



Research Topics Identified For Focus Area 1

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1. Developing an inventory of models and identifying the best tools to explain the various environmental, societal and other macro-level factors influencing nutrition. This inventory can guide further analyses of macro-micro linkage and guide policies; particularly factors affecting the double burden of malnutrition.

Malnutrition is an outcome of a multitude of factors which act and interact at macro-meso-micro levels. Although the frameworks for malnutrition today are reflective of such multi-level and multi-factorial nature, the analyses have not necessarily been adequate to demonstrate how these various factors come into action. Understanding macro-micro linkages are crucial for developing tools for policy formulation, impact evaluation and resource allocation, as well as for forging partnerships and alliances between government, civil society and the private commercial sector and to encourage participatory development within the context of decentralized administrative structures in today's world.

Research Gap 1

Modeling the impact of economic variables on health and nutrition outcomes using a nested model approach.

This would enable to **describe and connect the various elements of the chains that link food production to health**, requiring complex system methods such as computable general equilibrium approaches or dynamic micro simulation. There is a need to assess the strengths and weaknesses of these models, and how they link together using a nested model approach.

Research Gap 2

Developing appropriate **model-based analyses of supply/demand for high quality foods** (e.g. animal source foods, high vitamin A vegetables, etc.) and influence of prices, income, etc on the changes in individual consumption, supported by nested models where the outputs from one model become the inputs in the other.

Research Gap 3

Structuring multi-disciplinary alliances. There is a need to build a coalition including climate change researchers; scientists working on health system strengthening; economists evaluating the cost of the double burden and cost efficient interventions; environmental and urban engineers who must translate knowledge about the physical environment into new designs.

2. Economic and environmental trade-offs and co-benefits with policies to promote human nutrition.

Little change is likely without a clear understanding of the economic effects of a nutrition-oriented production model, including the costs and cost-effectiveness of meeting economic goals alongside nutrition goals, compared to business as usual. Similarly, foreign direct investments are not typically made with nutrition improvements as a goal; however, it is important to understand their impact on nutrition, health, and agriculture outcomes for the poor. Understanding the consequences of livelihoods shifts on nutritional status (such as from family farming to wage labor) would also be beneficial for rural development efforts. Effect of production policies on environmental resources is also related to nutrition.

Research Gap 4

How to describe the links between socio-economic status and nutritional status? What are the limitations in available data and current emphasis on averages that restrict the analysis, particularly to establish causality?

There is a knowledge gap in mapping out food insecurity, vulnerability to economic shocks and livelihoods characteristics (including shift from family farming to wage labor in agriculture) and their consequences for nutritional status. What are the differential effects of cash transfer programs in a context of food crisis on men and women, across countries and income percentiles? This would also entail some analysis and definition for the word "vulnerability": income (absolute or relative; using income gradients rather than cut-offs). In general,



data has been quite limited on intricacies of income levels, and many analyses deal with averages, which is limited in teasing out within-population differences.

Research Gap 5

What is the overall effectiveness of a nutrition-oriented food supply and food production model?

This question includes individual and national-level trade-offs to meet economic and production goals alongside nutrition goals, encompassing the measurement of costs, cost-effectiveness and overall effectiveness. How to develop evaluation frameworks that show effectiveness and cost effectiveness, feasibility and affordability, and allow for decision-making on 'good buys' and 'best buys' in terms of overall impact on health, not just economic factors.

Research Gap 6

How to measure economic trade-offs in terms of nutrition, and how can they be influenced?

For instance, what is the impact of investment, particularly foreign direct investment, on the nutrition and agricultural sector and on health outcomes? How to identify potential opportunities for double wins across sectors that come hand in hand with nutritional intervention, and reduce the risks of negative trade-offs?

3. Food System and Nutrition. The concept of food system refers to the production, processing and distribution mechanisms, through which a population obtains its food. These mechanisms are inter-connected at the local, national, regional and international levels so that any modifications may have repercussions on a population's dietary intake. Yet, the pathways and levels through which such changes affect nutrition are unclear. Differentiated adjustments in consumption patterns and substitution effects following a price change are not well understood. Similarly processing, storing, marketing and consumption patterns at home and outside impact the quality of the dietary intake in ways that are difficult to measure and also hard to influence. This gap in knowledge is a barrier to effectively guiding policies in terms of food production subsidies, consumption taxes and similar potential policy solution for malnutrition (both over- and undernutrition).

Research Gap 7

Analyzing the coherence of policies for nutrition goals alongside economic and environmental goals

What are the effects of government policies and subsidies for production, internal trade and import/export on both the supply and demand sides of the food system and the impacts on nutrition? Are dietary guidelines and recommendations economically viable and environmentally sustainable?

Research Gap 8

Commodities: Analyzing the various groups of commodities and how their production, processing, supply and distribution influence the population's nutritional status.

Sub-groups of commodities (livestock- including dairies- & Fisheries, Fruits & Vegetables, Staples & Sugar) have diverse nutritional benefits along with environmental, production and distribution constraints. There is a need to explore how their interactions as well as relative importance in the population's diet have an impact on nutritional status. This would help determine how food production and nutritional recommendations formulated by policy makers to consumers can be better aligned.

This research gap includes a set of interconnected questions:

8-1: How to evaluate the impact of consuming each commodity group on the population's health and nutritional outcomes? What are the observed effects of different food commodity groups on health?

8-2: What are the effects of the changes and differences between commodity and food prices for each of the commodity groups on nutritional status (including substitution effects and differential impacts on various subgroups), in the short, medium and long term. What is the impact of trends in food commodity prices on health and nutrition in both the short and long terms?



8-3 What are the effects of marketing and distribution strategies for each of the commodity groups on nutritional status (in terms of accessibility and availability, including substitution effects and differential impacts on various subgroups), in the short, medium and long term?

8-4: How to integrate and carry out an independent, objective and robust evaluation of the effect of private sector initiatives in the field of nutrition? What are the mechanisms and effects of these initiatives on nutritional status and which approaches are most cost-effective and effective for improving nutrition?

Research Gap 9

Demonstrating the link between agricultural diversity and dietary diversity/quality in different ecosystems and country contexts, and supporting efforts to evaluate the nutritional (and phyto-chemical) content of crop varieties and cultivars

4. Individual and household-level factors underlying economic vulnerability and food insecurity

Research Gap 10

Is there an impact of various types of migration and migration status on the migrants' access to food, food choices and nutritional status?

Research Gap 11

How to connect women's empowerment (in terms of having the economic power to make decisions at the household level, as well as the role they play in agriculture and food production) with enhanced nutritional status for women and children? What is the state of the evidence and indicators to measure this complex construct?

Research Gap 12

In addressing the global nutrition transition, what are the determinants of changing dietary habits and food choices? How to identify incentives for economically vulnerable groups to spend the resources (including time) to obtain healthy diets?

5. Climate change, population trends and environmental sustainability

Research Gap 13

How to develop more integrated nutrition-centered approaches to predicting the effect of climate change on access to water, sanitation, and food production, accessibility, consumption and nutritional outcomes.

Research Gap 14

What are the most important shifts in the socio-demographic profile of the population at the global level (such as population growth, changes in fertility levels, age distribution, gender balance, urbanization) in the coming years and decades; and what are the expected consequences on nutrition?