

NUTRI-SMART VILLAGE MODEL

Transforming Farm Diversity into Nutrition Security

An Innovation-to-Impact Framework for Nutrition-Secure Communities



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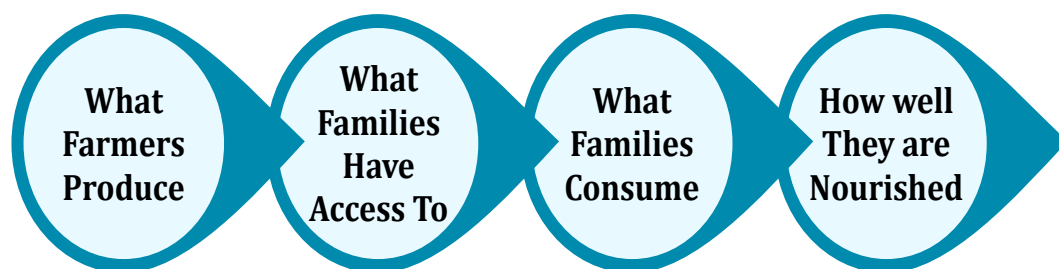
Harinderjeet Singh Jassi

1. STRATEGIC BACKGROUND

The Nutri-Smart Village (NSV) Model, developed as a modified approach under the Nutri-sensitive Agricultural Resources and Innovations (NARI) project, marks a shift from nutrition awareness to nutrition-sensitive agriculture action. It recognizes that nutrition security depends on the ability of farm families to produce, access and consume diverse, nutritious foods.

By integrating farm diversification, household food production, nutrition literacy, women-led action and community participation, the NSV transforms agricultural extension into a nutrition-delivery pathway. Thus, the focus moves from simply “knowing what to eat” to “producing, choosing and consuming better quality food” for improved household and community nutrition.

The distinctive innovation of NSV is its Farm-to-Food-to-Nutrition pathway, which directly connects:



2. THE NSV INNOVATION ARCHITECTURE

The model is built around three interconnected dimensions:

