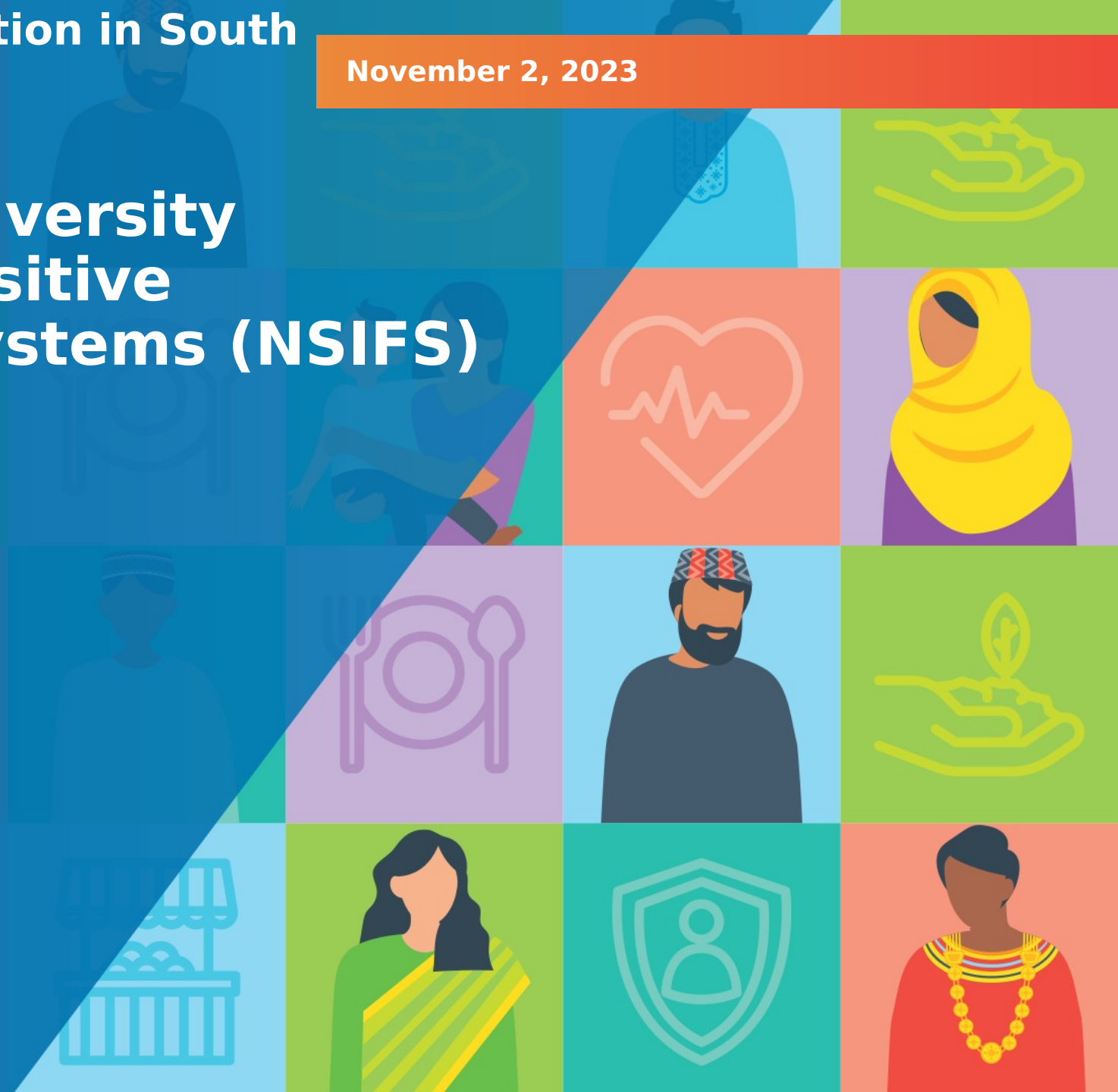


Augmenting dietary diversity through Nutrition Sensitive Integrated Farming Systems (NSIFS) in Bihar

