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POLICY BRIEF

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Availability of, access to and utilization of food along with women's agency are well-known building blocks for nutritional improvement. However, each of these are influenced by a host of background factors which are complex and highly interactive. These background factors should be considered well for effective nutritional interventions and policy actions.

Pathways to Nutritional Well-being: A Framework for Nutrition Intervention and Policy Action

Many Routes to Nutrition

Human nutrition is influenced by various physiological, socio-economic, political as well as cultural factors. Many of these are quite complex and interactive with each other. Naturally, there may be several pathways to achieve improved nutritional outcomes. Understanding all these pathways and their interactions clearly are crucial for effective nutritional policy actions and investments. This policy brief tries to clarify these issues.

Four Building Blocks for Human Nutrition

There are quite a few frameworks as well as theories of change for understanding pathways to nutritional improvement and well-being (2, 8). Most such frameworks take agriculture as the starting point as it is the source of all food. In the literature, agriculture, food security and nutrition are conceptualized to be linked through several pathways (2,9). The present Policy Brief elaborates on these linkages.

The immediate factors that determine human nutrition are actual food intakes and their quality as well as environmental factors and diseases. Actual food intake and quality, however, depend on basically three elements for food and nutrition security which are availability of, access to and utilization of food. Addition-ally, given the importance in literature as well as practices in nutritional interventions, women's agency and empowerment is included as the fourth element. It may be noted that underlying the three broad ele-ments influencing nutrition, there are various other underlying causes behind them. All these are shown as far as possible as blocks of issues and factors. The diagram below shows the four elements to be linked to a left side block called Food and Nutrition Security (coloured orange) which is the ultimate goal. Each of the building blocks of Food and Nutrition Security and their background factors (social, economic, cultural, legal and other issues) as well as inter-linkages between and within blocks among them are explained below.

Pathway 1 (Green Block): Availability of Food

In **Bangladesh** like most countries, the main source of **availability or source of food is domestic production.** However, imports are also often a major source at least for some critical nutrient -dense food items such as pulses, edible oils and milk powder.

Various factors that directly influence such production activities ***include the input and output support policies*** which provide the signal to the farmers as to the costs of production, the economic feasibility and profitability of their production activities and outputs.

