

LEARNING FROM WORLD BANK HISTORY

Agriculture and Food-Based Approaches for Addressing Malnutrition

WORLD BANK REPORT NUMBER 88740-GLB



Public Disclosure Authorized

Public Disclosure Authorized

Public Disclosure Authorized

Public Disclosure Authorized

LEARNING FROM WORLD BANK HISTORY

Agriculture and Food-Based Approaches
for Addressing Malnutrition

WORLD BANK REPORT NUMBER 88740-GLB



AES
Agriculture and
Environmental Services



WORLD BANK GROUP

© 2014 The International Bank for Reconstruction and Development/The World Bank

1818 H Street NW
Washington, DC 20433
Telephone: 202-473-1000
Internet: www.worldbank.org
Email: feedback@worldbank.org

All rights reserved

This volume is a product of the staff of the International Bank for Reconstruction and Development/The World Bank. The findings, interpretations, and conclusions expressed in this volume do not necessarily reflect the views of the Executive Directors of The World Bank or the governments they represent.

The World Bank does not guarantee the accuracy of the data included in this work. The boundaries, colors, denominations, and other information shown on any map in this work do not imply any judgment on the part of The World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

Rights and Permissions

The material in this publication is copyrighted. Copying and/or transmitting portions or all of this work without permission may be a violation of applicable law. The International Bank for Reconstruction and Development/The World Bank encourages dissemination of its work and will normally grant permission to reproduce portions of the work promptly.

For permission to photocopy or reprint any part of this work, please send a request with complete information to the Copyright Clearance Center, Inc., 222 Rosewood Drive, Danvers, MA 01923, USA, telephone: 978-750-8400, fax: 978-750-4470, <http://www.copyright.com/>.

All other queries on rights and licenses, including subsidiary rights, should be addressed to the Office of the Publisher, The World Bank, 1818 H Street NW, Washington, DC 20433, USA, fax: 202-522-2422, e-mail: pubrights@worldbank.org.

Cover Photo: Bart Verweij/World Bank. Laos.

CONTENTS

Preface	v
Acknowledgments	vii
Abbreviations and Acronyms	ix
Executive Summary	xi
Chapter 1: Introduction	1
Chapter 2: Addressing Malnutrition over Time: The Relationship of Nutrition to Food and Agriculture	3
Chapter 3: Emergence of Nutrition as a Science and Its Initial Approach (1900–60s)	5
3.1 General Trend	5
3.2 Nutrition at the Bank up to the 1960s	6
3.3 Agriculture at the Bank up to the 1960s	6
Chapter 4: The Food Shortage Era (1960s–70s)	7
4.1 General Trend	7
4.2 Nutrition at the Bank 1960s–70s	8
4.3 Agriculture at the Bank 1960s–70s	9
Chapter 5: Multisectoral Nutrition Planning and Integrated Rural Development (1970s–80s)	11
5.1 General Trend	11
5.2 Nutrition at the Bank 1970s–80s	12
5.3 Agriculture at the Bank 1970s–80s	13
Chapter 6: Nutrition Isolationism and Era of Low Global Food Prices (1980s–2008)	15
6.1 General Trend	15
6.2 Nutrition at the Bank 1980s–2008	17
6.3 Agriculture at the Bank 1980s–2008	19
Chapter 7: Twin-Track Agenda: Nutrition-Specific Interventions and Nutrition-Sensitive Development Amid High Investment in Agriculture (2008–Present)	23
7.1 General Trend	23
7.2 Nutrition at the Bank 2008–Present	25
7.3 Agriculture at the Bank 2008–Present	26

Chapter 8: Conclusion	29
8.1 What Has Been Tried?	29
8.2 Missing Factors: What Was Lacking to Develop Sustained Action and Ownership?	30
8.3 Need for a New Paradigm for Agriculture’s Role in Nutrition	32
8.4 Recommendations	33
8.5 Concluding Thoughts Based on the History of Addressing Malnutrition	39
Appendix A: The Role of the WBG Archives in the Review of Nutrition-Sensitive Agriculture Knowledge Product.	41
Appendix B: Projects That Have Addressed Nutrition through Agriculture	45
Appendix C: Samples of World Bank Guidelines on Addressing Nutrition through Agriculture	53
Appendix D: Evolution of Nutrition Placement at the World Bank	55
References	57
References from the World Bank Group Archives.	57
Other References	58
 BOXES	
Box 2.1: What Is Nutrition? How Has the Notion of Adequate Food Changed over Time?	3
Box 6.1: The Bank’s Nutrition Advisory Service: An Attempt to Facilitate Nutrition-Sensitive Action	18
Box 7.1: The Quality Protein Maize Story	24
Box 7.2: Nepal Agriculture and Food Security Project NAFSP: Funded by the Global Agriculture and Food Security Program, GAFSP	27
 FIGURES	
Figure 6.1: Causes of Malnutrition	17
Figure 6.2: World Bank Agriculture Lending Volume (in Nominal Million US\$) and Share of Agriculture in Total World Bank Lending (IDA and IBRD)	20
Figure 8.1: Food System Interventions for Better Nutrition (from FAO SOFA 2013)	38
 TABLES	
Table 2.1: Time Periods Used in This Paper to Represent Main Trends Related to Food and Nutrition	4
Table B.1: Examples of 17 Area Development (or Integrated Rural Development) Projects That Addressed Nutrition.	45
Table B.2: Examples of Nine AGSECALs Projects That Addressed Food Security (and in Some Cases Nutrition)	47
Table B.3: Examples of Other Projects That Addressed Nutrition through Agriculture or Rural Development Managed by Population, Human Resources, Urban, and Water Operations Departments.	48

PREFACE

Today, more than ever before, there is unprecedented awareness in the international development community that we need to tackle all forms of malnutrition: hunger, hidden hunger, and overweight and obesity. The latest data expose the challenges we face: 840 million people are hungry; more than 2 billion are micronutrient-deficient; and 1.4 billion are overweight or obese. Overcoming these staggering numbers demands a multisectoral and collaborative approach from households, communities, countries, and development organizations across the sectors that affect the lives of children and their families. More than 100 organizations and more than 50 countries have signed on to the Scaling Up Nutrition (SUN) movement in support of this approach. The World Bank Group is a proud SUN partner and our commitment to this agenda is evident in our increasing support to nutrition-sensitive and agricultural activities.