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Rationale & Objective

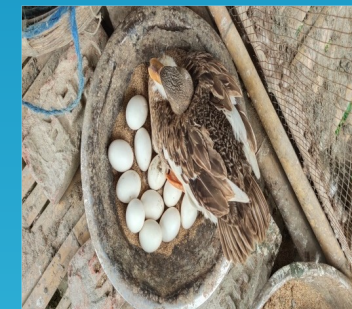
- In low-resource settings, it is considered feasible to integrate nutrition programmes with women-centric poverty alleviation programmes for promoting behaviour change and increasing service uptake.
- With the aim to improve the nutritional outcomes of adolescent girls, pregnant women and mothers of children under 2 years, in 2016, Bihar State Rural Livelihoods Promotion Society- JEEViKA partnered with UNICEF-Bihar to initiate Swabhimaan project (Five year initiative, funded by UNICEF) in Kasba and Jalalgarh blocks of Purnea district in Bihar by increasing the coverage of 18 essential nutrition (specific and sensitive) interventions under five thematic categories.
- Promotion of homestead kitchen garden remains one of the key interventions to improve food and nutrient intake undertaken by JEEViKA under Swabhimaan.
- Thus, to enhance food availability and dietary diversity among rural households, **Nutrition Sensitive Integrated Farming Systems (NSIFS)** model was adopted by JEEViKA with financial and technical support of UNICEF, Bihar in incremental manner, starting with kitchen garden.

Objective:

To assess the impact of NSIFS approach supplemented with behaviour change interventions led by women collectives/agencies in improving dietary diversity among adolescent girls, pregnant women and mothers of children under 2 years who were exposed to the integrated multi-sectoral community based programme-Swabhimaan in Bihar.

Features of NSIFS model:

- NSIFS model comprises of 6 sub-systems- animals and birds, evergreen trees and plants, aquatic plants and animals, microbes and fungi, insects, seasonal and all time producing plants.
- Integrates the farm output wastes from one subsystem as inputs to other farm subsystem
- Based on sustainable agriculture practices – agro ecology and ensures year long food availability with balanced diet requirements and diversity
- Low cost inputs based – viable for small and marginal farmers
- **Diversified crop production in limited favorable space available to optimum level**



Agencies involved:

- Krishi Vigyan Kendra - Purnea (KVK)
- Dr. Rajendra Prasad Central Agriculture University-Pusa, Samastipur (RAU)
- Agriculture Technology Management Agency-Purnea (ATMA)
- Department of Animal Husbandry

Interventions to promote NSIFS model : Strategy at Purnea, Bihar

System strengthening

- Quarterly trainings of women farmer resource persons of women collectives (Krishi Sakhi) for development of community nutrition-sensitive agriculture demonstration sites (farmer field school at cluster level) and promotion of backyard micronutrient-rich kitchen gardens at household level
- Regular block, district and state convergence planning and review meetings



Women collective s led intervention

- Integrated Micro Planning to develop NSIFS model at household level
- Monthly meetings with all women farmers/producer groups of JEEViKA on nutrition sensitive agriculture methodologies by women farmer resource persons (Krishi Sakhis)
- Strategy for identification, handholding and tracking of women farmers for promotion of NSIFS with focus on 'at-nutritional risk' pregnant women and children through home visits
- Linkage with women collectives for provision of seed grants for agriculture and poultry rearing activities

Methods/analysis:

- The baseline survey in Bihar was undertaken by the AIIMS- Bihar, with technical support from IIPS and University College London in 2016, while IIPS is the nodal agency for the process evaluation during the midline survey (2018) and the endline survey (2021).
- A representative sample from all three target groups- pregnant women, adolescent girls, mother of children under 2 years were selected using simple random sampling for the baseline survey in Jalalgarh and Kasba blocks.
- Bilingual interview schedules were used for data collection for both baseline and endline surveys.
- In the baseline, a total of 1,704 adolescent girls, 936 pregnant women and 2,612 mothers of children under two years were interviewed. The baseline survey protocol, methodology and tools were approved by the Institutional Ethics Committee of the AIIMs.
- In the end line process evaluation survey (2021), 1119 adolescent girls, 443 pregnant women and 1162 mothers of children under two years were interviewed. The endline survey protocol, methodology and tools were approved by the Institutional Ethics Committee of the IIPS.
- Diet Diversity Score (DDS) is computed on the basis of consumption of food items, from the ten food groups on the day prior to the date of interview. Based on the FAO 2016 methodology, 14 major food items were clubbed together to form 10 food groups. A ten point DDS scale was created (0 being the lowest value and 10 being the highest).

