LANSA
Leveraging Agriculture for Nutrition in South Asia

RESEARCH BRIEF
Issue 05 • June 2017

Value chain analysis in India to identify nutrition-sensitive interventions for improved maternal diets in India

Micronutrient insufficiencies are a serious public health problem among women of reproductive age in Low and Middle Income Countries including India, adversely affecting maternal health and economic productivity, and child growth and educational outcomes. Fruit and vegetables are important sources of micronutrients and consumption of these foods is lower than recommendations. Value chain analysis involves understanding how actors (farmers/ producers, wholesalers and vendors) make decisions about what produce they grow and sell. It can be employed to improve nutrition by identifying constraints to the supply and demand of healthful foods and developing interventions to address these constraints.

University of Southampton undertook a study titled *Identifying nutrition-sensitive interventions to improve maternal diet quality in rural Indian settings using value chain analysis* supported by the Leveraging Agriculture for Nutrition in South Asia (LANSA) consortium awarded from the Call for Proposals under LANSA's first Responsive Window opportunity. The study aims to develop an interdisciplinary framework linking value chain activities to nutrition in rural Maharashtra.

Can value chains be used to improve nutrition?

A 'value chain' refers to the addition of value along the food supply chain for actors at different stages. Actors within fruit and vegetable value chains include farmers/ producers, wholesalers and vendors. Central to the 'value chains for nutrition' approach is identifying opportunities where actors can benefit economically from marketing agricultural products of higher nutritional value.

Woman prepare meals and take care of household chores – a common scene in Wardha village homes.
LANSA

Methodology

A qualitative study involving focus group discussions and interviews with women and value chain actors was done, and women where they purchased fruit and vegetables. Based on the responses, local fruit and vegetable vendors were interviewed about the

challenges faced and how decisions are made by them regarding which fruit and vegetables to sell. Producers and wholesalers of fruit and vegetables were interviewed to understand how they make decisions about growing and marketing crops, and the difficulties they might experience. Four exemplar foods – mango, guava, spinach and *shepu* (dill) – were selected for detail study based on consultation with local communities.

Results and conclusions

It was found that there were socio-cultural and economic demand constraints reported at the individual, household, and community levels, socio-cultural and economic levels. Exemplar value chains were mapped and were relatively simple in this rural area. Also several challenges for each of the value chain actors in terms of supplying fruit and vegetables to the rural market were identified.

Consumption factors: Cost is an important barrier to fruit and vegetable consumption and lack of availability actors varied by season. Prices were often volatile because of fluctuations in supply and demand. Several other factors operating at the individual, household and community levels affected women's fruit and vegetable consumption:

1. Personal factors – including likes and dislikes, beliefs about the importance of feeding children before themselves: "Fenugreek and spinach are the only two green leafy vegetables I like."
2. Perceived time pressures – the need to spend time on work and household chores rather than eating: "I don't like to keep work pending. I am ok if I do not get food, but I am happy if I finish all my work on time."
3. Workload – fatigue from daily activities meant that women were too tired to eat. "I become tired in the evenings, so I do not have a meal. Just gulp a morsel or two and go to bed."
4. Household dynamics – decisions about what foods were eaten was not made by the women. Distribution of food within the household was often unequal, with the women eating last. "I live in a big family. I cannot make decisions about what vegetables are purchased. We prepare whatever [vegetables] we get." "Women manage with whatever food is left over."
5. Social and cultural norms – attitudes towards indigenous vegetables, foods perceived as 'hot' and 'cold' that should be avoided during pregnancy, and the role of men and women in a household. "Older women eat indigenous plants but younger women think they are bad for health. They look dirty." "If [my husband] helps me with household chores then everybody in the village will gossip about him."
6. Environmental and practical factors – included having space to cultivate crops and being able to access markets. "When we go to Wardha we get it [fruit]. We cannot eat fruit every day because we only go to Wardha once in one or two months"

Figure 1 **Processes along a value chain and examples of factors that influence each stage**