In 2011, three World Bank departments—Health, Nutrition, and Population; Agriculture and Environmental Services; and Poverty Reduction and Equity—launched the SecureNutrition Knowledge Platform to exchange experiences, to disseminate information, and ultimately to increase coordination, collaboration, and co-generation of knowledge on nutrition issues and interventions. The platform’s goal is to bridge some of the critical operational knowledge gaps that the development community faces in improving the nutrition of vulnerable populations through nutrition-sensitive agriculture and food security investments.

A distinguishing aspect of the SecureNutrition Knowledge Platform is its collaboration with the World Bank Library and Archives of Development team, which has resulted in this report: *Learning from World Bank History: Agriculture and Food-Based Approaches for Addressing Malnutrition*.

This summary of how the nutrition and agriculture sectors of the World Bank have addressed agricultural and food-based approaches to nutrition from the 1960s to the present showcases the trove of resources available in the World Bank, and demonstrates how this deep well of information can inform the mainstreaming of nutrition in the World Bank’s agriculture operations.

The report makes four main recommendations that call for a new common global vision for enhancing agriculture’s role in improving nutrition, with measurable outcomes and targets; a level playing field in public agriculture support for nutritious foods; actions to create demand for nutritious and sustainable food; and more capacity for addressing nutrition through agricultural interventions. These actions will enhance agriculture’s contribution to eliminate malnutrition globally.

We believe that nutritional goals must be explicitly incorporated into the design and implementation of agricultural and rural development projects and policies. To do so, we need to close knowledge gaps and carefully plan sustainable solutions that address the challenges of macro- and micronutrient sufficiency and adequacy.

The SecureNutrition Knowledge Platform and research like this are an important step in the right direction.

Juergen Voegele

Senior Director

Agriculture Global Practice

World Bank

Timothy Evans

Senior Director

Health, Nutrition, and Population Global Practice

World Bank

Denis Robitaille

Director, Chief Information Officer

Operations and Knowledge

Information and Technology Solutions

World Bank Group

ACKNOWLEDGMENTS

This project was carried out in collaboration with staff of the World Bank Archives. (See appendix A describing the World Bank Group Archives and the collaboration efforts for this project.) Alan Berg, former Senior Nutrition Adviser of the World Bank from 1973 to 1995, advised on this project and gave the authors access to his personal historical documents.

Yurie Tanimichi Hoberg was the Task Team Leader, and the team included Anna Herforth, Monika Gutestam, Jeanne Kramer-Smyth, Aira Htenas, and Srilatha Shankar.

This paper benefited from interviews with Harold Alderman, Jock Anderson, Alan Berg, Lynn Brown, Christopher Delgado, Eileen Kennedy, Jim Levinson, Katherine Marshall, Nkosinathi Mbuya, Milla McLachlan, Judy McGuire, Iftikhar Mostafa, Per Pinstруп-Andersen, Bea Rogers, Meera Shekar, Paul Sommers, Robert Townsend, and Jeff Waage.

Technical comments were provided by Jock Anderson, Diego Arias, Alan Berg, Leslie Elder, Madhur Gautam, Jim Levinson, Jorge Muñoz, Per Pinstруп-Andersen, Andrea Spray, Robert Townsend, and Bert Voetberg.

ABBREVIATIONS AND ACRONYMS

AGR	Agriculture and Rural Development Department
AGRNU	Rural Development and Nutrition Division within the AGR
AGSECAL	Agricultural Sector Adjustment Loans
AVRDC	The World Vegetable Center
CAADP	Comprehensive Africa Agriculture Development Programme
CGIAR	Consultative Group on International Agricultural Research
CGP	Child Growth Promotion
CIAT	International Center for Tropical Agriculture
CIMMYT	International Maize and Wheat Improvement Center
CONASUPO	Mexico National Company for Popular Subsistence
CRP	CGIAR Research Program
CSA	Mauritania Agency for Food Security
CSB	corn-soy blend
CSM	corn soy milk
DfID	United Kingdom Department for International Development
FANTA	Food and Nutrition Technical Assistance Project
FAO	Food and Agriculture Organization
FY	Fiscal year
GFRP	Global Food Price Crisis Response Program
GAFFSP	Global Agriculture and Food Security Program
HCO	Human Capital Development and Operations Policy
HDD	Human Development Department
HDDS	Household Dietary Diversity Score
HDNHE	Health, Nutrition, and Population Team
HFIAS	Household Food Insecurity Access Scale
HH	Household
HHS	Household Hunger Scale
HNP	Health, nutrition, and population
HRO	Human Resources Development and Operations Policy
IBRD	International Bank for Reconstruction and Development
ICN2	Second International Conference on Nutrition
ICR	Implementation Completion Report
IDA	International Development Association
IEC	Information, Education, and Communication
IEG	Independent Evaluation Group

