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Session 1

Nutrition Challenges and Changing Food Systems: Global and National Perspectives

Agriculture for Nutrition: Getting Policies Right

Summary

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1) The past fifty years have been a period of extraordinary food crop productivity growth, despite increasing land scarcity and rising land values, largely due to the Green Revolution and more recently advances in biotechnology. Despite these massive gains in productivity and agricultural development, malnutrition has persisted across certain regions of the developing world. While southeast Asia has witnessed dramatic declines in undernourishment (insufficient calorie and protein intake), and micronutrient malnutrition, far less progress has occurred in much of Sub-Saharan Africa and South Asia. And more recently the emergence of over-nutrition (excess calories leading to obesity and overweight) has extended beyond Europe and North America, and is increasingly affecting middle and even some low-income countries. These challenges, and the changing landscape of health and nutrition problems can only be addressed through designing and implementing enlightened agricultural policies in association with complementary policies for improved health, water and sanitation and household behavior change.

2) Over the past decade, the health and nutrition community has coalesced around two concepts. The first is the early origins of disease, particularly the period in utero and the related concern over foetal programming leading to disease and reduced performance later in

life. The second is the idea of a critical period, roughly corresponding to the first two years, where the interaction of malnutrition and infection will have long-term deleterious affects over the life course. Many questions of the role of agriculture in redressing these problems remain. Our paper argues that while there is a critical role of food systems and agriculture in this regard, problems such as undernutrition in utero and childhood stunting are inextricably linked to interventions more broadly in the health sector, especially with an emphasis on vulnerable groups of young children and women of childbearing age, as well as improvements in care and nurturing which require efforts such as improving education, and empowerment of women in their roles as not only food producers, but as mothers and decision-makers.

3) In the specific domain of food systems and agricultural interventions, we would argue that there is still a great deal of work to orient policy and programmes driven by nutritional goals, particularly with a focus on rural women and children. More specifically, we need to better understand and establish pathways between agricultural interventions and nutritional outcomes, particularly maternal malnutrition, childhood stunting, and micro-nutrient deficiencies. We argue that the agriculture-nutrition pathway can expand rural incomes and enable relative food affordability, increase farm productivity and expand calorie access and reduce poverty, and generate access to a diversity of micronutrient-dense foods through on-farm diversification and links between farmers and markets. We introduce a typology of agricultural systems that reflect the particular stage of agricultural development and highlight the necessary agricultural initiatives capable of impacting micronutrient malnutrition, undernutrition, and overnutrition. Our typology includes subsistence agriculture systems, such as those prevalent in Sub-Saharan Africa, intensive cereal crop systems, primarily found in Asia, and commercial/export-oriented systems, typically seen in Latin America.

4) Subsistence agricultural systems include those that experienced little or none of the staple-crop productivity gains experienced during the Green Revolution (GR). In Africa, much of the GR strategy was inappropriate for the region and GR-targeted crops tended not to be foods eaten or commonly produced in the region. Likewise, new technologies did not fully account for the paramount need of the food systems to generate employment and stable incomes for the rural poor. These technologies often overlooked key concerns, such as limited exposure to risk, or seasonal labor constraints that both limit adoption of new technologies, and their benefits. As a consequence, many sub-Saharan countries are characterized by high rates of poverty, low agricultural productivity, and high rates of hunger and micronutrient malnutrition. Productivity growth and basic research and development (genetic improvements, biofortification, extension efforts, etc.) for the foods commonly produced and consumed by the poor remain a critical priority for increasing the local food supply and rural income opportunities.

5) The focus of R&D for subsistence systems need to be extended to traditional African food crops, such as millets, sorghum, cassava and other roots and tubers which have often

been ignored by research and development agencies. These crops can provide high levels of some essential micronutrients (e.g, iron). Rapid growth in population makes several parts of sub-Saharan Africa conducive to investments in intensification. The challenge however is to promote sustainable intensification based on crops (and livestock) that are important to the food systems of the poor rather than crowding them out, as happened during the Green revolution in Asia. Identifying policies that promote crop-neutral intensification, i.e., providing the conditions for yield enhancement, while maintaining crop and food system diversity, ought to be a priority for these countries. Since women are the primary food producers in sub-Saharan Africa, identifying opportunities for reducing the labor burden in pre and post harvest operations would contribute significantly to their health. Likewise, agricultural systems, and related labor demands, need to be designed to discourage the use of child labor and reduce the likelihood that children leaving school, even seasonally, since temporary absences usually lead to permanent withdrawal.

