LANSA
Leveraging Agriculture for Nutrition in South Asia

POLICY BRIEF
Issue 4 • August 2016

Leveraging Agriculture for Nutrition in India

Focus polices and programmes

- **National Policy for Farmers 2007**
- **National Food Security Act 2013**
- **National Nutrition Policy 1993**
- **National Food Security Mission**
- **Mission for Integrated Development of Horticulture**
- Draft **National Policy for Women 2016**

Current policy scene

National Nutrition Policy (NNP) 1993 ***provides for improvement of dietary pattern through production and demonstration*** by improving dietary pattern via promotion of production and increasing the per capita availability of nutritionally rich foods. It states that, production of pulses and legumes, oilseeds, protective food crops such as fruits and vegetables, milk, meat, fish and poultry, and millets will be augmented. The Policy goes on to say that 'Certain imbalances and anomalies in our agricultural policy need to be redressed immediately', for a positive impact on nutritional outcomes in India. More than two decades after formulation of the NNP however, the country is still looking at issues related to malnutrition

Men and women working together, Koraput, Odisha.
LANSA

and the need for convergence of the different departments that have linkages to address this problem.

As the NNP says, ***"Indian Agricultural Policy has been concerned with production exclusively and not nutrition"***. The Green Revolution has largely remained a cereal revolution, with bias towards wheat and rice. Coarse grains (millets) regarded as poor man's staple and pulses to meet protein requirements have been neglected. These need immediate attention if we are serious in tackling the persisting problem of undernutrition in the country.

The National Policy for Farmers (2007) calls for fostering community-centred food, water and energy security systems in rural India and to ensure nutrition security at the level of every child, woman and man.

The **National Food Security Act (2013)** aims at '***food and nutritional security in human life cycle approach, by ensuring access to adequate quantity of quality food at affordable prices'.***

THE ACT CALLS FOR:

1 ***Revitalisation of Agriculture including:***

a) Agrarian reforms through measures for securing interests of small and marginal farmers;

b) Increase in investments in agriculture, including research and development; and

2 ***Procurement, Storage and Movement related interventions including:***

a) Incentivizing decentralised procurement including procurement of coarse grains;

b) Geographical diversification of procurement operations;

c) Augmentation of adequate decentralised modern and scientific storage;

> "Some state governments have taken proactive steps to make pulses available at reasonable prices through the public distribution system."

The **Initiative for Nutritional Security through Intensive Millets Promotion (INSIMP),** under the *Rashtriya Krishi Vikas Yojana*, 2011 gives a thrust

Women farmers weeding the field at Wardha, Maharashtra.
LANSA

to promotion of the millet value chain. Promotion of coarse cereals and pulses comes under the ambit of the **National Food Security Mission** (NFSM) launched in 2007. Some state governments have taken proactive steps to make pulses available at reasonable prices through the public distribution system **(PDS)**; particularly Chhatisgarh and Tamil Nadu stand out as states which have done this efficiently. The state of Karnataka has introduced millets in the PDS.

The Draft Policy for Women (2016) talks of **Agriculture for nutrition campaigns *'in selected districts where nutrition indicators are poor for popularising cultivation of nutritional crops, horticulture products and traditional varieties'***.

LANSA research evidence

A state level analysis of agriculture and child nutrition linkages in India exploring the associations between agricultural prosperity and rural child undernutrition after controlling for access to sanitation and safe drinking water concluded that agricultural prosperity as indicated by agricultural growth, worker and land productivity and per capita food grain production has a positive influence on reducing child undernutrition.

Crop diversification index did not show positive influence of agricultural prosperity on nutrition outcomes. Given that a large part of India is under dry-land or rain-fed farming characterised by more crop diversification, this finding highlights the need for targeting agriculture policies to rain-fed farming areas, to ensure that agricultural growth consistently translates into higher labour productivity and wages.

Another study found lower rates of maternal undernutrition based on **Body Mass Index** (BMI) cut-offs among women in cultivator households or among those who have a higher share of

Further reading

Brinda Viswanathan, Getsie David, Swarna Vepa and Bhavani R V (2015): **Dietary Diversity and Women's BMI among Farm Households in Rural India**. *LANSA Working Paper Series* Vol 2015 No.3 Sept
http://lansasouthasia.org/content/dietary-diversity-and-women%E2%80%99s-bmi-among-farm-households-rural-india

Das P K, Bhavani RV and Swaminathan MS (2014): **A farming system model to leverage agriculture for nutritional outcomes** Agricultural Research 3(3): 193-203

Inka Barnett and Shilpi Srivastava (2016): **Learning from the past: Framing of undernutrition in India since independence and its links to agriculture**
LANSA Working Paper Series Volume 2016 No.5 February
http://lansasouthasia.org/content/learning-past-framing-undernutrition-india-independence-and-its-links-agriculture

Kadiyala S, Harris J, Headey D, Yosef S and Gillespie S (2014): **Agriculture and Nutrition in India: mapping evidence to pathways.** Annals of the New York Academy of Sciences 1331: 43-56
http://lansasouthasia.org/content/agriculture-and-nutrition-india-mapping-evidence-pathways

