

Global, Regional, and National Trends in Agriculture, Nutrition, and Health

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Overview

Agricultural development has traditionally focused on raising productivity and maximizing production of cereals. In this regard, the world’s farmers and farming systems have made enormous advances, multiplying cereal production several times over in the past half century. Yet hunger, malnutrition, and poor health remain widespread and persistent problems. Nearly 1 billion people still go hungry, and billions more are malnourished. The food price crisis of 2007–08—and more recent increases in food prices—shows just how vulnerable the global food system is to disruptions related to weather and government policies. At the same time, agriculture faces a number of challenges in the coming decades, including growing population, climate change, water scarcity, land degradation, urbanization and changing diets, rising energy costs, and natural disasters. Looking ahead, agriculture faces the task of contributing to food security, nutrition, and good health for a rising number of people, globally.¹

Agriculture, nutrition, and health are clearly linked together in important ways, yet the three sectors rarely work together to reach their common goal of improving human well-being. This summary note (1) identifies the global nutrition and health challenges, (2) explores the complex linkages between the sectors, (3) provides action steps that emerged from the 2020 Delhi Conference on “Leveraging Agriculture for Improving Nutrition and Health”², and (4) explores how these findings can be applied at the country level in Malawi.

Global nutrition and health faces many challenges³

Global progress in improving food security in recent years has been substantial, but not sufficient. Significant advancements have been made in reducing hunger through intensifying staple food production, diversifying out of major cereals, reforming economy-wide policies, and improving food quality and human nutrition in the past five decades.⁴ However, much remains to be done. The number of people suffering from undernutrition had been on a steady upward track since the mid-1990s, sharply climbing to more than 1 billion in 2009—largely due to the food and financial crisis—before falling to 936 million in 2010.⁵ Asia is home to the highest number of undernourished while Sub-Saharan Africa has the highest prevalence of undernutrition. According to the 2010 Global Hunger Index—a combined

¹ IFPRI. 2011. *Highlights from an International Conference*. Proceedings from IFPRI 2020 Conference “Leveraging Agriculture for Improving Nutrition and Health” on February 10-12, New Delhi.

² <http://2020conference.ifpri.info/>

³ This section draws upon: Fan, S. and R. Pandya-Lorch. 2011. “Leveraging Agriculture to Improve Nutrition: Challenges and Opportunities.” Paper prepared for International Conference on Food and Nutrition, Beijing, China, September 10-11, 2011.

⁴ Spielman, D. and R. Pandya-Lorch. 2009. Millions Fed: Proven successes in agricultural development. Washington, DC: IFPRI.

⁵ Food and Agricultural Organization (FAO). 2010. State of food insecurity in the world 2010. Rome: FAO.

measure of the proportion of undernourishment, child malnutrition, and child mortality—global hunger has improved only slightly since 1990 and 29 countries have “alarming” or “extremely alarming” levels of hunger.⁶ Malawi has made progress from “extremely alarming” in 1990 to “serious” in 2010, which although a significant improvement, still indicates the need for new strategies to tackle this issue. At the same time, a number of developing countries have been struggling with a rapid rise in overweight and obesity among their population (especially in urban areas). In fact, recent estimates indicate that 35 million out of the world’s 42 million overweight children under the age of five live in developing countries.⁷

Deficiencies in important micronutrients such as vitamin A, iron, and zinc are prevalent. Hidden hunger has the potential both to weaken the mental and physical development of children and adolescents—resulting in lower IQ, stunting, blindness, and increased risk of illness and mortality from infections—and to reduce the productivity of adults due to illness and reduced work capacity. An estimated 2 billion people in the world are anemic. The economic cost of micronutrient deficiencies has been estimated to be 2.4-10% of GDP in many developing countries.⁸ As a result, many regions in the world have been in downward spiral of low agricultural productivity, low income, increased poverty, and even worse nutrition and health.