IFAD	International Fund for Agricultural Development
IFC	International Finance Corporation
IFPRI	International Food Policy Research Institute
IHME	Institute for Health Metrics and Evaluation
IITA	International Institute of Tropical Agriculture
IRIS	Integrated Records and Information System
ITSKI	Knowledge and Information Services
JCTC	Jamaica Commodity Trading Corporation
LAD	Library & Archives Development Team
LCIRAH	Leverhulme Centre for Integrative Research on Agriculture and Health
LSMS	Living Standards Measurement Study
M&E	Monitoring and Evaluation
MDGs	Millennium Development Goals
MTR	Mid-term Reviews
NAFSP	Nepal Agriculture and Food Security Project
NARS	National Agricultural Research System
NGO	Nongovernmental Organization
OED	Operations Evaluation Department
PHN	Population, Health, and Nutrition Department
PHRHN	Population, Health, and Nutrition Division
PIDER	Mexico Integrated Rural Development Project
PMU	Project Management Unit
PNP	Population Projects Department
QBPRP	China Qinba Mountains Poverty Reduction Project
QPM	Quality Protein Maize
REACH	Renewed Efforts Against Child Hunger and Undernutrition
SAFANSI	South Asia Food and Nutrition Security Initiative
SARAS	South Asia Regional Assistance Strategy
SDA	Social Dimensions of Adjustment Program
SNKP	SecureNutrition Knowledge Platform
SNNPR	Ethiopia Southern Nations, Nationalities, and People's Region
SOFA	State of Food and Agriculture
SUDENE	Brazil Superintendency for the Development of the Northeast
SUN	Scaling Up Nutrition
T&V	Training and Visit
TINP	Tamil Nadu Integrated Nutrition Project
TTL	Task Team Leader
TVE	Town & Village Enterprise
UNICEF	United Nations Children's Fund
USAID	U.S. Agency for International Development
WBG	World Bank Group
WDR	World Development Report
WFP	World Food Programme

EXECUTIVE SUMMARY

Increasing the positive impact on nutrition from agriculture investments is a major area of interest in the international development community, including within the World Bank. This is not the first time, however, that the agenda of linking agriculture and nutrition has arisen. In 1973, World Bank President McNamara sought to change the World Bank's mission toward poverty reduction. As an integral part of the vision of poverty reduction, a nutrition department was initiated for the first time at the World Bank, concurrent with the addition of "rural development" to the existing agriculture department in the same year, 1973.

This review uses the World Bank Group Archives to present a summary on how agricultural and food-based approaches to nutrition have been addressed by the nutrition and agriculture sectors of the World Bank. The review is set within the larger political and intellectual context of the development community that influenced those decisions. The period covered is roughly from the 1960s to the present with more detailed analysis from the post-1973 period. From the historical review and lessons learned the paper presents concrete recommendations to contribute to the success of the current nutrition sensitive development approach in agriculture undertaken by the Bank and other development organizations including the Food and Agriculture Organization (FAO) and the International Fund for Agricultural Development (IFAD). Recommendations are identified for the World Bank and for the development community in general.

In the 1970s, both nutrition and rural development were just getting started at the Bank, as central to World Bank President McNamara's new poverty reduction agenda. Against the backdrop of the Green Revolution's success, rural development focused mainly on agriculture, and primarily on income generation and staple grain production of smallholder farmers to allay a global food shortage. Nutrition, meanwhile, was a new area for the Bank, under close supervision as it began with large multisectoral programs in a few countries. From the start, the fields of agriculture and nutrition differed in the degree to which they focused on food requirements for nutrition. Arguably, the difference was less pronounced in the 1970s, when the main food requirement was perceived to be dietary energy. Before anthropometric data were collected at national scales, malnutrition prevalence was estimated from food shortage, and therefore, agriculture's main mission to tackle food shortages would tautologically bring down estimated malnutrition rates. Even so, nutritionists remained unsettled about the lack of attention to distributional issues of increased food supply (Berg 1980).

In the 1980s, agriculture and nutrition parted ways significantly. With better nutrition monitoring and a more sophisticated understanding of causes of malnutrition, it became clear that while famines were likely averted, increased staple grain production was not solving the malnutrition problem. Attempts at multisectoral coordination had also been fraught with problems. Large multisectoral projects, such as integrated rural development projects, went out of favor at the Bank due to poor performance, and multisectoral nutrition planning units set up in developing countries were established but quickly abandoned after failing to generate political will for focusing on nutrition.

In the 1990s–2000s, the nutrition community moved toward a focus on direct nutrition interventions while agricultural investments became increasingly and almost singularly focused on productivity enhancement and market-led growth. Attention and funding to agriculture fell dramatically, amid high food stocks and low food prices, which led to lower rates of return on agricultural investment projects. Despite much rhetoric about food security, few food security operations took place. Agricultural projects in the Bank were under pressure to be simple

and focused (primarily on productivity), and the global nutrition community's attention was on specific interventions that would improve nutritional status directly, such as micronutrient supplementation, deworming, and breastfeeding.

Now, more than 5 years after the food price crisis in 2008, due to lingering concerns of a "new normal" in terms of higher food price volatility, food security remains high on the development agenda. Concomitantly, there is unprecedented political attention to nutrition amid strongly presented evidence and the SUN movement. Putting the two recent priorities together, there are many high-level discussions and commitments to "nutrition-sensitive agriculture" that present an opportunity for tangible policy actions.

Within the World Bank, attempts to link agriculture and nutrition since 1973 have not been altogether insignificant. There was no lack of guidelines, analytical work, and even staff support to advise on improving nutrition through agriculture projects. This review identified over 40 agriculture projects since 1973 that have explicitly included nutrition components, but lessons learned are scarce because nutrition was not a main project development objective of these projects; hence effects on dietary consumption or other aspects of nutrition were not measured. There was also, at times, high-level support from senior World Bank management. Nutrition was included in World Bank agriculture department strategies from 1997 to 2004, but these were not effectively translated into the establishment of an adequately budgeted "business line" or a new way of doing business within the agriculture department.