Kishore, A and Chakrabarti, S (2015): **Is more inclusive more effective? The 'New Style' public distribution system in India**. Food Policy 55: 117–130
http://www.sciencedirect.com/science/article/pii/S0306919215000779

Nagarajan S, Bhavani RV & Swaminathan MS (2014): **Operationalizing the concept of farming system for nutrition through the promotion of nutrition-sensitive agriculture**, Current Science 107(6):959-964
http://lansasouthasia.org/content/operationalizing-concept-farming-system-nutrition-through-promotion-nutrition-sensitive

Swarna S Vepa, Vinodhini Umashankar, R V Bhavani and Rohit Parasar (2014): **Agriculture and Child Under-nutrition in India: A State level analysis** MSE Working Paper 86/2014 July
http://www.lansasouthasia.org/content/agriculture-and-child-under-nutrition-india-state-level-analysis

agricultural incomes as compared to women in non-agricultural wage labour households; Modelling dietary diversity at the household level to women's BMI, the study validated that greater dietary diversity which promotes better nutritional outcomes is associated with characteristics such as higher agricultural income, larger areas under cultivation, crop and income diversification, access to animal source foods and to markets. Evidence from LANSA supports previous findings that show that women's educational achievement and their access to toilets has a significant impact independently on prevalence of child undernutrition.

LANSA research on food distribution value chains highlights the importance of linking local women farmers with the **Supplementary Nutrition programme** (SNP) under ICDS and the **Mid Day Meal** (MDM) programme. It was found that the provision of vegetables (rich source of micronutrients) is not consistent and depends a lot on the price and availability in markets.

Dry or semi-arid regions in India have traditionally grown millets that are rich in micronutrients and are more climate-resilient. **Millet based meals or millet based snacks can be supplied through MDM and SNP under ICDS as provided for under the NFSA.**

Ongoing research at the **Farming System for Nutrition** (FSN) study locations in Wardha district in Maharashtra state and Koraput district in Odisha state, highlight the need for development of local value chains of production and consumption through post-harvest processing of nutritious crops like millets and pulses at village level. Besides enhancing farmer's income, they would target local consumers and those from lower economic sections, thus improving the consumption of nutritious crops by undernourished populations.

Data from the villages under the FSN study shows that **high levels of iron-deficiency anaemia** exist among children, adolescent girls and women. About 35 per cent of children under-five years of age suffer from **Vitamin A deficiency**.

Both men and women are undernourished with the proportion being higher among women. The diets are cereal dominated and consumption of all other food groups is less than the recommended levels providing **low levels of dietary diversity**.

> "Both men and women are undernourished with the proportion being higher among women."

Farming System interventions are focusing on **increasing the area under nutritious millets and pulses**; poultry and fish farming; promoting nutrition gardens of vegetables and fruits in households; and access to animal health services; together with nutrition education and health awareness.

Nutrition gardens of vegetables and fruits have been promoted in schools and ICDS Centres in the FSN study villages to ensure supply of fresh vegetables for the midday meal.

Woman taking care of her poultry in Wardha, Maharashtra.
LANSA

An ongoing study on feasibility and challenges of introducing **millets in the PDS** and another on the status of pulse production highlight issues of pricing, procurement and storage.

Women from the FSN study villages are involved in taking care of the community nutrition garden at Wardha, Maharashtra.
LANSA

Recommendations for policy

1. Focus on **increasing the area under nutritious crops** to provide increased availability of nutrients per unit area. This in turn calls for more focus on R&D for neglected but nutritious crops (see **Table 1**) like millets and for pulses in terms of yield potential, fortification, growing days, etc.
2. Agricultural extension is important for **transferring relevant knowledge and information to farmers** as well as translating policy directions into action. There has been a qualitative change in agriculture extension activities since the 1990s and it is currently undertaken using a variety of models and schemes; the public sector role has been weakened.

   Meeting the gaps and emerging challenges of agricultural extension work in India is crucial. **Agriculture extension has to be**

Table 1 Nutritive value of important millets and pulses (per 100g)

Nutrients	Millets			Pulses		
	Bajra	Jowar	Ragi	Bengal Gram whole	Green Gram whole	Red gram dhal
Protein, g	11.6	10.4	7.3	17.1	24.0	22.3
Energy, kcal	361	349	328	360	334	335
Calcium, mg	42	25	344	202	124	73
Iron, mg	8.0	4.1	3.9	4.6	4.4	2.7
Carotene, µg	132	47	42.0	189.0	71.0	132.0
Thiamine, mg	0.33	0.37	0.42	0.30	0.42	0.45
Riboflavin, mg	0.25	0.13	0.19	0.15	0.20	0.19
Niacin, mg	2.3	3.1	1.1	2.9	1.5	2.9
Folic acid, total	45.5	20.0	18.3	186.0	0.0	103.0
Zinc, mg	3.1	1.6	2.3	2.9	3.0	0.9

Source: Nutritive Value of Indian Foods, Indian Council of Medical Research, 2012

inclusive of nutrition-sensitive agricultural practices.

