into sectors such as dairy, sugar, fertilizers, and credit, thereby establishing a robust institutional framework that persistently shapes rural markets.

Despite their quantitative growth, traditional cooperatives began to suffer from severe functional weaknesses by the late 20th century. Excessive government interference, lack of professional management, politicization, and severe capital shortages hindered their ability to function as viable business entities. Cooperatives diversified beyond traditional agriculture and dairy to include women workers in the informal economy however the rigidities of the formal structure posed challenges in registration and formalization when trying to organize poor, self-employed women (Sahu, 2014).

To address these systemic failings and provide small producers with a level playing field in a modern, competitive economy, the government constituted a high-powered committee chaired by Dr. Y.K. Alagh in 2000 (Alagh, 2000). The committee introduced a pioneering concept designed to "accommodate the spirit of a cooperative movement with the operational flexibility of a private company". Based on these recommendations, the Companies Act of 1956 was amended to include Part IXA in 2002, formally birthing the Producer Companies (FPCs) legislation. This milestone successfully merged the democratic principles of collective action with corporate structural benefits, thereby initiating the modern era of Farmer Producer Organizations (FPOs) and Companies (FPCs) in India. As an outcome of this expert committee, and updated legislation into the Companies Act, 1956, it permitted the registration of farmers' cooperatives as producer companies as notified by the Government of India. The objective was to preserve the cooperative ethos specifically, member ownership, democratic control, and surplus sharing while integrating these entities within a corporate structure that facilitates access to capital, markets, and adherence to corporate governance standards (Trebbin & Hassler, 2012; Paty et al., 2018). Within this legal framework, a FPC/FPO constitutes a producer-owned entity responsible for aggregating the output of smallholders, mitigating transaction costs, and augmenting their collective bargaining leverage within the market. These functions are fundamentally aligned with the entrepreneurship-oriented focus of the present study.

- **Policy-Driven FPO Promotions, Sustainable Agriculture and Institutional Convergence**

The institutional foundation for collective agroecology in India was established in 2000 through two pivotal regulatory tracks. First, the Alagh Committee proposed the legal architecture for Farmer Producer Companies (FPCs) by inserting Part IXA into the Companies Act, allowing primary producers to

adopt corporate efficiencies while maintaining cooperative principles (Alagh, 2000). Simultaneously, the government launched the National Programme for Organic Production (NPOP) in 2000 (GoI, 2000) to regulate third-party certification, primarily for the export market. However, due to the high costs and bureaucratic hurdles of NPOP for smallholders, the Participatory Guarantee System (PGS) emerged as a decentralized, low-cost, and peer-reviewed alternative that prioritized local markets and farmer-to-farmer trust (GDT, 2024). These initiatives were later consolidated under the National Action Plan on Climate Change (NAPCC) in 2008, which provided the strategic mandate to use collective action as a safeguard against climate-induced agricultural risks.This vision shifted from legal framework to institutional scaling between 2011 and 2014. The Small Farmers' Agribusiness Consortium (SFAC) initiated a pilot FPO program (2011–12) (SFAC, 2013), under the Rashtriya Krishi Vikas Yojana (RKVY), successfully mobilizing 2.5 lakh farmers (Prasad, 2019). This momentum was formalized through the National Mission for Sustainable Agriculture (NMSA 2014) and its Rainfed Area Development (RAD) guidelines, which prioritized the FPO model for integrated farming and collective resource management. To address foundational capital constraints, the Union Budget 2014–15 created the Producers Organization Development and Upliftment Corpus (PRODUCE) Fund under NABARD, providing 200 crore to form 2,000 FPOs by strengthening governance and basic infrastructure (NABARD, 2015).

The policy focus sharpened on "last-mile" value chain integration in 2015 with the launch of the Mission Organic Value Chain Development for North Eastern Region (MOVCDNER) and the Paramparagat Krishi Vikas Yojana (PKVY, 2015). These programs mandated FPOs as the primary vehicle for scaling cluster-based organic farming, with PKVY formally adopting the PGS-India system to empower collectives through decentralized certification. This trajectory was further refined by the Ashok Dalwai Committee's Report on Doubling Farmers' Income (Dalwai, 2018), which identified FPCs as the critical link for market-led growth and "True Price Discovery." This decades-long evolution toward organized, sustainable entrepreneurship reached a historic peak with the national achievement of the 10,000 FPO milestone in early 2026 (PIB, 2026).Presently, FPO/C's support comes from a "convergence of ministries," including Agriculture, Food Processing, MSME, Fisheries/Animal Husbandry/Dairying, APEDA, and the Spices Board. These bodies offer targeted schemes covering input access, processing subsidies, branding, credit guarantees, and export linkages (PIB, 2025). Specific examples include the Ministry of MSME's equity grants and credit guarantees, the Ministry of Food Processing Industries' capital subsidies (up to 35%) and branding/marketing grants (up to 50%), and NDDB's 500 crore allocation for dairy- and fodder-based FPOs (PIB, 2025).

- **Status and Functioning of FPOs in India**

As of early 2026, the Central Sector Scheme for the "Formation and Promotion of 10,000 Farmer Producer Organizations (FPOs)," with a total budgetary outlay of ₹6,865 crore, has successfully achieved its target with the registration of 10,000 FPOs/FPCs across India (PIB, 2026). The initiative has placed a strong emphasis on gender inclusion, resulting in 1,175 FPOs registered as 100% women-membered entities and a total of 23.55 lakh women farmers participating in the ecosystem as of March 2026 (PIB, 2026).

The scheme continues to provide comprehensive financial support to transform these collectives into sustainable agribusiness enterprises.

- Financial Assistance - Each FPO is eligible to receive up to ₹18 lakh over three years.
- Equity Grants - Matching equity grants of up to ₹2,000 per farmer member, with a ceiling of ₹15 lakh per FPO, are available. This is India's first blended finance model where equity and grant components are blended for primary producers.
- Credit Guarantee - FPOs can access credit guarantees of up to ₹2 crore, which is vital for securing formal credit and project financing.
- Credit Access - Credit guarantee cover worth ₹662.71 crore has been issued to 2,671 FPOs to facilitate institutional project financing.
- Equity Disbursal: A total of ₹430.77 crore in matching equity grants has been disbursed to 6,557 FPOs, benefiting a significant portion of the registered 56.32 lakh farmer members.
- Digital Market Integration: To enhance market bargaining power, 5,048 FPOs have been registered on the e-NAM platform, and 6,070 FPOs have been onboarded onto the Open Network for Digital Commerce (ONDC), enabling direct access to wider digital value chains.

To further strengthen post-harvest management, FPO/Cs are prioritized under the Agriculture Infrastructure Fund (AIF). This scheme provides a medium- to long-term debt financing facility with a 3% interest subvention on loans up to ₹2 crore for a period of seven years. Interest rates under this fund are capped at 9%. Credit guarantee coverage for FPCs is specifically managed through NAB Sanrakshan (PIB, 2026). As of January 2026, the AIF has sanctioned ₹80,224.15 crore for over 1.5 lakh projects, mobilizing a total agricultural investment of ₹1.27 lakh crore across the country.

FPOs in Himachal Pradesh and other states operate with a multi-level structure. At the foundation are the farmer members. Above them is an elected board of directors, and overseeing the operations is professional management or a promoter organization responsible for planning, technical guidance, and marketing activities.

The promotion and support for these FPOs are facilitated by Cluster-Based Business Organizations (CBBOs) and Producer Organization Promoting Institutions (POPIs). These institutions aid in several key areas: farmer mobilization, identifying clusters, developing business plans, and establishing market linkages (SFAC, NABARD, NCDC; CBBO-FPO analysis, 2021).

