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Agroecology homestead models: Enhancing nutrition, soil health, and income for tribal farmers

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Abstract

Tribal communities in Madhya Pradesh, India are characterised by limited interaction with outside world and minimal exposure to developmental initiatives, heavily rely on self-production and the collection of Non-Timber Forest Products (NTFP) for sustenance. However, this reliance often leads to imbalanced nutrition and irregular income, exacerbated by monoculture farming practices and diminishing forest resources. Coupled with widespread migration, gender inequality, and social alienation, these challenges perpetuate a cycle of poverty and malnutrition within these communities.

To address these issues, an Agroecological Homestead Model (AHM) has been developed and promoted for adoption. Unlike regions with limited land holdings, tribal farmers in this region possess sizable but degraded land. The AHM utilises homesteads, employing water harvesting and storage systems for irrigation, multi-layer cultivation, crop rotation, horticulture plants, applying natural amendments, composting, backyard poultry and goat rearing, using local seed varieties, and nutrient rich fodder for livestock. Community engagement is facilitated through resource aggregation for bio-input production, planting materials and collective marketing efforts.

Implemented on less than 0.1 hectares, the AHM, predominantly managed by women, accommodates 10 to 16 types of vegetable/crops annually. Initial support and capacity building, particularly through women led self-help groups, are crucial for adoption. Despite initial challenges such as investment requirements and knowledge gaps, the establishment of community nurseries, training on natural amendment preparation, and dissemination of knowledge on farm management were found instrumental in scaling the model. The AHM has resulted in significant improvements, including a 100 % increase in dietary diversity, over 70 % rise in green vegetable consumption, increase in protein intake. Soil health indicators, including organic carbon levels and water retention capacity, have shown promising improvements, validated through citizen science approach.

Multistakeholder engagement, involving government departments, research institutions, and women's groups, is essential for the model's success. Efforts are underway to explore local business opportunities linked to the AHM, leveraging existing government programs, and advocating for policy changes at the national level to address malnutrition among marginalised farmers women and children across the country.

Keywords: Agroecology, animal health, natural farming, rural livelihoods, soil health, sustainable diets

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