2.1 FARM-SMART: Diversify Production

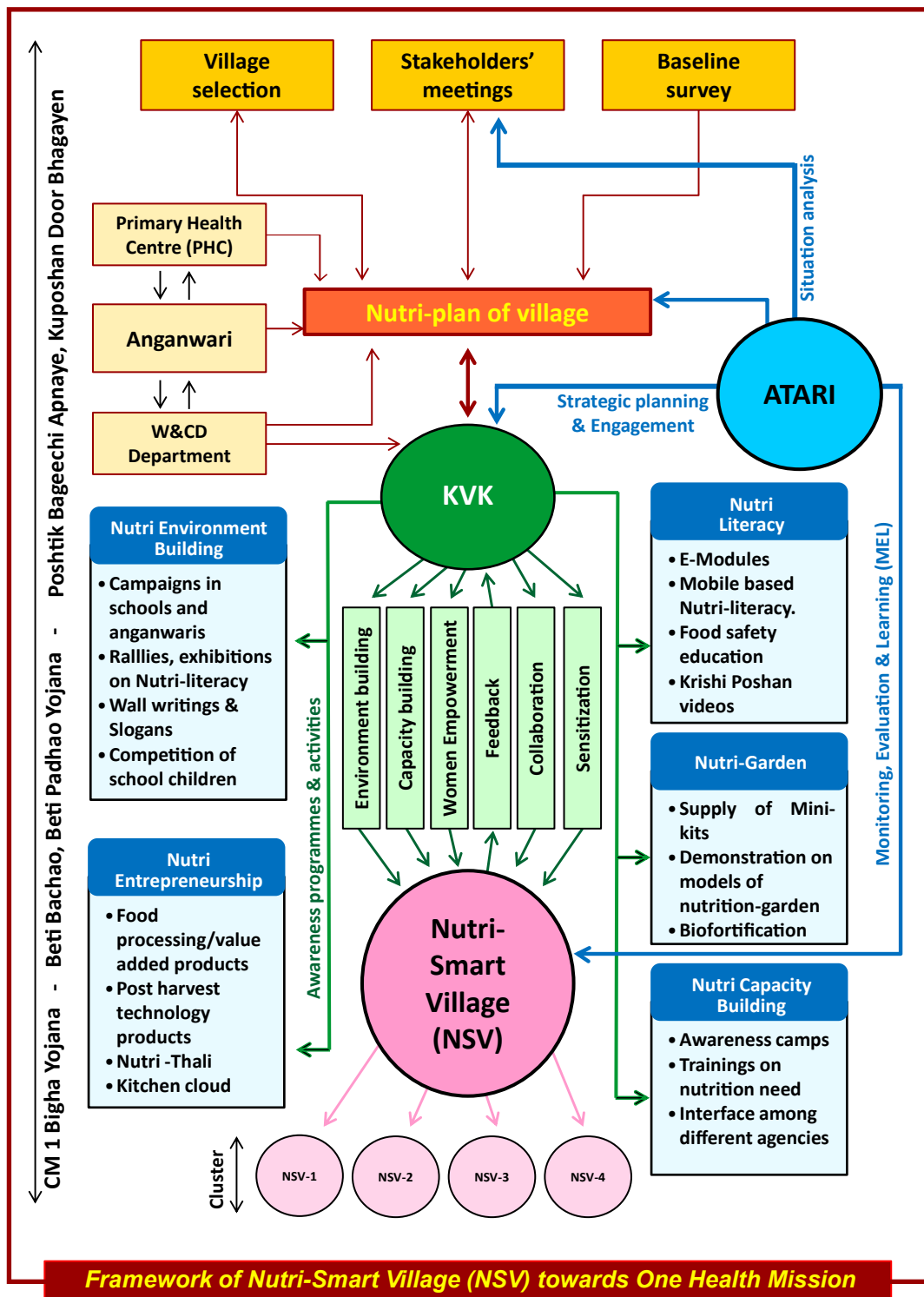
Nutrition gardens, vegetables, fruits, pulses, oilseeds, biofortified cereals, mushrooms, poultry, goatry, dairy and beekeeping.

2.2 FOOD-SMART: Increase Household Food Availability

Produce diverse, safe and nutritious food at household level, reduce dependence on purchased food and utilize available farm resources efficiently.

2.3 NUTRITION-SMART: Improve Dietary Diversity

Promote balanced diets through Nutri-food, Nutri-diet and Nutri-thali, with greater inclusion of vegetables, fruits, pulses, animal products, mushrooms, honey and biofortified cereals.



The model therefore creates a functional bridge between agricultural diversification and nutritional security.

3. COMMUNITY-LEVEL NUTRITION TRANSFORMATION

The model expanded the pathway from the farm family to the wider community. This created a community nutrition ecosystem extending beyond individual households.

Schools	Nutrition gardens + practical nutrition education
Anganwaris	Nutrition awareness + food and dietary learning
Panchayats & Community Centres	Community mobilisation and collective action
ICT & Mass Media	Continuous reinforcement of nutrition messages
Knowledge Networks	Sharing of local food knowledge and successful practices

4. THE PARADIGM SHIFT

The NSV approach marks a fundamental shift from awareness-driven interventions to integrated, community-level action that connects nutrition knowledge with food production, consumption and measurable outcomes.

Conventional Approach	Nutri-Smart Village Innovation
Nutrition awareness	Nutrition action
Focus on knowledge	Knowledge + production + consumption
Purchased food dependence	Household food production
Single food interventions	Diversified food basket
Individual beneficiaries	Village-level saturation
Women as beneficiaries	Women as nutrition change agents
Agriculture and nutrition treated separately	Agriculture integrated with nutrition
Activity-based extension	Outcome-oriented nutrition extension

5. VILLAGE-SATURATION AS THE INNOVATION

A major distinguishing feature of the NSV approach was the shift from interventions among less than 20% of farm families under the earlier NARI approach to a village-saturation strategy covering all farm families in selected



villages.