Results:

- The nested evaluation under Swabhimaan reveals that there is a significant association between promotion of kitchen garden in households and increased percentage of adolescent girls (10-19 years), pregnant women (15-49 years) and mothers of children under 2 years with minimum/ high dietary diversity score (6 or more out of 10) during the period (2016-2020).
- The findings of the endline survey (2021) show that the percentage of adolescent girls with Minimum Dietary Diversity Score (DDS) has increased and mothers of children under 2 years with Minimum DDS has significantly changed.
- The percentage of pregnant women with high DDS also increased. (Source: SWABHIMAAN Programme Bihar Endline Factsheet)

Findings:

Adolescent girls (10-19 years):

Key indicator: Adolescent girls living in households with a kitchen garden (%)

Intervention area		Control area	
Baseline 2016	Endline 2021	Baseline 2016	Endline 2021
(n=863)	(n=567)	(n=841)	(n=552)
28.2	43.0	18.2	39.1

Key indicator: Adolescent girls with Minimum Dietary Diversity Score (6 or more out of 10) (%)

Intervention area		Control area	
Baseline 2016	Endline 2021	Baseline 2016	Endline 2021
(n=863)	(n=567)	(n=841)	(n=552)
12.3	50.0	14.2	37.5

Findings:

Pregnant women (15-49 years):

Key indicator: Pregnant Women living in households with a kitchen garden (%)

Intervention area		Control area	
Baseline 2016	Endline 2021	Baseline 2016	Endline 2021
(n=468)	(n=212)	(n=468)	(n=231)
18.8	41.2	14.3	31.8

Key indicator: Pregnant women with high Dietary Diversity Score (6 or more out of 10) (%)

Intervention area		Control area	
Baseline 2016	Endline 2021	Baseline 2016	Endline 2021
(n=468)	(n=212)	(n=468)	(n=231)
13.6	52.8	16.6	42.2

Findings:

Mothers (of children under two years) (15-

49 years): **Key indicator: Mothers living in households with a kitchen garden (%)**

Intervention area		Control area	
Baseline 2016	Endline 2021	Baseline 2016	Endline 2021
(n=1400)	(n=564)	(n=1212)	(n=598)
16.2	44.3	14.2	35.3

Key indicator: Mothers with minimum Dietary Diversity Score (6 or more out of 10) (%)

Intervention area		Control area	
Baseline 2016	Endline 2021	Baseline 2016	Endline 2021
(n=1400)	(n=564)	(n=1212)	(n=598)
9.2	50.0	12.6	41.9

Implications:

- 1. Nutrition Sensitive Integrated Farming Systems (NSIFS) is a promising approach with proven evidence.** Promotion of NSIFS model supplemented with system strengthening and women collectives led interventions through leveraging convergence under JEEViKA has a significant impact in **enhancing food availability and dietary diversity** among rural households in Bihar.
- 2. It is complemented with other interventions led by women collectives and their federations under JEEViKA** including: social behaviour change communication activities related to food, nutrition, health and WASH, demand generation for quality services and entitlements, promotion of nutrition based enterprises, convergence with line departments for improving the nutrition and health outcomes.
3. Given initial operational cost and intensive manpower support associated with establishing the NSIFS model at rural household level, **JEEViKA adopted the approach in incremental manner**, initiating with kitchen garden.
- 4. The integrated NSIFS model also aims to generate additional income** for resource poor families in rural areas through selling surplus produce after meeting their nutrition need in adequate manner. Thus, efforts are undertaken under JEEViKA to scale up the model across the state through integration with farm livelihood interventions to empower the rural families in holistic manner.

**THANK
YOU**