This review identifies key missing factors that have prevented consistent and core ownership of and action to address nutrition within agriculture. First and foremost is the *lack of clarity in vision*. There has been no well-articulated vision about what, operationally, agriculture can and should be accountable for regarding nutrition, and how such action is integral to agriculture's goals. This is strongly related to an *absence of targets for success and accountability* that make sense for agriculture. Nutritional status of young children has been the main preoccupation of the nutrition community, but indicators such as child stunting are affected by many factors outside of agriculture. The food security targets measured to date are primarily access to adequate calories and income. Agriculture has improved performance in these areas, but they are not sufficient indicators of access to adequate *nutritious* food. If agriculture is to respond to a problem different from lack of calories and income, then there is a need to collect and report data on the problem that needs to be solved. *Poor monitoring and evaluation* is one reason for another missing factor in this history. Virtually none of the World Bank projects that have partially attempted to address nutrition through agriculture actually monitored or measured nutritional or food security outcomes. They only measured supply side outcomes such as increase in production or yields. While the overall agriculture investment portfolio could have had significant aggregate effects on food security, dietary quality, nutritional status, and noncommunicable diseases, the effects have not been estimated. *Producer support at the crop-food group level is determined primarily by supply-side considerations* with little regard to the role of agriculture in providing required dietary consumption needs to sustain a healthy and active life.

These missing factors form the basis for recommendations to improve ownership of nutrition within agriculture going forward.

Recommendation 1: Establish a New Common Vision Globally for Agriculture's Role in Improving Nutrition, with Measurable Outcomes and Targets.

The proposed vision is that agriculture's primary role in improving nutrition is to improve access to *adequate diverse, nutritious food* for healthy and active lives—that is, to improve efforts to meet the full concept of food security (FAO 1996). We do not recommend that agriculture necessarily attempt to address all the determinants of nutritional status. Activities to improve health status and caregiving practices (also key determinants of nutrition) are *mostly* within the health, water, and sanitation sectors, and agriculture and agribusiness activities should explicitly avoid causing harm to health and caregiving practices. The focus of agriculture should be on ensuring access to adequate nutritious food for all people—that is, the "food" determinants of malnutrition—which will not be achieved by any other sector.

There is a need for this focus in agriculture because the food system has changed significantly since the 1970s, as has the prevalence of various forms of malnutrition, which is now understood as a “triple burden of malnutrition”: undernutrition, micronutrient deficiencies, and obesity and diet-related chronic diseases. Poor diets affect half the world’s population, including 2 billion with vitamin and mineral deficiencies, and 1.5 billion overweight or obese. Diabetes is rising fastest in Africa (International Diabetes Federation 2013). Poor diets are widespread among all wealth categories, meaning that higher income does not necessarily ensure access to affordable nutritious diets. Diets low in fruits, legumes, vegetables and whole grains are the top cause of years of life lost in developing countries and worldwide (IHME 2013). The *food shortage* paradigm, appropriate in the 1970s, no longer fits today’s data, which show stronger evidence of a *nutritious food shortage*. Additionally, food processing and marketing practices have increased access to ultra-processed “junk” foods at the same time nutritious food availability is constrained.

PROPOSED KEY ACTIONS

Global Development Community

1. Ensure that the new post-2015 framework moves beyond hunger as defined only by inadequate calories, toward a more holistic goal, targets, and indicators for “access to adequate food”—meaning consistent access to diverse, nutritious diets.
2. Further develop appropriate metrics of access to and consumption of adequate nutritious food, and monitor them.*
3. The Scaling Up Nutrition movement, the Global Panel on Agriculture and Food Systems for Nutrition, the Second International Conference on Nutrition (ICN2) accountability framework, the Renewed Efforts at Child Hunger and Undernutrition (REACH), and other partners need to develop a harmonized and aligned vision, targets, and indicators for interactions with stakeholders.
4. Build a community focused on nutrition within agricultural technical agencies (FAO, IFAD, WFP, and so on) to strengthen ownership.

World Bank Group

1. Conduct analytical work and collaborate with other technical agencies on indicator* development through the research department (for example, in the Living Standards Measurement Study (LSMS), the South Asia Food and Nutrition Security Initiative (SAFANSI), or SecureNutrition).
2. Monitor access to adequate nutritious diets in food security projects.
3. In agriculture projects, systematically include health impact assessments that can identify health hazards and risks (for example, water quality, vector-borne disease risks), and develop cost-effective mitigation methods.
4. In International Finance Corporation (IFC) loans, explore the development of appropriate standards based on public health risks of food products that are supported through IFC financing.
5. Explore “food systems strengthening” through results-based financing based on targets for the indicators developed.* Learn from experience of the health sector in health systems strengthening.
6. Include a nutrition lens in standard agriculture sector policy review and dialogue and expenditure reviews to clarify nutrition consequences of large-scale production or consumption subsidy programs.
7. Support requests by regional or national initiatives such as the Comprehensive Africa Agriculture Development Programme (CAADP) in Africa in developing an operational planning for nutrition sensitive agriculture.

Note: *Examples of indicator types include the following: (1) Availability and affordability of nutritious food, indicated by relative prices of dietary food groups at national and local market levels; (2) Dietary quality; (3) Sustainability of diets; (4) Household food insecurity experience measures; (5) For some projects, “nutrient yield” (for example, target micronutrient per ha). Some indicators of food access have already been developed, such as the Household Food Insecurity Access Scale (HFIAS) (Coates et al. 2007), Household Hunger Scale (HHS) (Ballard et al. 2011), Food Consumption Score (WFP 2008), and Household Dietary Diversity Score (Swindale and Bilinsky 2006). These have shown correlation with nutritional status to varying degrees (Tiwari et al. 2013) and are valid proxies of food quantity (Leroy et al. forthcoming). For individual dietary quality, the Women’s Dietary Diversity Score (FAO 2011 and Swindale and Bilinsky 2006) has been validated for overall nutrient adequacy (Leroy et al. forthcoming).

Recommendation 2: Level the Playing Field in Public Agriculture Support.