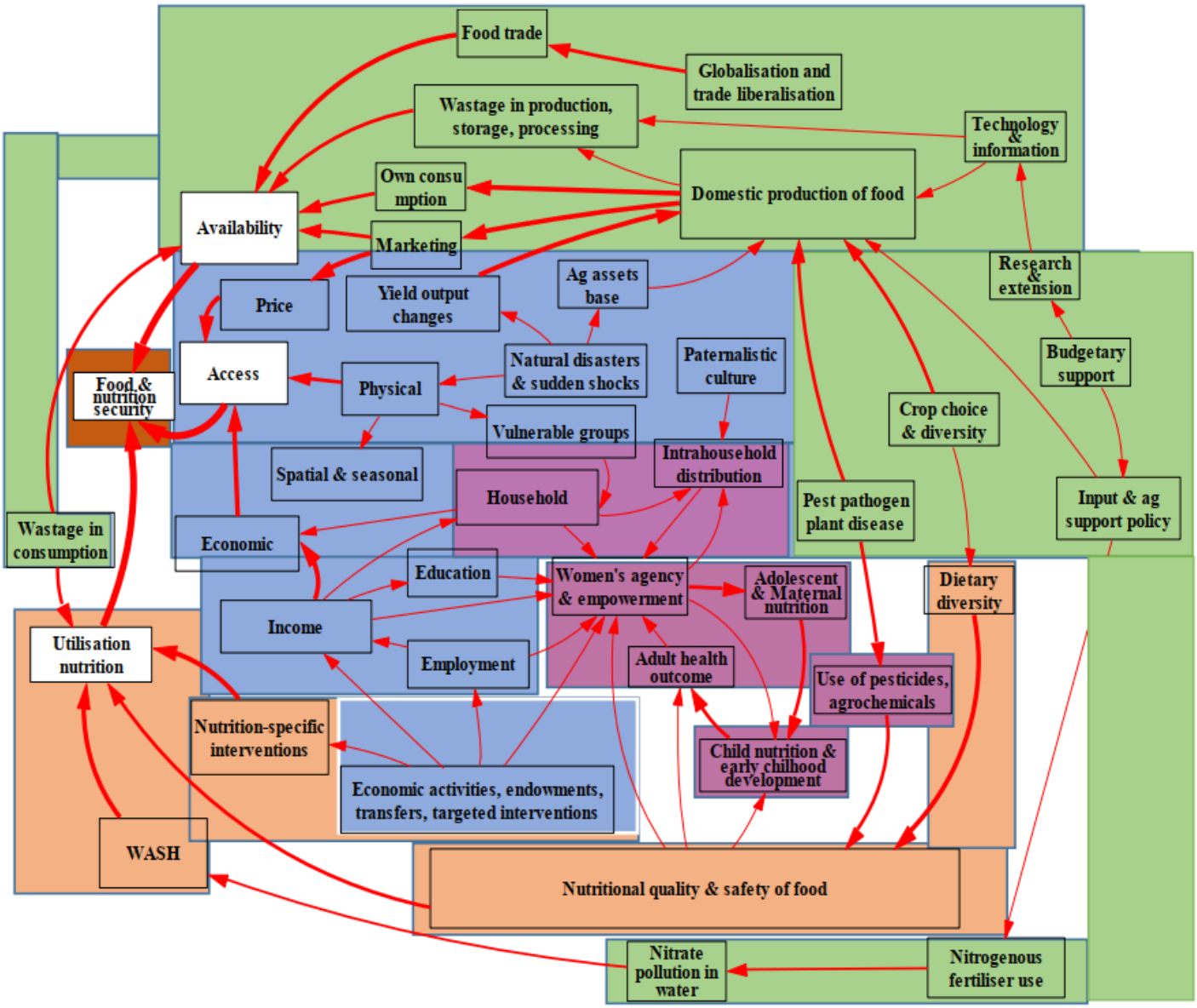

Fig: 1

Food and Nutrition Security and Pathways

However, what inputs the farmers use and their level depend on the ***technology*** that they use or are familiar with as well as their capacity to procure them. A proxy for the economic capacity is the ***asset base*** of the farmer (shown as a box in the upper middle part of the green block), by and large which can be proxied by their farm size which is pretty small in this country in most cases.

Nutrition depends, among others, on ***dietary diversity*** (4). But for that to happen, farmers need to produce diverse types of food crops and non-crop food. This is indicated in the middle-right part of the green block by the ***Crop choice and diversity box*** which has an arrow to dietary diversity box. For crop choice and diversity, the role of inputs and output policies particularly those ***influencing prices*** received by farmers and their profitability also become important.

A box shown as ***natural disasters and sudden shocks*** in the upper left side of the green block. In Bangladesh, natural hazards such as floods, drought, cyclonic storms and surges as well as salinity intrusions do damage crops every year sometimes severely and thus lower food availability. On the other hand, scientific evidence also reveals that climate change does adversely impact the nutritional contents of several crops including rice. Temperature rise due to climate change may also increase the uptake of arsenic by plants And raise the risks of absorptions by humans.

Thus climate change becomes not simply a nutrition-sensitive but also a nutrition-specific issue leading to negative public health outcomes.

The change in technology depends on two comparatively longer term factors, ***research and extension and the budgetary support*** for such activities. It must be noted that research may be both for developing high yielding technologies but with lower unit cost of production of more of the same foods, but also for more increasingly comparatively macronutritrient-dense or micronutrient-fortified food crops.

Pathway 2 (Blue Block): Access to Food

Even under an aggregate adequacy of food availability, access to food may be limited due to people's ***economic capacity*** or entitlement (6). Part of the domestic output of food is consumed by the farmers themselves but most of it has to pass through the market for reaching general consumers. The basic factor in determining the access to food for non-producers is its price. However, whether the price can be affordable is determined by the economic capacity of the consumers which is directly measured by their income which in turn is determined by two other factors, ***employment and/or property income***. These are all indicators of economic access. Such access is also influenced by transfers in the form of subsidy, cash transfers or in specific cases in-kind transfers (e.g., provision of school meals at state ex-penses) (1).

The issue of in-kind or ***physical*** transfers or access to food arises by and large at times of disaster ***emergencies*** when markets may not operate in normal sense because of disrupted supply chains.

Pathway 3 (Light brown Block): Utilization of Food

The third basic element in food and nutrition security is utilization. There are quite a few factors apart from individual physiology or care-giving practices (not shown) which influence utilization of food. Nutrition from food can be obtained properly if the food is safe to eat (either naturally or due to absence of adulteration), is not fortified with anything not necessary for human body functioning, the person consuming the food is not otherwise suffering from any debilitating disease (diarrhea, for example, caused by environmental enteropathy or constant fecal-oral contamination, does not allow children to have sufficient nutrition while suffering from the disease) which may hamper utilization of the food nutrients. An effective ***WASH*** programme thus may be taken to be a major factor behind children's nutritional well-being status.

Note that there is an arrow from **fertilizer** (particularly nitrogenous fertilizer) consumption/use to WASH as nitrate pollution from crop fields may occur. If validated in case of Bangladesh, there is likely to be a conflict between increased availability (of food crop, particularly rice, the staple in the country) and utilsation aspect of food for nutrition. This is an issue for future research and investigation and subsequent policy action.