Training of agriculture extension workers in nutrition-sensitive agriculture is important to ensure awareness and dissemination of agriculture-nutrition linkages to small farmers.

The FSN study under LANSA shows the importance of improved crop and agronomic practices and the diversification of agricultural production on farm incomes and consumption of diversified nutritious diets by farming households

3 **Good quality and timely availability of agricultural inputs:** Access to seeds, fertilisers, pesticides and extension services has to be ensured. Proper demonstrations and orientation programmes should reach out to each and every farmer. These should also include cultivation of both naturally fortified and biofortified crops.

4 **Minimum Support Price (MSP), assured procurement and managing imports:** The lack of an assured market and procurement forces farmers to choose crops such as rice, wheat and cotton in favour of millets or pulses. Timely announcement of MSP for pulses and millets is very important for farmers to plan.

> “Proper demonstrations and orientation programmes should reach out to each and every farmer.”

Efficient procurement of pulses and millets including timely payment by the government procurement agencies is crucial. The study on challenges of introducing millets in the PDS in Karnataka found that there is delay of 2-3 months in payment to the farmers. As a result,

School boy tending to livestock in Koraput, Odisha.
LANSA

farmers end up selling to agents at lower prices.

The country is currently importing pulses to combat the shortfall in production. Till such time that we are able to produce enough and won't need imports, any decision on imports needs to be timely. Otherwise, by the time the imports arrive, the harvested pulse crop is also in the market, leading to fall in prices and diminished returns for the farmers.

5 The **role of women in agriculture** cannot be over-emphasized. FAO estimates that if women worldwide had the same access to productive resources as men, they could increase yields on their farms by 20-30 per cent and total agricultural output by 2.5 to 4 per cent. Strengthening their status as decision- makers and care givers and improving their access to resources and credit are crucial.

6 **Efficient Information dissemination:** Awareness of government schemes, new technologies and cropping practices is found to be largely lacking. The print and electronic media and ICT have to be effectively harnessed for better reach.

7 **Linking farmers and farming households to institutional feeding programmes:** In Bangladesh there are pilot level initiatives linking school meals with 'groups of mothers' growing vegetables and providing them at schools.

A similar initiative if adopted would allow the Anganwadi helper/midday meal cook in schools to purchase vegetables from women farmers' groups and cook these for the children. The initiative would also have a positive impact on empowering women farmers and promoting local value chains.

8 As in the case of vegetables, local procurement of millets and pulses and linking with food distribution programmes under the ICDS and MDM with coordination at the Panchayat or Block level will promote **local agri-food value chains for nutrition.**

Farmer showing his produce from fish culture in Koraput, Odisha.
LANSA

Development of local agri-food value chains will bring down post-harvest loss. Accompanied by village-based processing, this will help improve the local availability and shelf life of seasonal foods.

> "The role of women in agriculture cannot be over-emphasized."

9 There is evidence that household **nutrition gardens of nutrient dense vegetables and fruits** promote dietary diversity and they have to be actively promoted. Different designs and models exist, to cater to the space available for this purpose.

Nutrition Garden of fruits and vegetables should also be promoted in schools and ICDS Centres where land is available, to ensure supply of fresh vegetables for the midday meal.

Similar nutrition gardens on community land under the **Mission for Integrated Development of Horticulture** will bring

necessary focus on agriculture for nutrition.

Likewise, wild edible but uncultivated fruits and vegetables can contribute to better nutrition; their nutrient values have to be analysed, documented and awareness generated.

10 **Homestead production of animal source foods** from livestock, poultry and fish contribute to both household dietary diversity and incomes. Based on local resource availability and cultural practices, they have to be an integral part of the farming system model for better nutrition.

11 The importance of social and behavioural change cannot be over emphasised. **Nutrition awareness on balanced diet, health, hygiene and sanitation and behaviour change and communication** are of crucial importance. Both traditional forms like street plays and folk songs, and ICT and mobile technology should be effectively harnessed for reaching out.

12 Evidence from LANSA research suggests that **Nutrition sensitive agriculture** is the key to ensuring the availability of nutritious cereals, pulses, fruits and vegetables and animal source foods. The **Ministry of Agriculture and Farmers Welfare** should be the key nodal agency in the framework of all policies that look into nutrition planning and action.

Young mother with her child in Wardha, Maharashtra.
LANSA

Credits

LANSA MSSRF team based on research conducted in India (2013–2016).

LANSA is an international research partnership, exploring how agriculture and agri-food systems can be better designed to advance nutrition in South Asia. Led by MS Swaminathan Foundation, members include BRAC, Collective for Social Science Research, Institute of Development Studies, International Food Policy Research Institute and Leverhulme Centre for Integrative Research for Action on Health. LANSA is funded by the UK Government. The views expressed in this document do not necessarily reflect the UK Government's official policies.

Web www.lansasouthasia.org **Email** Sangeetha Rajeesh, Research Uptake Manager lansa.india@gmail.com **Twitter** @LANSAresearch