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. Additionally, 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 elements influencing nutrition, there are various other underlying causes behind them. All these are shown as far as possible as blocks of issues and factors.

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.
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-sen-
sitive 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 bud-
getary support for such activities. It must be noted that
research may be both for developing high yielding tech-
nologies but with lower unit cost of production of more of
the same foods, but also for more increasingly compar-
atively macro-nutrient-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 con-
sumers. 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 capaci-
ty 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 indi-
cators 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 dis-
rupted 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 indi-
vidual 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 forti-
fied with anything not necessary for human body func-
tioning, the person consuming the food is not otherwise
suffering from any debilitating disease (diarrhea, for ex-
ample, caused by environmental enteropathies 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 ni-
trate 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 utilisation aspect of food for nu-
trition. This is an issue for future research and investiga-
tion 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 inde-
pendence 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 some-
what redesigned to reflect these beneficial roles.

Nutrition-specific Intervention Related Pathways

So far the discussion had been by and large related to nu-
trition-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 interven-
tions may be of various types. One area which has gained
prom-inence over time is behavioural communication for
changing nutrition-related practices or administering spe-
cific 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 (pregnant or lactating ones). Bio-
fortification of crops is increasingly an way of fortifying
food with necessary nutrition when these are not ordinar-
ily 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 circumstances.
For example, old age persons may have specific nutrition-
al 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 import-
ant 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.

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1There 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**


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