Another missing factor has been lack of attention to leveling the playing field for investing in more diverse, nutritious foods. Evidence shows that the food supply has become more homogenous globally over the last decades, partially due to agricultural investment in research and development for a small portfolio of commodity crops (Khoury et al. 2014). Investments have favored cereal crops for food security, partly because this has reflected the common understanding of “food security” that arose in the 1970s, but also partly because of the higher risk nature of noncereal crop production due to various unique constraints in producing them. Constraints include, for example, perishability, lack of access to improved seeds, and limited knowledge of effective production practices, particularly with regards to using available water resources efficiently, given that most vegetables are more susceptible to dry conditions than cereal crops. Attention to diversification in agriculture may be increasingly important not only for nutritional reasons, but also for supporting resilience among farmers in the face of climate change.

It would be difficult to recommend actions in agriculture that would imply trade-offs between income and nutritious food production for smallholders and other vulnerable groups employed in agriculture. Yet the structure of research, development, and public support for agricultural crop and livestock improvement has not focused on making nutritious crops less risky and more profitable to produce. The success of the Green Revolution was limited to basic cereals and was less successful in the case of other crops such as sorghum, millet, cassava, and tropical legumes. Part of the reason for the limited success is that unlike the case of wheat and maize, these crops have had no research from developed countries to draw upon (Pingali 2010). Thanks to the Green Revolution, real cereal prices have fallen over time despite the doubling of developing country population from 1965 to 1999. For noncereal crops such as legumes and vegetables, production did increase but did not keep pace with growth in demand. There was no commensurate technological change in the nonstaple sector. Consequently, inflation-adjusted prices of many nonstaple foods have increased over time (Graham et al. 2007) and the price of staples decreased relative to nonstaples such as legumes and vegetables (Bouis 2000), and led to more calorie-rich but less nutrient-dense diets

PROPOSED KEY ACTIONS

Global Development Community

1. Increase research and development on fruits, vegetables, and legumes,* including through public investment (Consultative Group on International Agricultural Research [CGIAR], the world vegetable center [AVRDC], and National Agricultural Research System [NARS], and public-private partnerships.
2. Invest in developing within-country capacity to do R&D and seed system development for nutritious crops and livestock of local importance, including underutilized crops.
3. Invest in reducing risks associated with horticultural and small-scale livestock/dairy/fish production.
4. Develop innovative ways to ensure equal access of risk management tools for all crops (not just for basic grains).
5. Invest in analysis of agricultural policy to estimate producer support at crop/food group or at cropping system level.

World Bank Group

1. Conduct sector reviews and policy impact assessment to estimate producer support at crop/food group or cropping system level, including agriculture and IFC support.
2. Invest in analysis on risk reduction strategies for producers of noncereal crops.
3. Analyze the effect of climate-related diversification on availability of diverse foods and on diets.

* About 5 percent of CGIAR's research funding goes toward legumes (through CGIAR Research Program (CRP) 1.1 on drylands and CRP 3.5 on grain legumes) (Ifitikhar Mostafa, personal communication). CGIAR does not have a research program specifically on fruits and vegetables. The budget of AVRDC, an international nonprofit research and development institute, was \$13 million (AVRDC 2013), roughly 1 percent the size of CGIAR research funding in 2013.

(Gómez et al. 2013). The vision of increasing access to nutritious foods among vulnerable populations would include support to overcoming technical challenges that limit production (perishability, food safety, crop/animal disease, and seed quality issues, for example). Agricultural policy, including research and development, is needed to incentivize nutritious food production, and to end the incentives toward less-healthy, less-sustainable diets.¹

Recommendation 3: Create Demand for Nutritious and Sustainable Food.

In the past, agriculture tackled the issues of consumer policies such as food subsidies. These activities have mainly been absorbed into the social protection agenda and today's agriculture is almost solely focused on supply issues—raising productivity and increasing resilience to shocks such as climate change and price volatility. Opportunities for improving nutrition outcomes requires change in the supply side, but also on the postharvest value chain and the demand side, that is, people need to be informed of the nutritional quality of foods, and social marketing and incentives are needed to maintain, or in some cases shift, social norms that support healthy eating. This requires a shift in mindset that looks not just at the production phase, but the entire food system including the postharvest value chain, as well as consumer policy including behavioral change. It is unclear how the World Bank agriculture global practice will engage in these levels, given that its activities focus primarily on the supply side. In the World Bank Group, IFC engages on the postharvest side, through financing of private sector agribusiness. The kinds of foods produced and consumed have impacts on both public health and environmental sustainability² (Foresight 2011), and integrating these outcomes into policy dialogue and financing decisions across the World Bank Group could help countries reduce health and environmental problems associated with unhealthy diets.

PROPOSED KEY ACTIONS

Global Development Community

1. Develop social marketing strategies based on nutrient or health attributes of nutritious foods (for example, “nutrition-focused marketing”), learn from social marketing of biofortified crop varieties.
2. Increase consumers' nutrition knowledge, particularly where this is a limiting factor to demand for nutritious food.
3. Support, as appropriate, other possible actions outside of the agriculture sector that affect food consumption norms, such as incentives for nutritious food purchase, restrictions on food advertising to children, nutrition in school curricula, and healthy school meals programs to instill healthy eating norms, menu labeling, food vouchers, and so on.
4. Invest in analyses of environmental and distributional impacts of likely food demand changes.

World Bank Group

1. For climate-smart agricultural strategy, incorporate evidence of the sustainability/climate impacts of likely food demand changes.
2. Invest in sector review/policy analysis to ensure that current producer supports are not incentivizing unhealthy food consumption patterns or unsustainable production.

¹ See Graham et al. 2007 for a careful discussion on ways to stimulate growth in the nonstaple food sector for the major cropping systems around the world.

² Current food demand trends pose significant sustainability and distributional risks, as they are a dominant driver of resource use and environmental outcomes including climate change (Kastner et al. 2012; Marlow et al. 2009). Recent research suggests that dietary changes (specifically, reduced meat and dairy consumption) are necessary to achieve the 2°C climate change target (Hedenu et al. 2014).

Recommendation 4: Build and Sustain Capacity for Addressing Nutrition through Agriculture and Monitoring Progress.