- **Status of FPCs in Himachal Pradesh**

Himachal Pradesh, known for its unique horticulture-based economy, has seen the emergence of several successful FPOs/Cs. These organizations are primarily focusing on horticultural crops such as apples, stone fruits, and high-altitude vegetables. Farmer Producer Companies (FPCs) in Himachal Pradesh have emerged as crucial entities to help small and marginal farmers overcome challenges related to market access, resource mobilization, and economic viability. The state's topography, characterized by mountainous terrain and diverse agroclimatic conditions, offers unique opportunities for horticulture. However, this also presents logistical challenges in terms of marketing and distribution of produce. FPO/Cs aim to address these challenges by connecting farmers, enhancing their bargaining power, and improving their access to resources and markets.

Himachal Pradesh has 174 registered FPOs under the Central Sector Scheme for Formation and Promotion of 10,000 FPCs by the Small Farmers' Agribusiness Consortium (SFAC). These organizations are distributed across various districts in the state, focusing primarily on horticulture due to the state's reliance on fruits like apples, plums, peaches, and pears and vegetables like peas and beans (PIB, 2022).

As per the official NABFPO portal**,** a total of 124 Farmer Producer Organizations (FPOs) has been registered in the state of Himachal Pradesh, reflecting the region's growing commitment to farmer collectivization and agribusiness promotion under various central and state government initiatives (NABARD, 2025).

- **Linking Cooperatives/FPOs to Natural Farming and Entrepreneurship in Himachal Pradesh**

For the context of this policy paper, FPOs are not just generic collectives but institutional platforms for entrepreneurship in natural farming-based value chains. In Himachal Pradesh, where 82% of farmers are small and marginal and agriculture is increasingly shifting toward natural farming and sustainable food systems, FPOs/FPCs offer a crucial pathway to convert ecological practices into profitable businesses (FAO, 2018; GoI, 2023). The cooperative-to-FPO evolution-from resource-sharing guilds to agri-enterprises with formal governance, access to credit, and market orientation-mirrors the trajectory our study aims to catalyze in the state's natural farming ecosystem.

By positioning natural farming-based FPOs within this broader cooperative and FPO narrative, the paper highlights how centuries-old principles of collective action can be re-engineered through institutional intervention to build entrepreneurial capacity, resilience, and market-driven sustainability in the fragile hill ecosystems of Himachal Pradesh.

4. Institutional interventions to promote natural farming in Himachal Pradesh

Combining infrastructural support, financial support, capacity building, biological input generation, and market-oriented initiatives is essential. These interventions aim not only to strengthen natural farming practices but also to enhance the entrepreneurial and organizational capacity of Farmer Producer Companies (FPCs).

- **CETARA-NF Innovation and Registration**

A certification system popular in Himachal Pradesh Known as "Certified Evaluation Tool for Agricultural Resources Analysis of Natural Farming (CETARA-NF)" constitutes a self-certification and verified evaluation framework for natural farming (Vashishat et al., 2024), enabling farmers to formally register their plots as chemical-free. A total of 1,97,404 farmers have registered under CETARA, signifying substantial institutional integration of the movement.

Kangra (46,083) and Mandi (40,830) demonstrate the highest registration figures by a considerable margin, attributable to both extensive farming populations and vigorous promotion of natural farming. Other districts with appreciable registration numbers include Shimla (22,316) and Chamba (16,277), where extension and awareness campaigns have been comparatively robust. Lahaul & Spiti (1,416) and Kinnaur (2,539) exhibit lower registration rates, commensurate with their smaller rural demographics and remote, high-altitude topography. Nevertheless, even in these regions, natural farming is receiving formal acknowledgment and documentation.

- **Cycle Plough**

The cycle plough, a low-cost, human-powered tillage implement, is being promoted under natural farming principles to mitigate dependence on conventional mechanized agriculture and chemical inputs. A total of 12,183 cycle plough has been disseminated across the state.

Kangra (2,912) and Mandi (2,080) exhibit the highest rates of adoption, which is consistent with their substantial area under cultivation and their established focus on innovations suitable for tillage. Hamirpur (1,362) and Una (1,240) also report significant usage, suggesting effective last-mile distribution and strong on-farm acceptance. Conversely, Kullu and Chamba, despite possessing sizable agricultural populations, demonstrate relatively lower uptake. This observation points toward a potential disparity between the availability of the tool and its actual utilization in certain districts.

- **Pheromone Trap**

Pheromone traps are employed for environmentally sustainable pest monitoring and management, thereby diminishing the reliance on chemical pesticides. A cumulative total of 19,629 traps has been deployed. Shimla (3,000), Mandi (2,170), and Kangra (1,350) record the highest figures, which is likely attributable to both significant vegetable and horticultural production and a commensurate increased demand for pest management. The distribution across the remaining districts suggests that biological pest-control methodologies are now an established element of natural farming protocols, extending beyond a singular geographical region.

- **On-Farm Input Generation (Drum)**

The provision of drums under this program enables farmers to produce on-farm bio-inputs, such as *Jeevamrit, Beejamrit*, and various other microbial solutions, thereby mitigating reliance on external agricultural inputs (Meera et al., 2025; Shraddha et al., 2023).. This intervention has been implemented on a substantial scale, with 1,15,897 drums having been distributed. Mandi (19,362) and Kangra (19,212) exhibit the highest distribution figures, closely followed by Shimla (16,193). The high numbers observed across almost all districts—ranging from Solan and Una to Chamba and Sirmaur—underscore a robust governmental policy promoting self-reliant input production and the decentralization of bio-input preparation. Even regions like Lahaul & Spiti and Kinnaur, despite having smaller absolute numbers, have received a share of the drums, signaling the state's endeavor to extend input-generation capacity to remote, high-altitude areas.

- **Cowshed Lining**

The implementation of cowshed lining enables the structured collection and management of cow dung and urine, essential raw materials for the preparation of natural-farming inputs. A total of 6,951 lined sheds have been established across the region. Shimla (1,533) and Mandi (1,224) exhibit the highest numbers, signifying a concentrated effort to bolster the cow-based bio-input supply chain within these districts. Substantial coverage is also reported in Kangra (1,023) and Sirmaur (660). Conversely, Lahaul & Spiti (116) and Kinnaur (211) record comparatively lower figures, which is attributable to smaller livestock populations and logistical constraints prevalent in high-altitude geographies.

- **Indigenous Cow Ownership**

Indigenous cattle breeds are integral to the adoption of natural farming practices, as they are the source of dung and urine essential for bio-inputs, thereby supporting low-cost, climate-resilient agriculture. The scheme's records indicate that 2,169 farmers across the state maintain indigenous cows. Mandi (374) and Kangra (219) report the highest number of ownerships, which correlates with

their substantial dairy sector and extensive outreach programs. Hamirpur (208) and Kullu (205) exhibit noteworthy ownership figures relative to their geographical area or population density, suggesting concentrated promotional efforts within compact, intensively farmed regions. This component underscores the critical role of livestock integration in natural farming, particularly within fragile hill ecosystems where external inputs are both expensive and environmentally detrimental.

- **Sansadhan Bhandar**

Sansadhan Bhandars function as local resource centers or storage/processing units, facilitating natural farming by offering space for input preparation, short-term storage, and knowledge exchange. The state has established a total of 1,379 such facilities. Mandi (289) and Kangra (245) possess the highest numbers, suggesting comparatively superior village-level infrastructure for aggregation and service provision. While other districts maintain a lesser count, the presence of at least one Sansadhan Bhandar in most ensures that even remote villages have access to a degree of material and informational support.

This evidence signifies a robust statewide policy impetus toward the adoption of natural farming, with district-level variations being influenced by factors such as the extent of farmer mobilization, effectiveness of extension outreach, institutional presence, and agro-climatic heterogeneity. Such carefully targeted interventions are instrumental in enabling Farmer Producer Companies (FPCs) to evolve from production-focused groups into sustainable, market-linked agri-enterprises.

5. Empowering natural farming FPCs via a producer organisation promotion institution

Dr YS Parmar University of Horticulture and Forestry (Dr YSP UHF), Nauni-Solan, is currently serving as the Producer Organization Promoting Institute (POPI) since 2023, for Farmer Producer Companies based on natural farming (NF FPCs) within Himachal Pradesh. This undertaking signifies a historic achievement, as it represents the inaugural instance of a government agricultural university in the state formally assuming the POPI role, thereby furnishing structured institutional support to NF-FPCs. Within this operational framework, Dr YSP UHF extends direct assistance to four NF FPCs—specifically Solan Naturals FPC, Chaupal Naturals FPC, Pachhad Naturals FPC, and Karsog Naturals FPC—facilitating their transition from nascent, grassroots collectives into professionally managed producer organizations.