This transformed nutrition intervention from a beneficiary-based programme into a community food-and-nutrition system. The approach ensures that nutrition-sensitive agriculture becomes embedded in the local production and consumption system, rather than remaining limited to a small group of beneficiaries.

6. SCALE OF VALIDATION

6 Villages | 2 States | 1,661 Farm Families

The NSV Model was validated across six villages in Punjab and Himachal Pradesh, covering 1,661 farm families.

The intervention provided access to a diversified portfolio of:

Vegetable & Planting Material | Oilseed & Pulse Kits | Fruit Plants | Poultry | Goatry | Beekeeping | Mushroom | Biofortified Cereals

Nutrition outreach extended beyond households to:

12 Schools | 18 Anganwaris | Panchayats | Community Centres

7. MEASURABLE NUTRITION IMPACT

The implementation of the NSV model drove a distinct transformation from basic "**nutrition awareness**" to active "**nutrition action**". This shift resulted in the following community-wide changes:

- *From Restricted to Diversified Production:* At baseline, families grew only one or two vegetable varieties; post-intervention, households shifted to cultivating a wide range of vegetable groups alongside newly introduced poultry rearing (increasing from 0% to 32% of households).
- *From Purchased Food Dependence to On-Farm Sufficiency:* The project successfully reduced reliance on market-purchased food by escalating household food availability through home-grown initiatives like a 6 × 6 m Nutri-Garden.
- *From Deficient Intake to Meeting Recommended Dietary Intake (RDI):*
 - ✦ Fruits: Consumption doubled from 48 g/day to 96 g/day, approaching the 100 g/day RDI.
 - ✦ Green Leafy Vegetables: Intake increased from 57 g/day to 93 g/day,

nearly reaching the 100 g/day RDI.

- ✎ Other Vegetables: Intake rose from 116 g/day to 202 g/day, fully satisfying the 200 g/day RDI requirement.
- ✎ Protein availability: Intake rose from 34 g/day to 65 g/day, nearly satisfying the 0.83 g/day/body weight RDI requirement.

- *From Sporadic to Habitual Consumption Frequency:* Households consuming vegetables daily surged from 6% at baseline to 50% at endline, with a concurrent increase in the bi-weekly or tri-weekly consumption of pulses, fruits, milk, and poultry.
- *Measurable Community Impact:* Approximately 60% of the 1,661 farm families involved across Punjab and Himachal Pradesh experienced a documented improvement in overall nutritional status and dietary diversity.

8. FARM DIVERSIFICATION → DIETARY DIVERSIFICATION

The NSV model establishes a direct relationship between production diversity and dietary diversity. By promoting vegetables and fruits for essential vitamins and minerals; pulses, milk and eggs for protein; mushrooms and honey for dietary diversity; and biofortified cereals for enhanced nutritional quality, the model enables farm families to produce a wider range of nutritious foods at the household level. The integration of poultry and livestock further strengthens



both nutritional security and livelihood opportunities. Thus, a diversified farm becomes the foundation for a diversified, nutritious and more secure household food security.

9. ECONOMIC VALUE OF NUTRITION

The model demonstrates that nutrition security can be economically viable at household level. A 6 × 6 m Nutri-Garden achieved a B:C ratio of 3.89 in a single season, demonstrating the economic feasibility of nutrition-oriented household food production. The model simultaneously contributes to:

Food Production → Household Consumption → Reduced Purchase Requirement → Potential Surplus → Income Opportunity

Thus, nutrition-sensitive agriculture creates both nutritional value and economic value.

10. WOMEN AS THE BRIDGE BETWEEN FARM AND FAMILY

Farm women occupy the pivotal position in the Farm-to-Food-to-Nutrition pathway. Nutrition literacy therefore becomes actionable knowledge, with women translating farm production into improved household diets through five simple stages.