Pathway 4 (Purple Block): Women's Agency

The fourth essential element of food and nutrition security relates to women's agency and empowerment in terms of employment, income earning (including income transfers such as through VGD pro-gramme), education and independence of action regarding intra-household distribution of food more fa-vourable to children including adolescent girls and mothers. One may note that quite a few of these factors such as education and employment exist as part of general process of development and may not be treated as part of nutrition programmes. But given their crucial role in influencing nutrition, such programmes may be somewhat redesigned to reflect these beneficial roles.

Nutrition-specific Intervention Related Pathways

So far the discussion had been by and large related to nutrition-sensitive pathways from various such factors to nutrition. When all is said and done, there may still be pockets of nutritional deficiency which need to be urgently considered for intervention or cannot be managed through availability or access alone. Nutrition-specific interventions may be of various types. One area which has gained prom-inence over time is behavioural communication for changing nutrition-related practices or administering specific services. Quite a few such types of interventions may be thought of targeted to specific groups in the society.

For example, when diets are not enough to cover the child or maternal dietary deficiency, one may have to provide dietary supplements (following therapeutic guidelines) to children and mothers (pregnants or lactating ones). Biofortification of crops is increasingly an way of fortifying food with necessary nutrition when these are not ordinarity available through normally produced food. In fact, for a life-cycle based nutritional interventions people of all ages have to be included depending on specific circustances. For example, old age persons may have specific nutritional needs and may be targeted accordingly. Hopefully these considerations are embeded in National Nutrition Ploicy 2015 and its Plan of Action (NPAN-2), but what is important is to implement the policies and strategies in the real field mobilizing adequate investments.

Recommendations for Policy Action

- Apparently independent as well as interrelated factors may have indirect, but important roles in determining nutritional outcomes. So policies therefore need to be aligned with each other for an effective, multisectoral and holistic approach towards better nutrition outcomes.

- Programmes or interventions in nutrition specific and nutrition sensitive areas have to follow the pathways to ensure food and nutrition security.

[1] There is a debate in literature regarding effectiveness of WASH (3, 5, 7,10). A quite large randomized control experiment which can clinch the issue is underway in Bangladesh in which ICDDR,B is reportedly involved but its results are yet to be publicly available.

References

1.Afridi, Farzana, Child welfare programs and child nutrition: Evidence from a mandated school meal program in India, Journal of Development Economics, Vo. 92, 2010, pp. 152-165

2. Du, Lidan, Victor Pinga, Alyssa Klein and Heather Danton, Leveraging Agriculture for Nutrition Impact through the Feed the Future Initiative, Chapter 1 in *Advances in Food and Nutrition Research*, Volume 74 # 2015, Elsevier Inc;

3. Dangour, A.D.; Watson, L.; Cumming, O.; Boisson, S.; Che,, Y.; Velleman,, Y.; Cavill, S.; Allen, E.; Uauy, R. (2013) *Interventions to improve water quality and supply, sanitation and hygiene practices, and their effects on the nutritional status of children*, Cochrane Database Syst Rev, 8. CD009382. ISSN 1469-493X.

4. Lancet Commission on Global Burden of Disease, "Health effects of dietary risks in 195 countries, 1990-2017: a systematic analysis for the Global Burden of Disease Study 2017' published on line on April 3, 2019 (http//dx.doi.org/10.1016/s0140-6736(19)30041-8).

5. Luby, P. *et al*, Effects of water quality, sanitation, handwashing and nutritional interventions on diarrhea and child growth in rural Bangladesh : a cluster randomized trial, Lancet Global Health 2018; 6: e302-15

6. Sen, Amartya K. (1976), Famines as failures of exchange entitlements, *Economic and Political Weekly* Vol XI, Nos 31–33, pp. 1273–1280. Also Sen, A. (1981), *Poverty and Famines: An Essay on Entitlement and Deprivation* (Oxford, Clarendon Press).

7. WHO, UNICEF and, USAID, *Improving nutrition outcomes with better water, sanitation and hygiene: practical solutions for policies and programmes*, 2015.

8. United Nations Children's Fund. UNICEF's approach to scaling up nutrition for mothers and their children. Discussion paper. Programme Division, UNICEF, New York, June 2015..

9. Yosef, Sivan, Andrew D, Jones, Barnali Chakraborty and Stuart Gillespie, Agriculture and Nutrition in Bangladesh: Mapping Evidence to Pathways, *Food and Nutrition Bulletin*, 2015, pp. 1-18. Also see Du, Lian, Victor Pinga, Alissa Klein and Heather Danton, op. cit.

10. Zemichael Gizaw and Alemayehu Worku, Effects of single and combined water, sanitation and hygiene (WASH) interven-tions on nutritional status of children: a systematic review and meta-analysis, *Italian Journal of Pediatrics* (2019) 45:77

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