All strategic interventions designed to strengthen these NF-FPCs are meticulously aligned with the overarching policy directives of the government of Himachal Pradesh. Initially, farmers adopt natural farming methodologies through comprehensive training, subsidy, and demonstration initiatives conceptualized by the State Project Implementing Unit (SPIU)—Shimla, a specialized division of the Department of Agriculture, Himachal Pradesh. These programs are instrumental in cultivating field-level expertise, diminishing reliance on synthetic chemical inputs, and establishing a certified base of natural-farming producers who are subsequently eligible to join or supply produce to the FPCs.

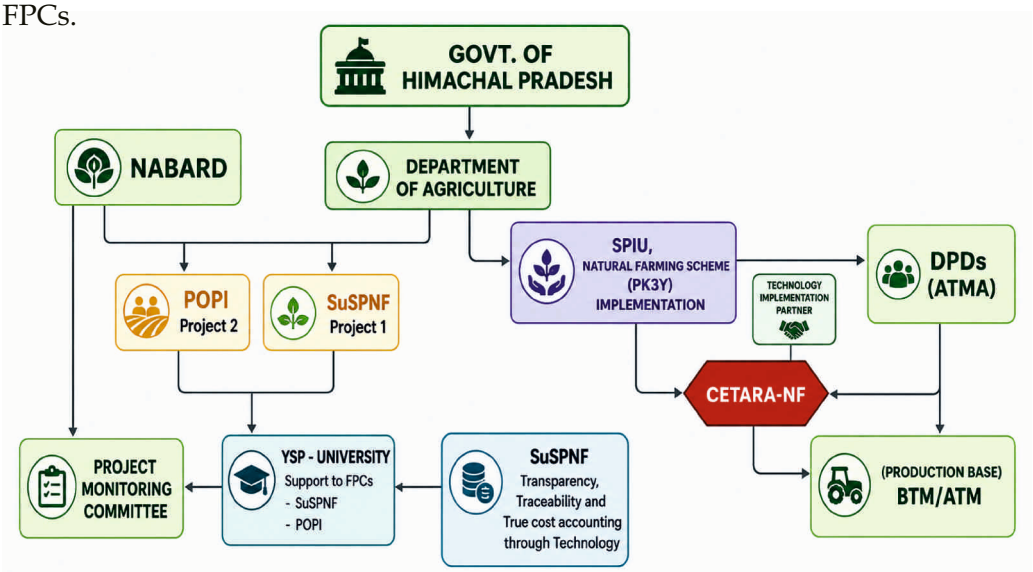

Figure 2: Institutional Framework of the State Natural Farming Scheme and the Roles of Participating Government Agencies

- **ATMA Extension Framework**

The central scheme, the Agricultural Technology Management Agency (ATMA) - a critical extension platform operating under the Government of India—provides support for field mobilization and awareness initiatives. ATMA assigns Block Technology Managers (BTMs) and Assistant Technology Managers (ATMs) to each administrative block. These personnel organize two-day field camps to demonstrate natural-farming practices and elucidate the advantages of collective marketing facilitated by Farmer Producer Companies (FPCs). This organizational layer ensures the effective downward transmission of technical knowledge from state and national systems to the village level, where producers are initially acquainted with the concept of producer organizations.

- **SuSPNF: A Dedicated Platform for Sustainable Scaling**

Figure 4 (Strategic Framework for Implementing the SuSPNF Project) illustrates the Sustainable Scaling of Producer Natural Farming (SuSPNF) initiative, which is financed by the State/Department of Agriculture through SPIU and led by Dr. YSP UHF. Importantly, SuSPNF is institutionally and functionally distinct from the role of the FPCs themselves. While FPCs focus on production aggregation, processing, and direct sales, SuSPNF functions as a "sustainable food systems platform" that strengthens FPCs through research, development, and technological innovation.

The fundamental aim of SuSPNF is to enhance the sustainability and competitiveness of Natural Farming Farmer Producer Companies (NF FPCs) through the following initiatives

- Advancement of the CETARA-NF (Certified Evaluation Tool for Agriculture Resource Analysis – Natural Farming) certification system: This system establishes a self-certification and monitoring framework for practitioners of natural farming.
- Development of the HimShikhar mobile application: This application is designed to furnish farmers and FPCs with real-time, location-specific advisories pertinent to natural farming.
- Establishment of innovative point-of-sale marketing channels and digital marketplaces: This facilitates the commercialization of NF-FPC products.
- Reinforcement of a unified "NF FPC Federation" as a single brand: This measure enables smaller FPCs to secure collective bargaining power and achieve greater market visibility.

The Articles of Association and Memorandum of Association (MoA) for these Non-Financial Farmer Producer Companies (NF FPCs) are currently undergoing

drafting or review. This is essential to guarantee both legal compliance and operational uniformity. By aligning these documents with the SuSPNF-FPC guidelines, the governance framework, membership criteria, and profit-sharing models are structured to support the platform's long-term sustainability goals.

- **Financial Support via NABARD and SPIU (Department of Agriculture) Mechanisms**

In August of 2023, the State Project Implementing Unit (SPIU) of the Department of Agriculture (Government of Himachal Pradesh) and NABARD, Indian premier Development Finance Institution (DFI), created a 50:50 venture to promote 20 Farmer Producer Companies (FPC) based specifically on natural farming. Two Producer Organisation Promoting Institutions (POPI) were appointed to execute the promotion of the FPCs—these are Dr YS Parmar University of Horticulture (UHF), Nauni (Solan), and CSK Himachal Pradesh Krishi Vishvavidyalaya, Palampur. This was the first time state universities in Himachal Pradesh became POPIs to promote FPCs.

The NABARD and SPIU are financially instrumental in the operationalization of NF FPCs. Utilizing its Producer Organization Development Fund (PODF), NABARD provides grant support to FPCs through the POPI mechanism. In this structure, Dr YSP UHF, designated as the POPI, leverages PODF funds to enhance the capacity of the four NF-FPCs by supporting the following initiatives (as illustrated in Figure 3):

- Business Development Assistance (BDA) for market planning and value-chain development. This is a blended finance component to support FPCs with the blend between equity and grants.
- Exposure visits for FPC members and leadership to study successful models elsewhere.
- Registration and formalization of FPCs, including payment of registration fees.
- Salary support for the Chief Executive Officer (CEO) of the FPC.
- Audit expenses, office rent, and basic furniture and office infrastructure.

These financial supports are designed to enable Non-Farm Producer Companies (NF FPCs) to overcome typical initial challenges, such as deficiencies in professional management, governance weaknesses, and restricted marketing capabilities. By resolving these common startup constraints, the FPCs are better positioned to concentrate their efforts on core activities: aggregating farmers' produce, developing product branding, and establishing direct connections to markets.