6) Given the continued importance, and the large share of staple crops in the diets of the poor, identifying mechanisms for enhancing the micronutrient density of grains through bio-fortification can potentially be a high return strategy. The work that is ongoing through HarvestPlus with respect to Vitamin A and other micronutrient enhancement holds enormous promise for tackling micronutrient deficiencies. For example, in the case of orange-fleshed sweet potato, early results indicate significant gains in Vitamin A intake among children in Mozambique and Uganda.

7) Countries, that did experience strong productivity gains in staple crops, described here as intensive cereal systems, have succeeded in increasing staple food crop supply and expanding smallholder incomes as well as off farm employment opportunities, particularly in the processing and marketing of crops. However many of these countries have seen a significant drop in the cultivation of traditional micronutrient-rich crops, such as lentils and pulses. The relative price of animal source foods, beans and fresh vegetables and fruit is high and deters diversification of diets of the poor. Sustained investments in productivity growth and diversification out of staple cereals towards micronutrient dense foods remains an area of agricultural policy that can have a direct impact on the availability (supply) and affordability of dietary diversity. Much of this diversification away from cereal crops requires policy attention in infrastructure and extension as well as market-access. We highlight the policy opportunities and evidence for pro-poor integration of smallholders and domestic/global markets through modern food value chains and various public-private partnerships. Similarly, we discuss how such policies can help create and promote forward and backward economic linkages that provide off-farm employment opportunities in rural areas. Meanwhile, kitchen gardens and backyard livestock production remain critical areas of policy promotion and we provide examples of successful implementation in south Asia and elsewhere.

8) Our third typology includes countries with growing commercial/export-oriented systems, including much of Latin America and high-growth areas in Asia. These systems have made measurable gains in average productivity, average household income, and other

aggregate welfare indicators, and yet high levels of inequality between sectors, regions, and demographic groups often characterize these systems. In fact, some of these lagging pockets and sectors may require interventions similar to those previously described for subsistence systems or intensive crop cereal systems. We focus on such efforts to target these lagging areas and sectors and review initiatives undertaken in emerging commercial and export powerhouses like Brazil and Peru, as well as areas in Asia, such as those populated by ethnic minorities in rural areas of China who have largely been left behind by the economic transformation that has lifted much of the country out of poverty.

9) We also highlight policy efforts to curb rising obesity and overnutrition levels that is observed in many of these commercializing systems. Sedentary life-styles, changing preferences and time constraints associated with urbanization are contributing to increased consumption of processed and packaged foods, with implications for obesity/overweight malnutrition. By the same token, however, modern food value chains and food manufactures are also contributing to reducing micronutrient deficiencies by offering a wide assortment of products year-round for a diverse diet, but often only for urban households with relatively high incomes. In our paper we emphasize that there is considerable opportunity for modern value chains to play a positive role by providing year-round access to micronutrients and facilitating dietary diversity through fortified-food offerings for the rich and poor alike. However, there is a need for creative efforts to achieve this goal, including dealing with elevated product standards and quality parameters, and physical locality that often make these foods unattainable and unattractive for poor consumers. The increased demand for inexpensive processed and packaged foods, however, especially among the poor, is not limited to the role of urban supermarket retailers; increasingly, foods high in fat, sugar and salt are available in traditional markets, roadside stands and vendors, and corner stores in both urban and peri-urban areas, as well as remote and rural towns and villages. We look at policy efforts that promote access to dietary diversity, including distribution and safety net programs, as well as upgrading of local (traditional) markets, and partnerships with food manufactures to promote food fortification and micronutrient access.

10) Following this discussion on agriculture-nutrition policy efforts, we provide a brief review of necessary complimentary policies, including efforts directed at labor-saving technologies and more generally labor market policies that focus on the needs of rural women and children. We also briefly discuss rural development efforts around access to clean water, access to toilets and sanitation education. Without these policy priorities, intestinal inflammation and infection due to water contaminated with worms, parasites, viruses and bacteria can lead to sickness and partial or complete mal-absorption of essential nutrients or calories, in addition to life-threatening dehydration. Efforts to influence behavior change and intra-household allocation are also briefly described. We conclude this paper by discussing key agricultural policy recommendations for tackling nutrition challenges within the various agricultural systems described.