Agriculture presents a key opportunity for improving nutrition and health

Past development experiences have shown that the agricultural sector has been the engine of growth in many countries and that a successful economic transformation vitally depends on agricultural development and increased agricultural productivity, especially during the initial stages of a country’s development. In fact, a number of studies have found that growth originating from agriculture is often more effective at reducing poverty than growth in other sectors, such as industry and services.⁹

Now the question is to what extent agricultural growth—and growth in particular subsectors of agriculture—can be a springboard for nutritional improvement through such channels as increased agricultural production, lower and less volatile food prices, increased household income, and increased government revenue to finance investments in health, education, rural infrastructure, and nutrition intervention programs. At the same time, it should be acknowledged that agricultural intensification could have a negative impact on health and nutrition through the (inappropriately) high use of modern inputs (including fertilizers, pesticides, and herbicides) and irrigation practices and a reduction in women’s time for childcare.

Although empirical evidence on the nutritional impacts of agricultural growth is limited, agricultural growth, in particular, has been shown to be associated with a reduction in stunting among children in

⁶ von Grebmer, K., M. T. Ruel, P. Menon, B. Nestorova, T. Olofinbiyi, H. Fritschel, Y. Yohannes, C. von Oppeln, O. Towey, K. Golden, and J. Thompson. 2010. *Global Hunger Index: The Challenge of Hunger: Focus on the Crisis of Child Undernutrition*. Bonn, Washington, DC, and Dublin: Deutsche Welthungerhilfe, IFPRI, and Concern.

⁷ de Onis, M., M. Blössner, and E. Borghi. 2010. “Global prevalence and trends of overweight and obesity among preschool children.” *American Journal of Clinical Nutrition* 92:5 (1257-1264).

⁸ For summary of studies, see Stein, A and M. Qaim. 2007. “The human and economic cost of hidden hunger.” *Food and Nutrition Bulletin* 28 (2): 125-134.

⁹ See for example Christiaensen, L., L. Demery, and J. Kühl. 2006. Role of agriculture in poverty reduction: An empirical perspective. World Bank Policy Research Working Paper 4013. Washington, DC: World Bank; de Janvry, A., and E. Sadoulet. 2009. “Agricultural Growth and Poverty Reduction: Additional Evidence.” *World Bank Research Observer* 25 (1): 1–20; and Pratt, A., and X. Diao. 2008. “Exploring growth linkages and market opportunities for agriculture in Southern Africa.” *Journal of Economic Integration* 23(1): 104–137.

agrarian countries, with the exception of India.¹⁰ Moreover, agricultural growth is positively and significantly linked with calorie intake (especially at lower levels of calorie consumption), although evidence from the analysis also suggests that the effect on dietary diversity is greater for nonagricultural growth. Furthermore, in the long run, a pro-nutrition growth strategy, which places emphasis on poverty reduction and improvements in education and health outcomes, has the capacity for larger and more sustainable reductions in undernutrition than targeted nutrition interventions (such as supplements and training programs), which are more beneficial in the short run. This finding underscores the need to integrate policies and programs to reduce undernutrition across different sectors and ministries. Furthermore, evidence indicates that the impact of agricultural growth is variable across different measures of undernutrition.¹¹

The type of agricultural growth that takes place also matters a great deal for nutrition. In Tanzania, for example, high agricultural growth has done little to improve nutrition because it was driven primarily by crops that poor people were less likely to grow.¹² Experience has shown that growth in staple crops contributes more to poverty reduction and calorie intake than does growth in export crops because poor farmers often lack the financial resources and technologies required to grow export crops.¹³

In the long term, the best way to conquer malnutrition is to promote a nutrition-sensitive growth strategy. Such a strategy could increase demand for and access to nutritious foods all along the value chain, mitigate the health and nutrition risks associated with agriculture, and breed more nutritious varieties of staple food crops consumed by poor people. It could promote diversification of agriculture into nutritious and high-value products like dairy, horticulture, and fish, which offer great potential for small farmers because they are land saving and labor intensive. Public support systems for agriculture, like credit and extension programs, should be made to work better for women farmers. A more diverse and productive agricultural system will in turn accelerate growth in the rural nonfarm sector, in areas like agroprocessing. Investments in rural infrastructure could help ensure that this growth can take place and will contribute to better nutrition. It is important to remember, however, that a growth strategy must be accompanied by investments in safety nets and education, nutrition, and health programs so that the poorest people are not left behind.¹⁴

