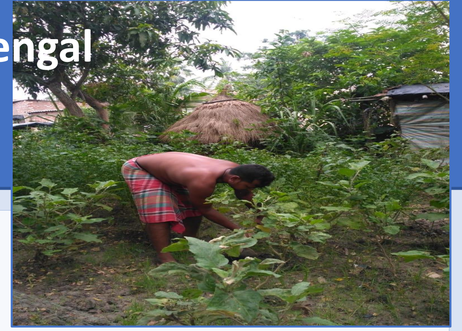
Pathways from Agriculture to Nutrition: Evidence from Indian Districts with special focus on West Bengal



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OBJECTIVES

To understand and measure the pathways from agriculture to nutrition. The study was conducted in two phases. **Phase - I** involved secondary data analysis collected from different sources on agriculture and nutrition at the all India and district level. **Phase - II** draws heavily from a Gates Foundation funded project 'System of Promoting Appropriate National Dynamism for Agriculture and Nutrition' (SPANDAN), IGIDR & NIN. Despite the diversity in agricultural production and farming in the state of West Bengal, the nutritional status of children is quite dismal. The Phase - II involved field surveys in different agro-ecological zones.

MATERIALS AND METHODS

In **Phase - I**, we consider the performance of districts on the following indicators: improved sources of drinking water, improved toilet facilities, access to television, access to improved sources of fuel for cooking, access to electricity, improved flooring, owns livestock, herd or farm animals, owns land usable for agriculture, access to institutional delivery, access to vaccination, breastfeeding, literacy rate, whether had early marriage, early pregnancy, decision making regarding health care, making large household purchases and household purchase for daily needs; control over men's earnings, proportion of land holding, access to bank and mobile, proportion of population suffering from anaemia, stunted, wasted and underweight, recommended intake of calorie, protein, fat, thiamine, riboflavin, niacin, beta carotene, calcium, iron and vitamin C. Color coded tables are generated to track the performance and ranking of districts on each indicator. In **Phase-II**, we used the SPANDAN questionnaires for the field survey. The villages are based in North 24 Parganas and South 24 Parganas located in the New Alluvial and Coastal & Saline agro-climatic zones of West Bengal.

MATERIALS AND METHODS

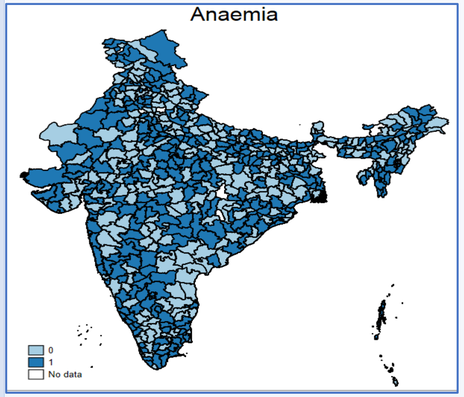
The different questionnaires are, Community Questionnaire on Agriculture, Socio-demographic Questionnaire, Nutrition Questionnaire, Agriculture Questionnaire and Community Questionnaire General. Almost 120 households were interviewed and Focus Group Discussions conducted.

o Village Kharampur, Block Hasnabad, North 24 Parganas (5 households, ongoing in another 10 households)
o Village Akatpur, Block Basirhat-II, North 24 Parganas (5 households, ongoing in another 10 households)
o Village Mathurapur, Block Bongaon, South 24 Parganas (50 households, completed)
o Village Taldi, Block Magrahat-II, South 24 Parganas (50 households, completed)

RESULTS

Phase – I: There is evidence of total disconnect across different pathways across the districts. The main policy implication is that policy makers need to focus on improving the performance of the particular dimension on which the district is lagging behind. A singular approach with focus on only one variable of interest at a time may be completely misleading and delay the attainment of the different SDGs. Spatial maps are provided for district officers to understand the performance of districts on different indicators and accordingly allocate budget and set their priorities for improving overall health and nutrition security.