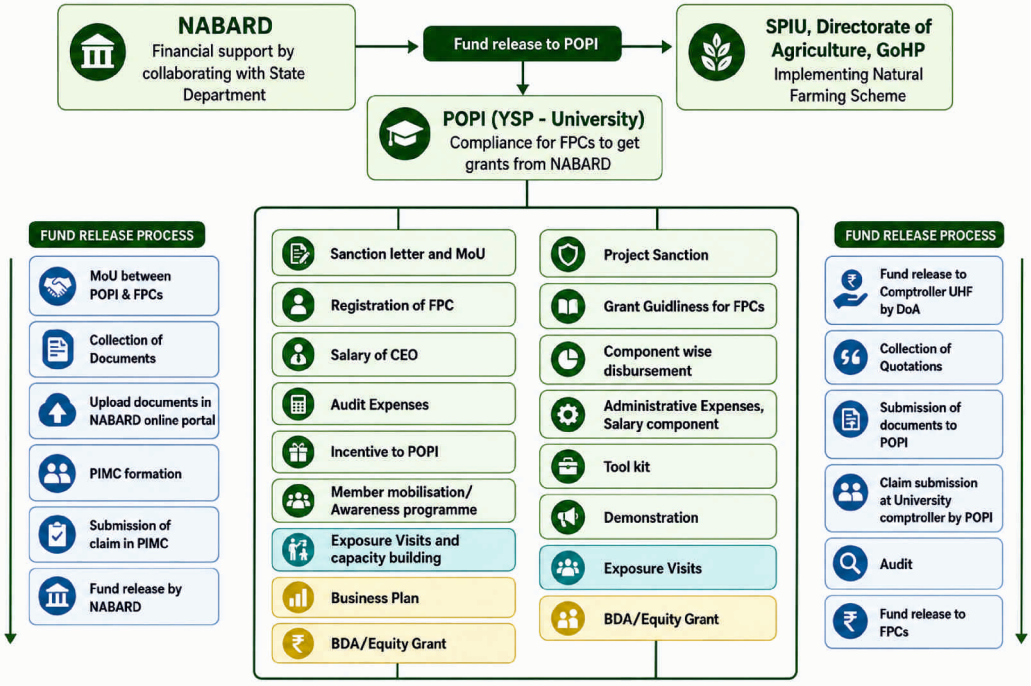

Figure 3: Mechanism of Grant Allocation through NABARD and DoA through POPI in a Blended Finance Framework

6. POPI innovation for natural farming FPCs in HP

The Sustainable Food System Platform for Natural Farming (SuSPNF), serving as the core technological and institutional framework, is presently undergoing operationalization and demonstration. This endeavor functions as a model for the integration of physical, digital, and institutional infrastructure and operational structures, with the aim of augmenting the entire natural farming value chain, supported by UHF.

- **Structured Implementation Framework at Dr YSP UHF**

To ensure the systematic and effective implementation of activities related to SuSPNF and POPI, Dr YSP UHF has adopted a structured four-vertical framework (as illustrated in Figure 4: Strategic Framework for Implementing the SuSPNF Project). Each vertical is overseen by a Co-principal investigator (Co-PI) and receives support from consultants and project staff.

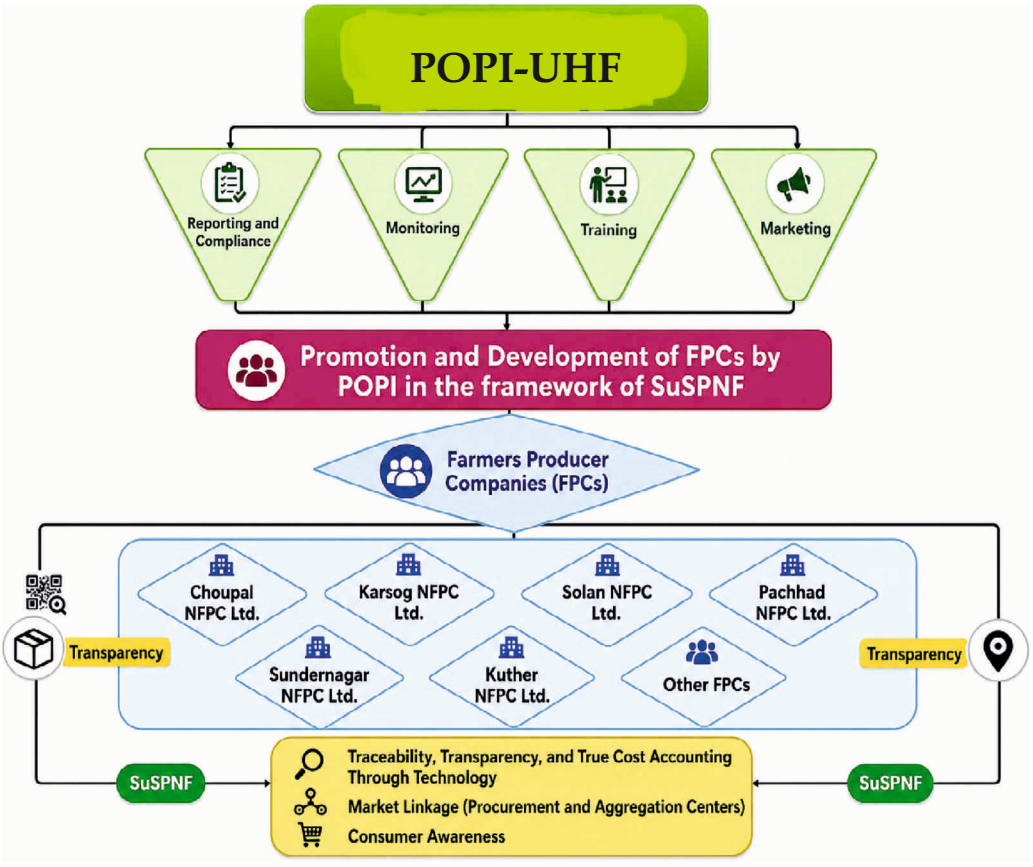

Figure 4: Strategic Framework for Implementing the SuSPNF Project

- **Reporting and Compliance -** Ensures adherence to grant-related requirements of NABARD and the Department of Agriculture, in addition to statutory compliances at the producer company level. This vertical is responsible for managing documentation, financial reporting, and coordinating audits.
- **Monitoring -** Oversees field visits, impact surveys, awareness campaigns, and Producer Organization–Institutional–Market–Consumer (PIMC) activities to track progress and facilitate the refinement of interventions.
- **Training—** Focuses on capacity building for FPC members, including the Board of Directors (BoDs), Chief Executive Officers (CEOs), and staff, through structured training programs, workshops, and exposure visits. This also encompasses student-oriented training designed to cultivate future professionals in the fields of natural farming and FPC management.
- **Marketing—** Manages business planning, developing market linkages, and branding initiatives for NF FPCs. Responsibilities include organizing sales events, exhibitions, and promotional activities and overseeing sales management at UHF Naturals and other retail outlets.

The operational responsibilities of the POPI at Dr YSP UHF also include developing and periodically updating business plans for all four NF FPCs, monitoring governance improvements, and facilitating smoother market operations.

- **High-tech retail outlets -**

The "Natural Farming Store—UHF Naturals," established in 2024 at Dr YSP UHF, Nauni-Solan, serves as a tangible outcome of integration efforts. This outlet provides a direct, transparent, and reliable market for Natural Farming (NF) Farmer Producer Companies (FPCs), guaranteeing farmers fair compensation and a greater share of the final consumer price. The store's inventory primarily features products sourced from the four NF FPCs, including fruits and vegetables. Additionally, the university contributes its own value-added products, such as honey, seeds, squashes, juices, and pickles. All items adhere to strict natural and health-enhancing standards and feature a CETARA-NF QR code. Scanning this code ensures consumer trust and transparency by providing details about the farmer, the farm, and the certification status.

The distribution process involves farmers packaging and delivering their produce to the FPCs, which then channel the items to UHF Naturals for sale to students, faculty, visitors, and local residents. The store has successfully generated approximately ₹9,00,000 in total sales, yielding a profit of about ₹1,20,000. This profit is strategically reinvested to strengthen the FPC ecosystem and support

further outreach activities. More than just an economic venture, the store operates as a practical learning laboratory for students and a successful demonstration model for university involvement in the commercialization of natural farming. Furthermore, UHF Naturals seeks to aid both NF FPCs and the university in independently managing retail stores and launching various products (as depicted in figures 5 & 6). Feedback surveys on products sold at UHF Naturals are also conducted to create a replicable model for success in multiple locations.

This comprehensive framework effectively combines technology-driven solutions (SuSPNF, CETARA-NF Traceability QR codes, apps) with essential institutional support (POPI, ATMA, SPIU). The result is a sustainable, transparent, and farmer-centric agricultural value chain that significantly bolsters the natural-farming ecosystem, directly benefiting producers while ensuring high-quality products for consumers.