Building a multi-sectoral agenda

In 2011, IFPRI organized an international conference in New Delhi on “Leveraging Agriculture for Improving Nutrition and Health”¹⁵ that brought together approximately 1,000 stakeholders to examine how agriculture could be energized to become a more powerful tool to tackle the persistent problems of food insecurity, malnutrition, and poor health. Four essential building blocks for nutrition-and health-friendly, agricultural development agenda emerged from these conference discussions:¹⁶

¹⁰ D. Headey. 2011. “Pro-Nutrition Economic Growth: What Is It, and How Do I Achieve It?” 2020 Conference Brief 6. Washington, DC: IFPRI.

¹¹ O. Ecker, C. Breisinger, and K. Pauw. 2011. “Linking Economic Policy to Nutrition Outcomes: Applications to Yemen and Malawi.” 2020 Conference Brief 7. Washington, DC: IFPRI.

¹² K. Pauw and J. Thurlow. 2010. Agricultural Growth, Poverty, and Nutrition in Tanzania. IFPRI Discussion Paper 947. Washington, DC: IFPRI.

¹³ Diao, X., A. Nin Pratt, M. Guatam, J. Keough, J. Chamberlin, L. You, D. Puetz, D. Resnick, B. Bingxin. 2006. Ethiopia: Growth options and poverty reduction. Issue brief 45. Washington, DC: IFPRI.

¹⁴ IFPRI. 2011. *Highlights from an International Conference*. Proceedings from IFPRI 2020 Conference “Leveraging Agriculture for Improving Nutrition and Health” on February 10-12, New Delhi.

¹⁵ For more information see <http://2020conference.ifpri.info/>

¹⁶ IFPRI. 2011. *Leveraging Agriculture for Improving Nutrition and Health: The Way Forward*. Washington, DC: IFPRI.

Fill the knowledge gaps

Agricultural growth plays an important role in improving nutrition. However, in order to design effective policies, further research is needed to understand how much and what type of agricultural growth is best for nutrition. To generate evidence about different strategies, monitoring and evaluation of small-scale projects should be undertaken.

Building up governance knowledge is also imperative. Research is needed to address how governance tools- policies, investments, and regulations- at the global, national, and community level can be harnessed to maximize synergies between sectors. In addition, it is critical that an effort be dedicated towards building greater awareness, commitment, and financial investment for nutrition programming in the policy agenda, where nutrition often goes unrecognized. Effective leadership plays a key role in championing this cause and encouraging different sectors to work together.¹⁷

In order to build up this knowledge base, research, evaluation, and education systems should integrate information from across sectors. Research and evaluation tools should include a nutrition dimension. University programs should encourage multi-disciplinary approaches for both students and faculty. In addition, donors, governments, and educational institutions need to provide the financial and professional incentives to bring on this approach.

Do no harm

In order to minimize risk and maximize benefits, programs and policies should be designed that integrate agriculture and nutrition linkages. For example, nutrition interventions, like home-based gardens, improve household nutrition and raise agricultural production. While agricultural subsidies are implemented with the goal of helping people acquire food, in the long-term, subsidies can lead to distorted consumption choices and discourage public investment. For this reason, subsidies should be implemented only with careful analysis of potential consequences on people's nutrition.

Seek out and scale up innovative solutions

Some interventions that address the goals of both sectors have already been implemented on the project and country level. Policymakers and practitioners should draw from these case studies to find opportunities for adapting and scaling up successes in different contexts and to learn from failures.

Programs should also be designed with cross-sectoral benefits. For example, biofortification of staple crops can improve nutrition and improve farmers' agriculture production.¹⁸ Gender-sensitive programs that recognize women's roles in the household and in agricultural production can improve nutrition outcomes.¹⁹

Opportunities for enhancing nutrition should be identified across the entire value chain.²⁰ While agriculture traditionally aims to increase food production to improve nutrition, this approach looks for opportunities from the inputs of production to processing to marketing. For example, improvements in

¹⁷ Benson, T. 2011. Cross-sectoral coordination in the public sector: A challenge to leveraging agriculture for improving nutrition and health. 2020 Conference Brief 10. Washington, DC: IFPRI; Mwadime, R. 2011. Accelerating national policymaking across sectors to enhance nutrition. 2020 Conference Brief 12. Washington, DC: IFPRI; Namugumya, B. 2011. Advocacy to reduce malnutrition in Uganda: Some lessons for Sub-Saharan Africa. 2020 Conference Brief 11. Washington DC: IFPRI.