Adequate capacity is needed to (1) monitor indicators of nutritious food access, as described in Recommendation 1, (2) adequately design and implement nutrition-sensitive agriculture policies and programs that respond to the food and nutrition situation, and (3) support coordination between agriculture and food sector actors along value chains. This entails capacity building in client country governments (national and local), civil society organizations, development partner organizations, and consultants. One reason capacity is low is that the intersection between agriculture, nutrition, and sustainability is not usually part of postgraduate training in agriculture. In the short term, agricultural technical agencies may need to team up to develop common core training for agriculture-nutrition consultants and food policy analysts, who could work with development agencies and country governments.

PROPOSED KEY ACTIONS

Global Development Community

1. Partner with other agriculture organizations to develop a basic training for agriculture-nutrition staff, consultants, and graduate students.
2. Fund university research and training programs on food systems that treat nutrition and sustainability as integral to agricultural development.
3. Provide ongoing support to country governments to support capacity in monitoring systems.
4. Provide ongoing support to country governments to support coordination between the agriculture and food sector actors along value chains (including production, transport, processing, retail, food safety, and so on).

World Bank Group

1. Invest in capacity and adequate resources for rigorous monitoring and evaluation (M&E) (including household surveys where needed) in agriculture projects.
2. Increase number of nutrition and/or food and nutrition security staff in the relevant global practice groups.
3. Formally establish community of practice on food by including members of all the relevant global practices.

Chapter 1 INTRODUCTION

Interest in linking agriculture and nutrition within international development is not new. In 1943, in Hot Springs, Virginia, 44 governments convened for a conference on food and resolved to establish a permanent organization for food and agriculture,³ which became the Food and Agriculture Organization (FAO) 2 years later: the first specialized agency of the newly formed United Nations. The Hot Springs Food Conference declaration states, “Poverty almost invariably means a poor and insufficient diet, and the latter is the main cause of the disadvantage of the poor in respect of health, so clearly shown by statistics of disease and mortality.” The importance of poverty reduction and of good nutrition, as a foundational rationale for international collaboration and assistance, is reflected in World Bank President McNamara’s vision for the role of the World Bank almost 30 years later.

Given that the genesis of international agricultural development was to provide food “adequate for the health and strength of all people,” it seems reasonable to expect that one of the top priorities within international agriculture would be to feed people well. Likewise, it would seem that the field of nutrition should be closely connected, if not synonymous, with food consumption. Yet most practitioners in both the nutrition and agricultural communities would consider those characterizations a poor representation of their work. According to the nutritionists, nutrition is about much more than food; food has often been a distraction from vital issues such as infant feeding and women and children’s health. And most agriculturalists do not consider the main goal of agricultural

development to be solely the improvement of human health, but rather a broader agenda recognizing the important role that agriculture plays as a major livelihood and income source for the rural poor. Apart from attention to hunger issues peaking in the 1960s–70s, both the fields of agriculture and nutrition have lacked unified zeal for addressing nutrition problems explicitly through food over the past several decades.

The history of nutrition science, and priorities over time within the international nutrition community, indicate a much more tenuous and, at times, distant relationship with food than might be assumed.⁴ As the field of global nutrition has struggled to find its way, there has been no time until the present when priorities in global nutrition have been as clearly and strongly stated. Even now, clarity of thought, evidence, and advocacy regarding the role of agriculture for nutrition is a work in progress.

Agriculture has had a strong relationship with food mainly through the supply side or production side (whereby increased supply leads to increased access to food through lower prices), but not necessarily with the direct consumption issues surrounding food, such as the actual dietary consumption changes due to increased production or income, or targeting of who is eating what. Consumption issues usually enter into agricultural discussions in association with “food security” in terms of overall food stocks at household, national, and global levels, typically measured by volume or calories.

Amid high global attention to linking agriculture and nutrition currently (since about 2008), the World Bank has committed to reviewing its agriculture pipeline as a step toward ramping up activities

3 The governments declared: “The goal of freedom from want of food, suitable and adequate for the health and strength of all people can be achieved . . . The primary responsibility lies with each nation for seeing that its own people have the food needed for life and health; . . . but each nation can fully achieve its goal only if all work together” (Boudreau 1943).

4 For example, the term “food-based solutions” to malnutrition is generally accepted as nonredundant.

that improve nutrition outcomes (Government of UK 2013). In addition, the World Bank's Agriculture Action Plan FY13–15 (World Bank 2013a) includes nutrition as an area to increase emphasis and specifically includes a commitment to increase the share of agriculture projects that explicitly focus on nutrition.

The purpose of this paper is to provide forward-looking recommendations for linking agriculture and nutrition by looking back over the 40 years since both nutrition and rural development began at the Bank in 1973 (see appendix D for evolution of nutrition within the World Bank's structure⁵). This paper sets out to explore whether what is currently being suggested has been attempted in the past; in what circumstances, with what sort of support or commitment, by what actors, and with what results. Throughout, the World Bank is a case study set within the larger development aid architecture due to its role as one of the largest actors in agriculture and nutrition investments in developing countries around the

world. The initial motivation was to showcase the depth of historical resources available in the World Bank Group Archives, and to demonstrate how they can be used to inform current practice (see appendix A). Several lessons learned primarily from the World Bank experience are applicable to the Bank's current commitment to nutrition-sensitive agriculture, as well as to the development community at large, that is tackling the same agenda.

This paper is not a comprehensive review of international agricultural development or agricultural lending supported by the World Bank, nor of nutrition operations supported by the World Bank. Rather it is a review of how thinking and priorities evolved within the development community around how to address malnutrition, highlighting times when that has involved agriculture. For each identified "era," the paper describes the general trends at the time, as well as nutrition and agriculture work at the World Bank as they pertain to the topic of addressing nutrition through agricultural and food-based approaches.

5 Nutrition initially was housed in the Population department (1972–75), and then moved to Agriculture and Rural Development (1975–79). Since 1979 it has been housed with health and other human development sectors.