Stage	Action	Outcome
PRODUCE	Nutrition gardens & household food production	Diverse food available
SELECT	Choose nutritious foods	Better food choices
PREPARE	Traditional preparation & value addition	Nutritious meals
PLAN	Balanced meals & Nutri-thali	Dietary diversity
NOURISH	Regular consumption of diverse foods	Improved household nutrition



11. INNOVATION-TO-IMPACT SCORECARD

Impact Dimension	Baseline Status	Endline Status/Outcome
Scale & Reach	–	6 villages, 2 states, 1,661 farm families.
Nutrition Outcome	Deficient dietary profiles across families	~60% of farm families with measurable improvements in nutritional status.
Dietary Diversity:		
Fruits	48 g / family / day	96 g / family / day (Approaching the RDI of 100 g).
Green Leafy Vegetables	57 g / family / day	93 g / family / day (Nearly reaching the RDI of 100 g).
Other Vegetables	116 g / family / day	202 g / family / day (Successfully meeting the RDI of 200 g).
Fruits & Vegetables (Total)	Restrictive selection (only 1 or 2 varieties)	391 g / family / day across a wide, diversified range of vegetable groups.
Vegetable Consumption Freq.	6% households consumed vegetables daily	50% of households transitioned to habitual daily consumption.
Protein Availability	High reliance on sporadic market purchasing	≈45 g / day sourced reliably from home-produced pulses, milk, and eggs.
Household Production:		
Backyard Poultry	–	32% of households actively rearing poultry, serving as a direct mechanism for women-led livelihood expansion and protein availability.
Nutri-Gardens	Traditional, single-crop utilization patterns	Integrated Nutri-Gardens + allied enterprises.
Economic Viability	Unquantified household garden margins	B:C ratio of 3.89 achieved for a standard 6 × 6 m Nutri-Garden in a single season.
Women-Centred Action	Women viewed primarily as passive beneficiaries	Women empowered as primary household nutrition change agents driving a 5-stage transformation pipeline.
Institutional Outreach	Fragmented rural extension footprint	Encompassed 12 schools (nutrition gardens + education) and 18 Anganwaris (dietary learning hubs).
Communication Reach	Low-frequency, localized awareness output	54 mobile advisories, 6 radio/TV talks, and 3 online seminars delivered.
Behavioral & Community Transformation	Passive nutrition awareness with market reliance	Active nutrition-sensitive household planning and an established, village-wide farm-to-food-to-nutrition ecosystem.

12. OVERALL INNOVATION-TO-IMPACT

The NSV Model demonstrates that nutrition security can begin at the farm when agricultural production is aligned with household dietary needs. By integrating diversified food production, nutrition literacy, women-led action, dietary planning and community mobilisation, the model creates a seamless farm-to-food-to-diet-to-nutrition pathway, ultimately strengthening household nutrition security and community resilience.

13. POLICY SIGNIFICANCE

The NSV Model offers a practical pathway for mainstreaming nutrition into agricultural extension and rural development programmes. Its policy relevance lies in shifting the focus:

- from nutrition awareness to nutrition outcomes;
- from individual beneficiaries to village-level saturation;
- from food production to nutrition-sensitive production;
- from single-sector interventions to agriculture–nutrition convergence;
- from purchased food dependence to household food production; and
- from women as beneficiaries to women as agents of nutrition transformation.

The model can therefore serve as a replicable framework for integrating agriculture, nutrition, women's empowerment, extension and community institutions at village level.

The CORE INNOVATION

“The Nutri-Smart Village Model transforms farms into sources of nutrition by connecting what families produce with what they need to consume—converting agricultural diversification into dietary diversity, nutrition action and ultimately nutrition-secure communities.”

The POLICY MESSAGE

“From farm to food to nutrition: the Nutri-Smart Village Model provides a scalable pathway for transforming agricultural extension into nutrition-sensitive community development, enabling farm families to produce diverse foods, improve dietary quality and build sustainable nutrition security.”

Recognition for Community-Level Impact



The **Model for Developing Nutri-Smart Village through Community Nutritional Literacy and Security: A Functional Model for Mitigating Malnutrition** has been certified by the Indian Council of Agricultural Research (ICAR), New Delhi, vide **Certificate No. ICAR-AEXT-ATARILDH-Model-2024-069**, in recognition of its measurable, women-led and community -wide nutritional security outcomes for large-scale replication.



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