- **MoolyaSHIKHAR (a pinnacle pricing and true cost accounting system)**

The CETARA-NF portal promotes a transparent and responsive certification system by allowing both consumers and farmers to share feedback and raise grievances, which drives continuous improvement. Furthermore, the platform offers farmers detailed visibility into the value chain. This includes tracking the proportion of their produce taken at various processing and marketing stages and showing them the percentage of the final consumer price they receive. The platform also clearly delineates the consumer price and the margins secured at each stage.

Figure 5: UHF Natural FPC Store—Point of Sale (POS)

Figure 6: Scented candles made the Solan Natural FPC

Figure 7: UHF Natural FPC Store—Visits and Feedback of Products

- **HimSHIKHAR Mobile App for NF FPCs: Digital Innovation, Knowledge, and Market Linkage.**

The HimSHIKHAR mobile application constitutes a digital intervention developed within the framework of the SuSPNF program, under the leadership of Dr. YSP UHF. It serves as a comprehensive, bilingual knowledge and advisory platform focused on natural farming, designed to deliver real-time (as illustrated in Figure 8) location-specific guidance to individual farmers and Natural Farming Farmer Producer Companies (NF FPCs). Key functionalities encompass a dynamic crop calendar for pre-approved Package of Practices (POP) by UHF, enabling farmers to input their sowing or planting date and subsequently receive a day-wise production schedule detailing the optimal timing for the application of biological decoctions, green manures, and other natural-farming inputs. Furthermore, it incorporates insect-pest management resources, including a library of curated documents, videos, Frequently Asked Questions (FAQs), success narratives, and market linkage information.

HimSHIKHAR is specifically engineered to bolster NF FPCs through institutional and market-linkage capabilities, featuring a dedicated FPC login module. This module furnishes an FPC toolkit comprising checklists, onboarding documentation, and Standard Operating Procedures (SOPs) for governance and operations. It also includes a CETARA-NF QR-code lookup feature, which allows FPC managers to scan QR codes on farmer-level CETARA-NF certificates to instantly verify the farmer's certification status, crop inventory, and eligibility for market-linkage programs. This integrated feature assists FPCs in ensuring that only verified natural-farming producers are aggregated into their marketing supply chains, thereby enhancing product credibility and facilitating the alignment of procurement and processing schedules with the CETARA-NF certification calendar and the requirements of premium markets. Additionally, HimSHIKHAR supports market-linkage processes by providing details on FPC-affiliated sales channels, forthcoming exhibitions, and direct-marketing avenues, such as UHF Naturals, enabling farmers and FPCs to optimize their production in accordance with anticipated demand windows and market opportunities.

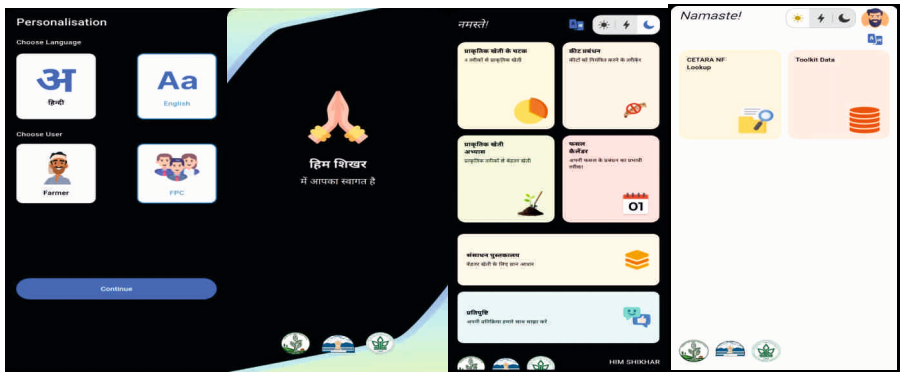

Figure 8: HimSHIKHAR mobile app digital advisory platform

- **Blended Finance Innovation: Unlocking Capital for Farmer Producer Companies (FPCs)**

Blended finance constitutes a strategic and innovative methodology for mobilizing capital from disparate sources-primarily private and philanthropic investors—towards projects that encourage sustainable development goals (SDGs) within emerging and frontier markets. This innovative mechanism is particularly vital for Farmer Producer Companies (FPCs), which frequently encounter significant challenges in securing commercial credit owing to their nascent operational phase, limited provision of collateral, and an elevated perception of risk. Nevertheless, FPCs possess substantial potential to stimulate rural economic expansion and promote sustainable agricultural practices. The foundational premise of blended finance involves the utilization of catalytic, often concessional, public or philanthropic funds to mitigate specific risks (whether actual or perceived) and enhance the risk-return profile associated with FPC investments, thereby successfully integrating them with substantial pools of private capital.

Innovative Financing for FPCs: The BDA Component Example

A powerful example of innovative blended finance tailored for FPCs is the Business Development Assistance (BDA) component. This mechanism is a direct application of the blending principle, combining two forms of capital—

1. **Catalytic Grant/Technical Assistance:**

This is the concessional or public component. Grants are provided for essential, non-revenue-generating activities crucial for FPC success, such as:

- Developing robust business plans and governance structures.
- Investing in necessary technical assistance (e.g., market linkages, quality certification, financial management training).
- Covering the initial high costs of aggregation and input procurement.

2. **FPC Equity:**

This is the private or market-return-seeking component. Equity purchased by the FPC producer shareholders was provided to FPCs. Therefore, the FPC financing support is a blend of private and public finance for enabling business development.

By blending the grant (which de-risks the early-stage FPC) with the equity/loan (which provides growth capital), the BDA component makes the FPC's business model more robust and attractive to mainstream commercial banks or private investors in subsequent rounds of financing. This strategic risk-sharing function enables FPCs to demonstrate viability and bridge the financing gap.

The sustainability of Natural Farming Farmer Producer Companies (NF FPCs) is underpinned by an innovative blended-finance model, as delineated in Figure 9

(Mechanism of Grant Allocation through NABARD and DoA Using POPI in a Blended Finance Framework).

This framework employs a blended structure for the disbursement of grants, wherein NABARD and the Department of Agriculture, Government of Himachal Pradesh, each contribute an equal proportion (50:50). This parity in contribution ensures shared accountability and a diversification of risk, which are essential tenets of the model.

The blended financial system is engineered for long-term viability, mandating critical practices such as rigorous budgeting, timely financial reporting, and regular audits to maintain transparency, ensure compliance, and facilitate the judicious utilization of public resources. Moreover, the mechanism integrates social and ecological performance metrics, including a formal certification system, directly into the financing structure.

This methodology is consistent with the principle that in a genuinely sustainable system, the three core indicators—social, ecological, and economic—are intrinsically interconnected. The SuSPNF blended finance model, executed by Dr YSP UHF, addresses this imperative by structuring the equity–grant component to comprehensively integrate these dimensions.

- ***Social Indicator:*** The equity grant is preferentially allocated to women farmers as shareholders. This approach ensures that women, who are often underrepresented in producer organizations, gain enhanced ownership stakes and greater participation in governance.
- ***Ecological Indicator:*** The equity grant is preferentially allocated to 3-star-rated CETARA-NF farmers, who demonstrate higher levels of self-reliance and stronger adherence to natural farming principles.

In these two "priority" scenarios, the equity-grant support is doubled, resulting in a blended finance support ratio of 1:2 (grant:equity) instead of the standard 1:1. The total fund envelope, however, remains fixed. Consequently, the net effect is that Farmer Producer Companies (FPCs) meeting these social and ecological criteria receive their share of blended-finance support more rapidly and extensively, without exceeding the overall budget ceiling. This is a unique financial innovation, for the first time in India, where the Ecological Component of Sustainability (Sustainable Agriculture through 3-star CETARA-NF) is utilised along with Social Component (preference for Women Farmers) to create a Blended Finance Intervention for Sustainable Agrifood Systems transformation with FPCs.