Chapter 2 ADDRESSING MALNUTRITION OVER TIME: THE RELATIONSHIP OF NUTRITION TO FOOD AND AGRICULTURE

The historical progression of nutrition has been examined previously in Jonsson (2009)⁶ and Levinson and McLachlan (1999). The problems that were considered most significant to the malnutrition problem, and likewise the priorities within the field of international nutrition, have evolved over time. Food has not always been a focus. Box 2.1 summarizes how the priorities with regard to dietary intake have changed significantly over time, even though the concept of an optimal diet, captured in dietary guidelines, has been quite consistent for many decades.

For the purpose of examining the field of nutrition's relationship to food, this paper utilizes the following five broad eras as presented in table 2.1: the emergence of nutrition as a science and its initial approach (1900–60s), the food shortage era (1960s–70s), the era of multisectoral nutrition planning (1970s–80s), the era of nutrition isolationism (1980s–2000s), and the current twin-track agenda era⁷ (2008–present).

The same time periods can also be described for agriculture as: the emergence of agricultural economics as a discipline (1900–60s), the food shortage era (1960s–70s), the era of integrated rural development programs (1970s–80s), the era of low global food prices (1980s–2000s), and the current food price crisis-spurred era of increased investment (2008–present).

6 Jonsson's analysis includes: The period before 1950; The Protein Deficiency Paradigm (1950–74); The Multisectoral Nutrition Planning Paradigm (1974–80); The National Nutrition Policy Paradigm (1980–90); The Community-Based Nutrition Paradigm (1985–95); The Micronutrient Malnutrition Paradigm (1995–2005); A period of Paradigm Crisis (2005–present).

7 Twin-track agenda refers to a dual approach espoused by the Scaling Up Nutrition movement to promote nutrition-specific direct interventions as well as nutrition-sensitive interventions in sectors that affect underlying factors of malnutrition.

BOX 2.1: What Is Nutrition? How Has the Notion of Adequate Food Changed over Time?

The World Health Organization defines nutrition as: “the intake of food, considered in relation to the body's dietary needs. Good nutrition—an adequate, well balanced diet combined with regular physical activity—is a cornerstone of good health. Poor nutrition can lead to reduced immunity, increased susceptibility to disease, impaired physical and mental development, and reduced productivity” (WHO 2014).

The nutrients in food include carbohydrates, proteins, and fats (the “macronutrients”—which contain dietary energy); and vitamins and minerals (the “micronutrients”—which do not contain dietary energy). Other components of food that are not technically “nutrients” also contribute to nutrition and health, such as fiber, probiotic bacteria, and phytonutrients.

As this paper details, the focus of the international nutrition community regarding dietary intake has shifted from proteins (in the 1960s) to dietary energy (1970s–80s)¹ to micronutrients (primarily provided via nutrient supplements) (1990s–2000s). Now (2010s), the focus is moving toward dietary diversity and dietary quality more broadly.² The ideal goal is to ensure that

¹ For example, the World Bank's 1986 “Guidelines for Work in Nutrition” states, “The primary objective of the nutrition aspect in agricultural sector work is to improve the calorie (and protein) intake of the malnourished . . . In some countries in parts of Africa and Latin America where the diet of the poor consists mostly of cassava, bananas or plantains, which lack protein content, the diet goal should also include pulses, oilseeds, groundnuts or other protein-rich foods” (Berg et al. 1986).

² A key message of the *Call the Action: Nutrition in the Post-2015 Development Agenda*: “Access to a range of diverse foods, reflected in dietary quality, is core to adequate food for all. Producing more diverse, nutritious foods is aligned with and supports the broader objectives of sustainability and resilience.” (<http://thousanddays.org/wp-content/uploads/2013/09/Nutrition-in-the-Post-2015-Agenda-Key-Messages.pdf>) See also FAO 2013a, FAO 2013c, World Bank 2013b, Bill and Melinda Gates Foundation 2014.

(continued)

BOX 2.1: (continued)

diets provide adequate nutrients and promote good health, as reflected in food-based dietary guidelines. Dietary guidelines themselves have remained remarkably consistent over the last century (Davis and Saltos 1999).

The primary basis for the current shift in emphasis is evidence of a “triple burden” of malnutrition—including undernutrition, micronutrient deficiencies, and obesity and diet-related chronic disease—in all regions. For example, Africa has high rates of undernutrition as well as the fastest increases in diabetes and child obesity. Therefore, it has become clear that the past idea of dealing with hunger first, before worrying about nutritious diets, may lead to improvements in only one form of malnutrition while neglecting (or perhaps worsening) the others.

TABLE 2.1: Time Periods Used in This Paper to Represent Main Trends Related to Food and Nutrition

ERA	AGRICULTURE	NUTRITION	PRIORITIES OF NUTRITION COMMUNITY
1900–60s	The emergence of agricultural economics as a discipline	The emergence of nutrition as a science and its initial approach	Vitamins
1960s–70s	The food shortage era	The food shortage era	Calories and proteins
1970s–80s	The era of integrated rural development programs	The era of multisectoral nutrition planning	Calories
1980s–2000s	The era of low global food prices	The era of nutrition isolationism	Micronutrients
2008–present	The current food price crisis-spurred era of increased investment	The current twin-track agenda era	Diverse diet with attention to both undernutrition and obesity

Chapter 3 EMERGENCE OF NUTRITION AS A SCIENCE AND ITS INITIAL APPROACH (1900–60s)

3.1 GENERAL TREND

The field of nutrition science can be said to have arisen around the beginning of the 20th century, with the identification of vitamins as the cause of certain diseases. Nutrition science emerged from the medical paradigm discovering the cause of a disease, and finding that it could be cured with a missing vitamin or with a food that provided the missing vitamin.⁸ As all the essential vitamins were isolated by the 1940s, providing supplements and fortified foods⁹ became easier than using foods as vehicles of nutrients (such as brown rice to prevent beriberi, or citrus fruits that were carried onboard British Navy ships in the 1700s to prevent scurvy) as an expedient, life-saving treatment of deficiency.