Key findings from the field survey, Limited crop diversification is observed; Low crop diversity is one of the prime reasons for poor nutritional outcomes; Most of the food consumed is bought from the market by the small and marginal size farm holders; Kitchen gardening is an overlooked strategy; Child and adult diet diversity is moderate and does not necessarily translate into above-average nutritional outcomes. Prevalence of the underweight wasted and stunted children and adults.

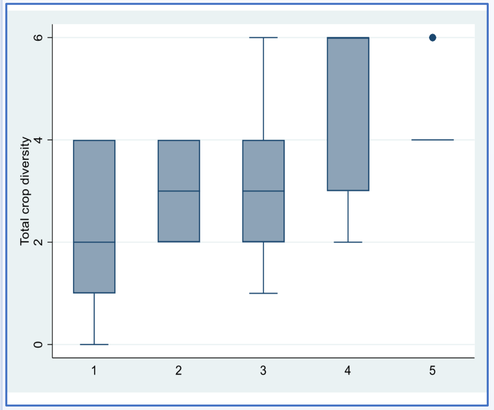


DASHBOARD: Flooring, Livestock, Land for agriculture, Vit A, Breastfeeding

west ben	dakshin	4	4	3	4	1
west ben	maldah	4	3	1	2	3
west ben	murshida	3	2	1	2	3
west ben	birbhum	3	3	1	3	1
west ben	barddham	2	2	1	3	1
west ben	nadia	3	2	1	3	1
west ben	north tw	2	1	1	2	2
west ben	hugli	2	1	1	4	1
west ben	bankura	3	3	2	4	1
west ben	puruliya	3	3	3	3	3
west ben	haora	2	1	1	4	2
west ben	kolkata	1	1	1	4	1
west ben	south tw	3	2	1	3	3
west ben	paschim	4	3	3	4	1
west ben	purba me	3	2	3	4	2

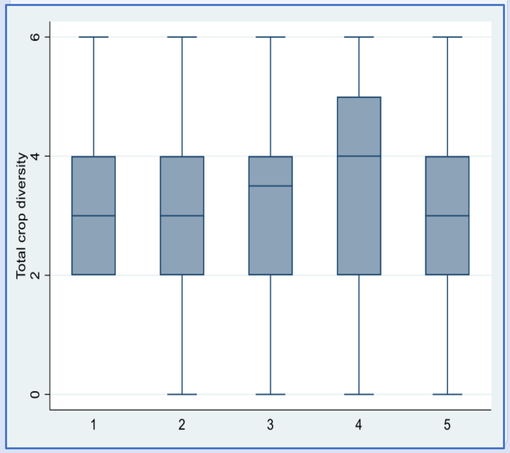
Village Mathurapur (Block Bongaon, South 24 Parganas) Crop diversity improves with the size of landholdings . Adults perform well on anthropometric status . The BMI is in the normal range and few are overweight.

Crop Diversity over Land size



The distribution of BMI is evenly spread across different land size. Even though the median crop diversity is three, adults exhibit proper nutritional status

Crop Diversity over BMI



CONCLUSIONS

- Ag-nutri pathways are a multi-dimensional and complex interaction.
- We find clear disconnects in these pathways in our study.
- For decades all stakeholders involved in addressing nutrition related challenges have acted in an uncoordinated fashion and in silos.
- It is time that different departments frame policies in a coordinated fashion.
- Limited focus is paid to agricultural and dietary diversification.
- Diversification in farm and kitchen gardens should be immediately prioritized.
- Clear cut strategies to be advocated to agricultural households to improve agricultural productivity & diet diversity and health & nutritional status.

REFERENCES

Kadiyala, S., Harris, J., Headey, D., Yosef, S., & Gillespie, S. (2014). Agriculture and nutrition in India: mapping evidence to pathways. *Annals of The New York Academy of Sciences*, vol. 1331(1), pp. 43-56.

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