This innovative mechanism does not necessitate additional expenditure from the state or NABARD; rather, it restructures the existing allocation logic to incentivize sustainability and inclusiveness. By basing this mechanism on the robust CETARA-NF certification system, the Sustainable Natural Farming Policy

(SuSPNF) encourages broader adoption of natural-farming practices within FPCs and enhances women's participation in producer organizations. Such an approach constitutes a strong policy foundation for sustainable finance models that are adaptable to other producer-organization schemes both within Himachal Pradesh and regionally.

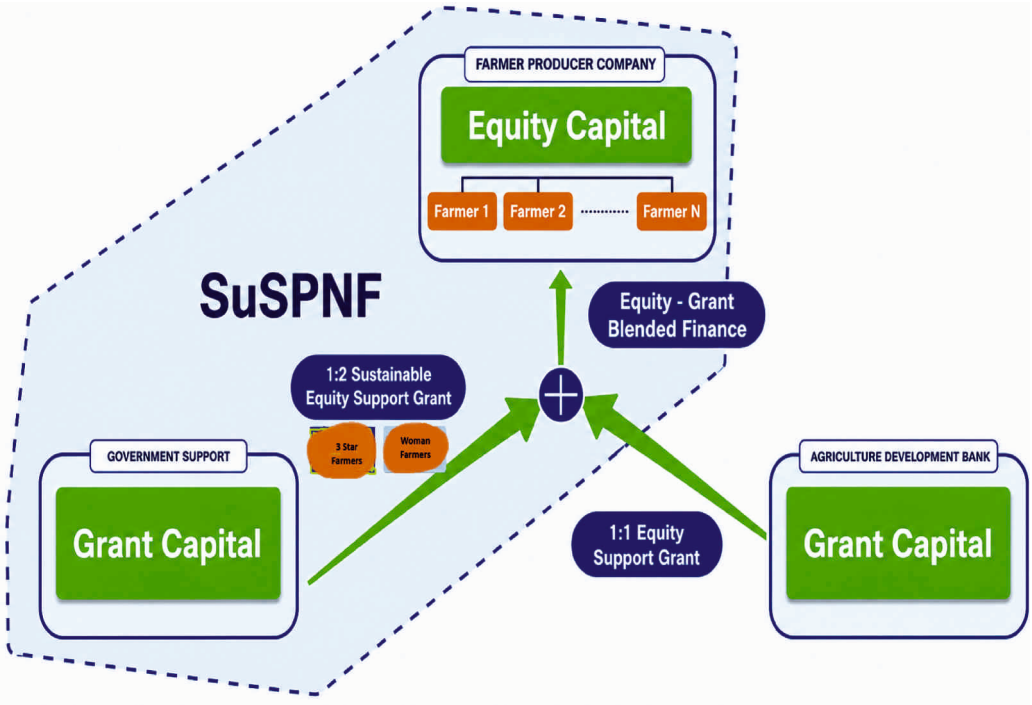

Figure 9: Mechanism of Blended Finance under SuSPNF

- **Training programs Under POPI**

UHF Nauni successfully conducted conducted intensive training programs aimed at enhancing the capabilities of Chief Executive Officers, accountants, and Board of Directors from Farmer Producer Companies (FPCs). A significant number of these participants are actively practicing farmers who require robust leadership and decisive decision-making skills. The sessions placed considerable emphasis on practical company management skills, including corporate governance, financial oversight, and strategic planning, with the objective of empowering FPCs to achieve sustainable growth. Furthermore, a dedicated training initiative was executed for 35 students, focusing on the CETARA Natural Farming (NF) methodologies. This training sought to equip them to drive scaling efforts and facilitate the effective transfer of knowledge to agricultural communities. Collectively, these capacity-building endeavors are instrumental in strengthening leadership pipelines, improving operational efficiency within FPCs, and accelerating the adoption of natural farming practices to ensure long-

Figure 10: Training programs to enhance their operational and managerial capacities

7. Proven Results

- **Remarkable Financial Performance of Natural Farming FPCs**

The 450–500 farmer-shareholder Farmer Producer Companies (FPCs) have demonstrated exceptional growth, with their collective business turnover increasing significantly from ₹1.7 lakh in the 2022–23 fiscal year to ₹1.22 crore in the 2024–25 fiscal year. This notable transformation has been spearheaded by four high-performing FPCs: Pachhad Naturals (₹95 lakh), Chaupal Naturals (₹23 lakh), Karsog Naturals (₹11 lakh), and Solan Naturals (₹12 lakh). These FPCs have successfully achieved higher market prices, established direct linkages with buyers, substantially improved the incomes of their members, and encouraged a sustainable natural farming ecosystem. This success validates the efficacy of integrated policy interventions that combine institutional support, capacity building, and market development.

- **Comprehensive Capacity Building and Monitoring Framework**

Dr YS Parmar University of Horticulture and Forestry (UHF Nauni) established a comprehensive support infrastructure, which included four specialized training programs for the 20 Board of Directors members, addressing governance, regulatory compliance, and strategic management obligations. Additionally, two dedicated training sessions were conducted for the three FPC accountants, focusing on accounting systems, bookkeeping standards, and financial compliance. The university further conducted 37 intensive field monitoring visits (with 9 visits each to Karsog, Chaupal, and Pachhad FPCs, and 10 visits to Solan FPC) to provide direct technical assistance and facilitate course correction. Finally, 20 Project Monitoring and Implementation Committee (PMIC) meetings (5 per FPC) were held to ensure adherence to project objectives, track performance, and monitor grant utilization.

These systematic interventions yielded concrete financial results:

- Chaupal FPC: Turnover increased from ₹0.74 lakh (FY 2022–23) to ₹23 lakh (FY 2024–25)
- Solan FPC: Growth from ₹0.5 lakh to ₹12 lakh
- Pachhad FPC: Dramatic rise from ₹0.3 lakh to ₹95 lakh
- Karsog FPC: Progress from ₹0.16 lakh to ₹11 lakh.

  Collectively, these four FPCs surpassed ₹1 crore cumulative turnover, with FY 2024–25.

- **A Case Study of Chaupal Naturals Farmers Producers Company (CNFPC)**

An apple-based Natural Farming (NF) FPC was established in April 2022, pursuant to section 2013 (581c), comprising five members on the Board of Directors (BODs), five promoters, and one Chief Executive Officer (CEO). The principal activities of the CNFPC encompass the production of NF vegetables, apples, millets, and pulses; the cultivation of apple juice, pear juice, millet products, and apple chips; and the manufacturing of apple chips. Of the total 52 registered members, 30 are currently active participants (Divyanshu et al., 2025).

Figure 11. Executive Members of CNFPC

Figure 12. Processing at UHF, Nauni

Figure 13. 100% Chemical-Free Apple Juice

- **A Case Study of Natural Farmer Mr. Manoj Sharma**

A visionary farmer hailing from Shimla District, Himachal Pradesh, Mr. Sharma has successfully revolutionized agriculture on his 1.84-hectare plot through the

implementation of natural farming techniques. His cultivation includes premium crops such as millets, apples, buckwheat, peas, and legumes, resulting in high-quality produce that garners significant admiration and demand. Notably, Mr. Sharma holds a coveted 3-star rating certification. His annual earnings are substantial, reaching 9 lakhs, while his operational expenses remain exceptionally low at merely 20,000 INR.

Name/Organisation	Manoj Sharma
Agro-ecological Zone	High Hill, Temperate wet
Major Crops	Finger Millet, Buckwheat, Apple, Pea
Area	23 Bigha = 1.84 hectares
CETARA Rating	3 Stars
Cost of Cultivation	₹ 20,000; ≈ 266 USD
Profit	₹ 9,00,000; ≈ 12,000 USD

Figure 14. Millet-based mixed cropping

8. Challenges faced by FPOs/FPCs and POPI

- **Key Institutional and Operational Challenges**

1. Legal and Compliance Burdens

The shift from informal farmer collectives to registered Farmer Producer Organizations (FPOs) and Farmer Producer Companies (FPCs) necessitates substantial documentation and adherence to regulatory requirements, often diverting the focus of smallholders from essential agricultural activities and consuming time earmarked for fund utilization deadlines. The frequency of reporting obligations generates a significant administrative burden, particularly for newly established FPCs with limited operational capacity. Furthermore, farmer companies are subject to an intricate taxation framework under the Companies Act, 2013. The procedures for licensing, registration, and compliance remain challenging for smallholder organizations.