¹⁸ Bouis, H. and Y. Islam. 2011. Biofortification: Leveraging agriculture to reduce hidden hunger. 2020 Conference Brief 19. Washington, DC: IFPRI.

¹⁹ Meinzen-Dick, R., J. Behrman, P. Menon, and A. Quisumbing. Gender: A key dimension linking agricultural programs to improved nutrition and health. 2020 Conference Brief 9. Washington, DC: IFPRI.

²⁰ Chenevix Trench, P., C. Narrod, D. Roy, and M. Tiongco. 2011. Responding to health risks along the value chain. 2020 Conference Brief 5. Washington, DC: IFPRI.; Hawkes, C. and M. Ruel. 2011. Value chains for nutrition. 2020 Conference Brief 4. Washington, DC: IFPRI.

transportation and storage can significantly reduce postharvest loss and deterioration of nutritional quality of foods. As a result, producers benefit from higher incomes and consumers can more easily access affordable and nutritious foods.

To bring about these systematic changes, it is important to use all available levers. Science and technology levers, as well as economic, social, and governance levers, are important for maximizing agriculture's contribution to nutrition.

Create an environment in which cooperation can thrive

Building partnerships between sectors and stakeholders is critical for achieving nutrition goals. However, making this change will require a concentrated effort. Professionals across sectors need to move away from jargon, which discourages clear communication, and work towards developing a common language. This effort should start with training and education programs that engender the tools for multi-disciplinary work.

Stakeholders, including governments, farmers, civil society organizations, researchers, and the private sector, all can contribute unique expertise and knowledge to reach this common goal. In order to maximize positive impacts, it is important to promote openness and transparency as well as develop clear stakeholder guidelines and responsibilities. Leaders across all fields should create incentives and tools to facilitate greater collaboration. In addition, governments have the obligation to monitor and regulate the market to ensure that nutrition goals are not being compromised.

Communication and advocacy across all levels is a critical part of building nutrition security. These tools can build much needed awareness and interest in the linkages and stimulate action and investment to solve these issues.

Translating findings to the regional-and country-level

Given the complex relationship between agriculture, nutrition, and health, there is an urgent need to examine how global recommendations can be adapted to the regional and country level. Sub-Saharan Africa's renewed commitment to agriculture over the past decade is an opportune moment to redefine the agriculture, health, and nutrition paradigm as well as presents unique development challenges. Government expenditure in agriculture in the region has more than doubled between 2000 and 2005.²¹ Promising initiatives demonstrate the growing recognition of the importance of the agriculture for economic development and poverty reduction. Under the 2003 Maputo Agreement, Africa Union Heads of State and Governments implemented the Comprehensive Africa Agriculture Development Program (CAADP), which aimed to achieve 6 percent annual agricultural growth in the region. Member countries also agreed to allocate 10 percent of their budget to the agricultural sector. As of 2008, however, only 8 reporting countries (Burkina Faso, Ethiopia, Ghana, Guinea, Malawi, Mali, Niger, Senegal) have actually met or surpassed this goal while 9 countries reached expenditure shares between 5 and 10 percent, and 28 others allocated less than 5 percent.²²

While these initiatives to boost agricultural growth show promise for poverty alleviation, as indicated earlier in this note, these alone are not sufficient to improve nutrition and health status. Non-growth strategies can have an important role in strengthening the linkages, but have long been underdeveloped

²¹ Fan, S., B. Omilola, and M. Lambert. 2009. Public Spending for Agriculture in Africa: Trends and Composition. ReSAKSS Working Paper No. 28. Washington, DC: IFPRI.