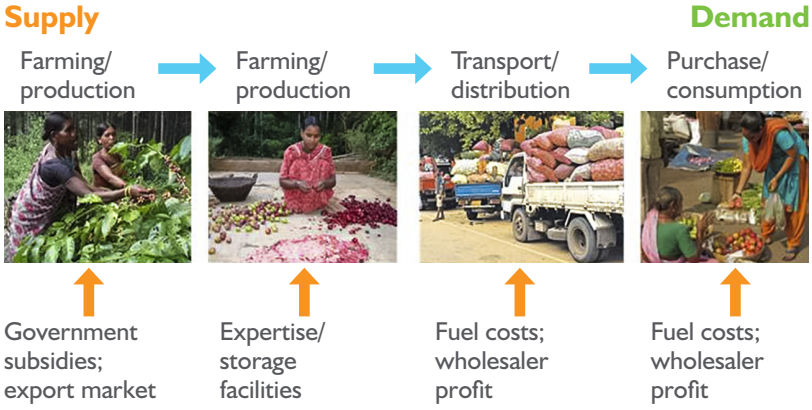
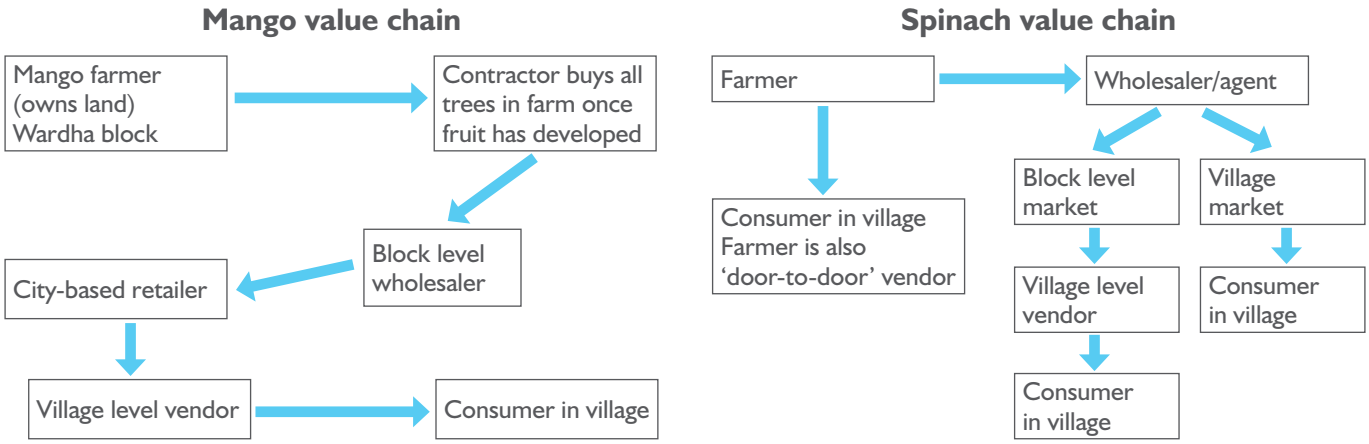


Figure 2 **Study location**

No time to take care of her own health – women agriculture labourers usually breastfeed their babies while at work.
SARAH KEHOE

Figure 3 **Depiction of mango and spinach value chains**



Marketing factors include:

1. Distribution – while weekly fruit and vegetable markets are currently held at the village level, there is a trend towards fruit and vegetables being sold in the city rather than in villages. This may be because there is an assured demand from wealthier consumers in the city and transport within the city is convenient, whereas travel between the city and villages can be unpredictable, time-consuming and expensive. "People living in the city can afford fruit but rural people don't have money for these things."– **Wholesaler.** "In places where transport is available it is affordable to buy produce to sell." – **City vendor**
2. Product quality and timeliness of delivery – vendors reported difficulties with wastage and lack of predictability in supply and demand. They also talked about the importance of supplying good quality produce and the challenges of maintaining quality in the extreme climate. "If I sell fresh vegetables then I won't lose regular customers." – **Village vendor**. "In summer, vegetables dry easily; we have to take care of vegetables like a small baby." – **Door-to-door vendor**
3. Market information – wholesalers also described the importance of predicting demand for produce. "[Vegetables] get spoilt if we buy in excess. We have to be careful when estimating how much we can sell" – **Vegetable Wholesaler**
4. Risk – the balance of risks and returns was against farmers. Wholesalers generally decide the prices that farmers receive for their produce. Farmers had little / no say in the price. Farmers took on the risks associated with growing a particular crop and some took extreme action to prevent damage to crops. Eg: a farmer talked about building a shelter in his field and sleeping there to prevent wild animals destroying the crop.
5. Infrastructure and services – lack of infrastructure and storage facilities were reported by all value chain actors as affecting what could be grown and sold. "Storage is a problem. We cultivate only those vegetables that we harvest and sell immediately." – **Farmer/ Village vendor**. "We have irrigation but there is often a problem with electricity, then our crops can't be watered." – **Farmer**

Implications

In summary, this study has demonstrated that there are multiple factors affecting demand for fruit and vegetables at the individual, household, community, socio-cultural and economic levels. Cost is an important factor, but there are many others to be addressed including food preferences and perceptions, time pressures, workload, distribution of food within the household, cultural norms and environmental factors.

> "There are multiple factors affecting demand for fruit and vegetables at the individual, household, community, socio-cultural and economic level."

In terms of supply it is important to consider all value chain actors and processes and to address the challenges they face. These include: changes in distribution patterns due to reduced demand in villages; maintaining the quality of produce in harsh climatic conditions and with limited storage facilities; reducing exposure to risk for farmers; and improving infrastructure to facilitate transport and storage of fruit and vegetables.


Women working in agriculture seldom have time to eat.
LANSA

Recommendations for future action

The findings of this research are qualitative and hypothesis generating. In order to prioritise interventions, quantitative survey data would be useful. Recommendations for future research and interventions is to reduce supply and demand constraints. Some suggestions for future interventions are:

- Changing perceptions of indigenous vegetables.
- More equitable division of food and workload within the household.
- Increased awareness of the importance of including fruits and vegetables in daily diet through information, education and communication material shared in schools, Integrated Child Development Services (ICDS), Self-Help Groups and community-based organisations.
- Support for vendors to sell locally
- Re-distribution of risk within the value chain.
- Initiatives to increase awareness and effective implementation of insurance for farmers against crop failures at block and panchayat levels.
- Improved storage infrastructure to improve shelf-life.

Credits

This summary was written by **Dr Sarah Kehoe ANutr**, Senior Research Fellow, University of Southampton, UK.

Further reading

Miller V, Yusuf S, Chow CK, Dehghan M, Corsi DJ, Lock K, et al. Availability, affordability, and consumption of fruits and vegetables in 18 countries across income levels: findings from the Prospective Urban Rural Epidemiology (PURE) study. *The Lancet Global health*. 2016;4(10):e695-703.

Hawkes C, Ruel M. Value chains for nutrition. 2020 Conference: Leveraging Agriculture for Improving Nutrition and Health. *2020 Conference Paper 4*. Washington, DC: International Food Policy Research Institute; 2011.

Parasar R, Bhavani R (2016) Review of Agri-Food Value Chain Interventions Aimed at Enhancing Consumption of Nutritious Food by the Poor: India. *LANSA Working Paper Series*.

Shetty P. (2015) From food security to food and nutrition security: role of agriculture and farming systems for nutrition. *Current Science*, 109(3):456-61.

Morgan EH, Vatucawaqa P, Snowdon W et al. (2016) Factors influencing fruit and vegetable intake among urban Fijians: A qualitative study. *Appetite 101*, 114-118

LANSA
Leveraging Agriculture for Nutrition in South Asia

UNIVERSITY OF Southampton

This product is from a study granted under LANSA's Responsive Window 1 opportunity. 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** lansa.southasia@gmail.com **Twitter** @LANSAresearch