2. Financial Resource Reallocation

While traditional farmer investments typically focus on agricultural inputs, the Farmer Producer Company (FPC) model necessitates substantial capital allocation for administrative, marketing, and governance functions. The audit conducted by the Comptroller and Auditor General (CAG) of government institutions poses a difficulty in allocating public funds to private FPCs, as the approval and disbursement of funds require detailed documentation concerning utilization. Given that these innovations lack established precedence within the state of Himachal Pradesh, the Auditors encounter challenges in approving the corresponding expenditures. As a result, nascent FPCs frequently face considerable financial pressure in the absence of strategic management guidance and external catalytic financing.

3. Professional Skill Gaps - High Attrition of Executive Staff

A significant challenge for most FPCs is the absence of specialized knowledge in financial management, corporate governance, and business development. This deficiency often results in suboptimal budgeting, poor investment decisions, and operational inefficiencies. Furthermore, board-level disputes are common, often stemming from ambiguous role definitions and insufficient leadership development. A key difficulty is recruiting and retaining trained, highly skilled young professionals for executive roles such as CEOs and Accountants, particularly given the high attrition rate of staff in rural settings. The tendency of rural youth to migrate to urban centers in pursuit of higher-paying employment further complicates the execution of executive and compliance tasks for

smallholder FPCs in Himachal Pradesh.

4. Delayed Financial Disbursements

Timely disbursement of grants from NABARD, SFAC, and state agencies is essential for scaling operations and developing requisite infrastructure. Delays in fund release impede progress and diminish stakeholder confidence in the viability of the Farmer Producer Companies (FPCs). This challenge is compounded by the complexity of formal documentation submission, particularly for smallholder producers who comprise the FPC Boards. The sustained availability of skilled personnel for accounting and governance, which is often lacking in FPCs, is necessary to address this issue.

5. Infrastructure and Market Linkage Deficits

The lack of cold storage facilities, processing units, and effective transportation infrastructure constrains value addition and year-round market availability. Fluctuating price environments and tenuous buyer relationships further compound profitability issues. Furthermore, land acquisition in Himachal Pradesh is complicated by the stipulations of Section 118.

9. Strategic Policy Recommendations

The Himachal model—university-led innovation, blended finance, and relentless capacity building—offers India's scalable blueprint for inclusive agroecological transformation. Strategic policy convergence can elevate natural farming FPCs from pilot successes to national resilience infrastructure.

A. Regulatory Streamlining (Immediate Priority)

1. Single-Window FPC Registration Portal: Integrate all compliance requirements into unified digital platform with pre-filled templates and automated renewal systems
2. Risk-Based Compliance Framework: Exempt FPCs with turnover <₹5 crore from quarterly reporting; annual audited returns suffice
3. Dedicated FPC Nodal Officers at District Industry Centres to handhold first 3 years of operation
4. Compliance for the farmers' company should be relaxed for 5 years, with the MCA portal, share evaluation, and audit expenses kept to a minimum, as seen in farmers' cooperatives.
5. Creation of a Mother FPC or SPV - to which all the FPCs report for financial access, marketing, Digitisation and Branding. The state governments should finance this Mother FPC through central or state schemes on an Equity Divestment basis. This is also a framework to lower the exchequer burden through equity once the FPCs are profitable and share valuation markups with time. This institution may also be incubated and housed at the POPI as a steward on behalf of a state government or designed as a Section-8 Company.
6. Alignment with Existing Government Schemes for Sustainable Agriculture and Social Inclusion - A number of existing government schemes such as Mahila Kisan Sashaktikaran Priyojana (MKSP) and RKVF-RAFTAAR are available for enterprise development through Social Inclusion and Agroecological interventions. The smallholder FPCs should be strategically aligned as implementation agencies for the same.

B. Financial Architecture Reforms

1. Performance-Linked Milestone Funding: 40% grant upfront, 60% upon verified KPIs (turnover growth, membership expansion, profit sharing)
2. Blended Finance Expansion: Scale SuSPNF model nationally – 1:4 leverage (₹1 private equity: ₹4 public grant) achieving systemic transformation at near-zero fiscal cost

3. FPC Equity Matching Fund: 1:1 matching for farmer equity contributions up to ₹50 lakh per FPC
4. Working Capital Access via Credit Guarantee: Facilitate collateral-free working capital access for FPCs through dedicated schemes like the Central FPO Scheme and AIF by leveraging the NABSanrakshan-managed credit guarantee mechanism for loans up to ₹2 crore.

C. Capacity Building Ecosystem

1. FPC Leadership Academy: Residential 6-month programs for CEOs/BODs covering governance, financial literacy, strategic management (target: 10,000 leaders by 2030)
2. Digital FPC Toolkit: Pre-configured accounting software, e-commerce templates, traceability apps with 3-year free licensing
3. Mentorship Program: Pair each FPC with corporate CSR mentor for quarterly strategic guidance

D. Infrastructure through Convergence

1. FPC Infrastructure Fund: ₹10,000 crore national corpus (60% debt, 40% grants) for cold storage/processing common facility centres
2. Natural Farming APMC Gates: Dedicated 5% quota in all APMCs for certified NF produce with minimum support price guarantee
3. Himachal Aerial Ropeway Network: 500 km strategic ropeways connecting remote production clusters to processing hubs
4. Supply Chain Subvention - The substantial expenses associated with aggregation and market access for smallholder Farmer Producer Companies (FPCs) operating on the Hill roads of Himachal Pradesh necessitate intervention (Kumar et al., 2025; Kumar et al., 2025). A financial incentive or subvention scheme should be devised wherein the successful sale of produce to distant markets (exceeding 100 km) qualifies FPCs to claim annual financial support. A subvention equivalent to 25% of total costs is recommended as a measure to support FPCs during their initial years of operation. Such subvention may be conditionally tied to those FPCs which have maximum 3-star CETARA-NF rated or woman farmers.

E. Certification and Branding Accelerator

1. National CETARA-NF Grid: 100 certification hubs processing 1 million MT annually by 2028
2. SuSPNF Master Brand: GI-tagged regional sub-brands under unified national identity (Sikkim Organic model)
3. Export Facilitation: 100% duty drawback + preferential market access agreements for certified NF-FPC produce

Implementation Roadmap (2026-2030)

Year	Key Deliverable	Target Impact
2026	Single-window portal + 1,000 FPC Leadership Academies	50% compliance burden reduction
2027	₹5,000 Cr Infrastructure Fund operational	100 Processing/Common Facility Centre operational
2028	CETARA-NF scales to 9 lakhs farmers	₹1000 Cr Net FPC turnover
2029	Green Value Chains - Master Brand in 500 markets	20% export share 80% Domestic market consumption
2030	5,000 sustainable FPCs	₹10000 crore ecosystem value

The Himachal model—university-led innovation, blended finance, and relentless capacity building—offers India's scalable blueprint for inclusive agroecological transformation. Strategic policy convergence can elevate natural farming FPCs from pilot successes to national resilience infrastructure.

- **SDG Impact of FPCs enabled by Blended Finance and Agroecology**

The institutional transition toward Natural Farming (NF) Farmer Producer Companies (FPCs) in Himachal Pradesh serves as an empirical validation of how agroecology can be translated into economic resilience. By integrating Blended Finance and technological innovations like SuSPNF and CETARA-NF, these FPCs have demonstrated exponential growth, with collective turnovers rising from ₹17 lakh to over ₹1.22 crore in a three-year period. Currently, the framework directly supports SDG 1 (No Poverty), SDG 2 (Zero Hunger), SDG 5 (Gender Equality), and SDG 12 (Responsible Consumption and Production) by empowering smallholders to become bonafide entrepreneurs rather than vulnerable "price takers". The implementation of the Strategic Policy Recommendations outlined in this paper such as the creation of a Mother FPC, the FPC Leadership Academy, and a blended finance infrastructure corpus, will further expand this impact to include SDG 8 (Decent Work), SDG 9 (Industry, Innovation, and Infrastructure), and SDG 17 (Partnerships for the Goals).