²² Omilola, B., M. Yade, J. Karugia, and P. Chilonda. 2010. Monitoring and Assessing Targets of the Comprehensive Africa Agriculture Development Programme (CAADP) and the First Millennium Development Goal (MDG) in Africa. ReSAKSS Working Paper No.31. Washington, DC: IFPRI.

in the region. Agricultural research and development (R&D) can significantly improve agricultural productivity as well as reduce poverty through increased innovation, but 70 percent of spending remains concentrated in just a handful of Sub-Saharan African countries.²³ The region also lags behind other global regions in terms of investment in infrastructure, specifically transportation and telecommunication, which can contribute significantly to growth and poverty reduction.²⁴ However, the opportunities and challenges for improving nutrition and health vary between countries. This calls for careful adaption of policies and program to the national and even local context to minimize costs and maximize results.

Along these lines, IFPRI's Malawi Office and its 2020 Vision Initiative, in collaboration with the Ministry of Agriculture and Food Security and supported by USAID and Irish Aid's offices in Malawi, organized the conference "Unleashing Agriculture to Improve Health and Nutrition in Malawi" on September 26-27, 2011. The conference focuses on how agricultural strategies can be tailored to the Malawian context and result in greater improvements for nutrition and health.

Malawi has demonstrated long-term commitment towards promoting nutrition and health-friendly policies and programs. Over the past decade, Malawi has made significant progress in reducing malnutrition. However, stunting still remains high at 47.8 percent.²⁵ In its continuing efforts toward eradicating malnutrition, Malawi has been one of the first countries to support the Scaling Up Nutrition (SUN) initiative and endorse the SUN Framework, an emerging worldwide drive supported by more than 100 entities that aims to increase investment and the scope of action in nutrition as a key to the achievement of the Millennium Development Goals. In June 2011, the first lady of Malawi helped to launch the country's own movement "SUN 1000 Special Days." The goal of the national movement is to eliminate stunting in Malawi by focusing on children's first 1000 days, which are critical as they determine whether children can achieve their full potential for cognitive development (UNICEF Media Center). At Malawi's SUN launch event, the National Nutrition Education and Communication Strategy for preventing child stunting was launched, which will enhance the implementation of the movement.

Malawi also implemented an agricultural program that has led to improvements in household productivity, nutrition, and health. Started in 2005, the Farm Input Subsidy Program (FISP) aims to increase small-holder production and improve food and nutrition security by providing targeted, poor households with vouchers for fertilizer, hybrid seeds, and pesticides. As a result of the program, the government estimates that smallholder maize output has increased from 1.3 million tonnes in 2004-05 to 3.66 million tonnes in 2009-10, leading to large maize surpluses.²⁶ However, further research on recipient selection as well as increasing the availability of diverse types of crops to ensure that the program achieves the greatest possible impact on nutrition and health are necessary.²⁷

Conclusion

As the world faces increasing challenges—including rising food prices, climate change, and threats of water scarcity—countries like Malawi urgently need to take steps to uncover how to maximize the

²³ Beintema, N. and G. Stads. 2011. African Agricultural R&D in the New Millenium: Progress for Some, Challenges for Many. ASTI Food Policy Report. Washington, DC: International Food Policy Research Institute.

²⁴ Fan, S., B. Omilola, and M. Lambert. 2009. Public Spending for Agriculture in Africa: Trends and Composition. ReSAKSS Working Paper No. 28. Washington, DC: IFPRI.

²⁵ Data from 2010 Demographic Household Survey.

²⁶ African Development Bank Group. 2011. Malawi Interim Country Strategy Paper (ICSP) 2011-2012.

²⁷ Chibwana, C. and M. Fisher. 2011. The impacts of agricultural input subsidies in Malawi. Malawi Strategy Support Program (MaSSP) Policy Note #5. Washington, DC: IFPRI.

linkages between nutrition and agriculture. First, more research is needed to explore the current and future challenges and opportunities Malawi will face in the coming years in linking agriculture, nutrition, and health and particularly focus on the role of agricultural growth. Second, focus should be on reaching out across sectors and stakeholder groups to build up knowledge, create networks, and enhance awareness. Finally, and most importantly, governments, civil society, and private sector should draw from global, regional, and national case studies and scale up their investments in nutrition-and health-friendly agricultural policies and projects.