The subsequent matrix cross-references the United Nations Sustainable Development Goals with the specific contributions of the Natural Farming FPC framework, incorporating the anticipated impact of proposed strategic recommendations. It is crucial to acknowledge that if the capacity of smallholder producers is augmented to facilitate them becoming enterprise generators, rather than merely being perceived as recipients of finance, the resulting impact will achieve true sustainability for the exchequer and subsequent generations. This is necessitated by the fact that over 84% of the world's farmers operate as smallholder steads, collectively accounting for approximately 35% of global food production (Lowder, 2021).

SDG Impact Matrix

SDG Goal	Specific Target	Indicator	NF FPC & Blended Finance Impact
Goal 1: No Poverty	Target 1.4: Ensure equal rights to economic resources and financial services.	1.4.2: Proportion of total adult population with secure tenure rights to land.	Blended Finance as Enabler: The 1:2 grant-to-equity ratio serves as a "Gender-Responsive Investment" tool, providing women and 3-star rated ecological farmers with the liquidity needed to transition from subsistence to commercial ecological entrepreneurship.
Goal 2: Zero Hunger	Target 2.4: Ensure sustainable food production systems and implement resilient practices.	2.4.1: Proportion of agricultural area under productive and sustainable agriculture.	Agroecological Scaling: FPCs facilitate the systematic conversion of chemical-intensive land to Natural Farming. In Himachal Pradesh, this has already brought 38,437 hectares under sustainable management, validated by CETARA-NF traceability.
Goal 5: Gender Equality	Target 5.5: Ensure women's full participation and leadership in economic life.	5.5.1: Proportion of seats held by women in local government and management.	Leadership through Equity: By doubling the equity grant for women members, the framework ensures women are not just laborers but majority shareholders and decision-makers in FPC boards, leading to 1,175+ women-led FPOs nationally.
Goal 8: Decent Work & Economic Growth	Target 8.3: Support productive activities, entrepreneurship, and innovation.	8.3.1: Proportion of informal employment in non-agriculture employment.	Green Jobs: Blended finance supports the hiring of professional CEOs and formalizing the rural ecological economy and creating high-skill "Green Jobs" in mountain regions.
Goal 12: Sustainable Consumption & Production	Target 12.4: Achieve environmentally sound management of chemicals.	12.4.1: Number of parties to international agreements on hazardous waste.	Ecological Integrity: The "3-Star CETARA" rating de-risks the supply chain for consumers. Blended finance incentivizes the elimination of synthetic inputs, directly reducing the chemical footprint of Indian agriculture.
Goal 13: Climate Action	Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards.	13.1.3: Local governments adopting disaster risk reduction strategies.	Financial Resilience: Blended finance acts as a "Climate Insurance" substitute. By reducing input costs to near-zero and providing an equity cushion, FPCs help smallholders withstand yield volatility caused by climatic shifts.
Goal 15: Life on Land	Target 15.3: Combat desertification, restore degraded land and soil.	15.3.1: Proportion of land that is degraded over total land area.	Soil Carbon Sequestration: Agroecological practices promoted by the FPCs (mulching, bio-inputs) reverse soil degradation. The FPC structure allows for the "bundling" of these efforts for future carbon credit monetization.

10. Conclusion

Himachal Pradesh's Farmer Producer Companies (FPCs) demonstrate that targeted support fundamentally transforms agriculture, evidenced by their collective turnover skyrocketing from ₹1 lakh to over ₹1 crore in three years. This success proves that systemic, supportive frameworks unleash smallholder farmers' entrepreneurial capacity. The urgent next step is systemic replication, requiring a significant recalibration of agricultural and financial policy. Scaling the "Himachal blueprint" demands an honest assessment of current systemic friction points, identifying five critical impediments as leverage points for architectural reform.

1. **Excessive and Duplicative Regulatory Compliance:** Farmers and FPC management are disproportionately burdened with complex and time-consuming administrative and legal compliance requirements. This diverts critical human and financial capital away from productive, field-level activities and value addition, diminishing the FPC's competitive edge.
2. **Chronic Deficit in Professional Managerial Skills:** While farmers are experts in cultivation, FPCs often lack access to, or the resources for, hiring professional managers with expertise in finance, supply chain management, marketing, and corporate governance. This managerial vacuum prevents FPCs from effectively transitioning into high-growth, market-oriented enterprises.
3. **Protracted Financial Disbursement Timelines:** Delays in the sanction and disbursement of working capital, grants, and subsidies cripple the FPC's operational cycle, particularly during critical planting and harvesting windows. The slow pace of financial mechanisms directly undermines timely market engagement and post-harvest value addition.
4. **Infrastructural Limitations Impacting Value Addition:** A pervasive lack of robust, decentralized, and climate-controlled post-harvest infrastructure (such as cold storage, grading/sorting units, and primary processing facilities) limits the FPC's ability to minimize wastage, enhance product quality, and capture higher margins through value addition.
5. **Insufficient Transparency and Accountability:** Traditional operational systems often lack the necessary transparency to build trust among members and external stakeholders (investors, buyers). This necessitates robust digital integration to ensure real-time tracking of transactions, production data, and governance metrics.

The success in Himachal Pradesh is anchored on a specific, replicable methodology centered around three core pillars:

1. **University-led Producer Organization Promoting Institution (POPI) Approach:** The active and sustained involvement of academic and research institutions (like agricultural universities) as POPIs provides FPCs with science-backed advisory services, access to expert knowledge, and a credible institutional backing, moving beyond simple non-profit mentorship.
2. **Rigorous and Data-Driven Monitoring:** A culture of meticulous and transparent monitoring, coupled with frequent physical and financial audits, ensures accountability and allows for the rapid identification and remediation of operational bottlenecks.
3. **Catalytic Capacity Building for FPC Leadership:** Training programs focus not just on technical skills but on enhancing entrepreneurial mindset, leadership development, financial literacy, and a deep understanding of market dynamics among FPC directors and CEOs.

A key innovation driving the expansion of natural farming FPCs in the state is the adoption of the Sustainable Blended Finance model under the SuSPNF (Sustainable and Scalable Natural Farming) platform. This framework masterfully converges public finance, private investment, and philanthropic capital through mechanisms that directly reward desirable outcomes:

- Incentivizing Ecological Performance - The CETARA-NF star rating system provides an objective rating for FPCs based on their adherence to natural farming protocols, soil health improvement, and reduction in synthetic inputs. This rating serves as a de-risking tool for financial institutions, unlocking preferential lending rates and access to specialized 'green' finance.
- Prioritizing Social Inclusion - The model explicitly incentivizes FPCs with a high degree of social inclusion, particularly the active participation and leadership of women farmers. This focus ensures that economic benefits are broadly distributed, enhancing household resilience and community empowerment.

This Blended Finance approach effectively accelerates private investment without creating new burdens on the public exchequer, establishing a financially self-sustaining mechanism for scaling agroecological practices. The ultimate lesson from the Himachal model is a profound one: smallholder farmers require catalytic systems—not mere philanthropic support—to unleash their inherent entrepreneurial capacity. When the supportive infrastructure and policy environment are correct, FPCs transcend their function as simple survival mechanisms. With resolute and converged policy execution, harmonizing the principles of Agroecology and Blended Finance, natural farming FPCs are

definitively positioned to become powerful engines for a tripartite objective: inclusive economic growth, ecological restoration, and enhanced nutritional security. This progression from vulnerability to vitality is not just a desirable outcome; it is an economic and ecological imperative that must be realized to fulfill the promise of *Atmanirbhar Krishi* (Self-Reliant Agriculture) for 10 million smallholder families across India by the year 2030.

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