Inadequate diets were recognized as a cause of deficiencies, so attention was also given to diet, mainly in the form of nutrition education and personal responsibility for dietary choice. Apart from discovery and isolation of vitamins, education on consumption behavior could be called the other major part of nutrition science that emerged during the first part of the 20th century. In the United States, the first dietary guidelines intended for the public came out in 1917, *How to Select Foods* (Hunt and Atwater 1917). The emerging science of vitamins was incorporated into consumption guidance with the release in 1941 of the first Recommended Dietary Allowances, which provided a guide to nutrient needs and consumption. Treatment and prevention of deficiencies, and nutrition education (often nutrient-based), remain core to the field of nutrition today.

8 Christiaan Eijkman and Frederick Hopkins were awarded the Nobel Prize in Medicine in 1929 for identifying vitamin deficiency as the cause of a disease (beriberi). (Cashmir Funk first called the “anti-beriberi factor” “Vitamine” in 1912) (http://www.nobelprize.org/educational/medicine/vitamin_b1/eijkman.html)

9 In the US, white flour and rice were fortified with B vitamins starting in the 1940s.

The “vitamin deficiency paradigm” shifted to the “protein deficiency paradigm” around the 1950s, after kwashiorkor was described (Jonsson 2009; Williams 1935; Trowell 1950). Here was a nutritional deficiency that was not treatable with vitamins, but was successfully treated with skim milk. Triggered by the kwashiorkor images of bloated bellies and stick limbs, protein provision became the primary preoccupation of the nutrition community. A number of conferences were held and a number of books published zeroing in on protein deficiency as the culprit of malnutrition. What is now known as the Standing Committee on Nutrition was then the UN’s Protein Advisory Group, a joint FAO/UNICEF/WHO program that issued a report titled “International Action to Avert the Impending Protein Crisis” (UN 1968).

At around the same time in the 1950s, the first operational international nutrition programs were starting, born out of post-WWII international efforts to reduce poverty and malnutrition. Much of the focus was on treatment of severe malnutrition in medical wards (Chafkin et al. 1972), but there were early attempts at population-based programs as well. These included interventions such as milk powder distribution and other forms of food aid in the 1950s, and food technology interventions in the 1960s (such as efforts to develop protein supplements, for example from fish protein concentrate and single-cell organisms). The initial attention in fortifying bread in India was to add lysine, the limiting amino acid in wheat flour. The focus was heavily supply-oriented, and scientifically informed, in an age where industrialization, science, and technology were held as the keys to a better future.¹⁰

10 Of note, the growing popularity of infant formula was an archetypal representation of faith in science-based replacements for natural foods, as it was widely—and falsely—advertised as superior to breast milk.

The first attempts at integrated community-level nutrition took place in the 1960s. Applied Nutrition Programs were UNICEF- and FAO-supported programs that provided food supplements, small-scale food production, and nutrition education. Born out of a history of highly supply-side interventions, these programs lacked targeting and analysis of the local relevant determinants of malnutrition, and did not have a cost-effective impact on malnutrition (Levinson and McLachlan 1999). Several of the program elements, however, would be refined and better applied in the 1980s–90s, and now make up a significant part of direct nutrition interventions.

On the agricultural side, this overall time period saw the beginning of agricultural economics and agriculture as a development issue. Between 1913 and 1919, agricultural economics became a new discipline, evolving out of farm management and farm survey data collection (Stanton 2001). The new field was mainly concerned with agriculture as a viable business, examining cost accounting, and the reasons for changes in prices, yield, quality, sustainability, and profits. It complemented other applied areas such as crop and animal breeding, agronomy (agricultural practices and soil and climate information), and agricultural extension. Before the formation of the FAO in 1945, agriculture was not considered a development issue. In 1949, Lord Boyd-Orr (Director General of FAO) received the Nobel Peace Prize for developing thought and action around world hunger. Producing enough food to feed the world became paramount in development by the 1960s.

3.2 NUTRITION AT THE BANK UP TO THE 1960s

Nutrition was not yet a department within the Bank.

3.3 AGRICULTURE AT THE BANK UP TO THE 1960s

In the 1950s, the Bank's agriculture lending started off as a minor sector within the World Bank, which was focused overwhelmingly on investments in public utilities such as power and transport infrastructure, and to a lesser degree industry and telecommunications. Agriculture was widely regarded as a "backward sector," and the prevailing wisdom of the time prescribed investments in support of more modern, dynamic sectors as a far more effective use of development finance (Cooke et al. 2011). In 1961 a total of 12 professionals covered the Bank's agricultural program worldwide, and most of them were engaged in irrigation and drainage work (Kapur et al. 1997). The establishment in 1960 of the International Development Association (IDA) (to reach poorer countries) greatly expanded the demand for agricultural lending, since most of the countries that qualified for IDA support were heavily dependent on agriculture, far more so than middle-income International Bank for Reconstruction and Development (IBRD) countries. Thus, the assistance they sought from IDA was often for agriculture, and in most of these countries, agriculture was rainfed, not irrigated, which meant that IDA-supported operations also significantly diversified the Bank's agriculture portfolio beyond irrigation (Cooke et al. 2011).

Chapter 4 THE FOOD SHORTAGE ERA (1960s–70s)

4.1 GENERAL TREND

The 1960s marked a time when both agriculture and nutrition communities focused significant efforts on world hunger. Population was becoming a major concern reaching its height in the 1960s, with Malthusian fears that the human race could not feed itself (Erlich 1968). Famine unfolded in India; the Sahel drought in 1968–72 resulted in a million deaths in Africa, and the early 1970s saw famines in Ethiopia and Bangladesh.

Agriculture was responding to the strongly felt need to produce more food through the Green Revolution (for which Norman Borlaug won the Nobel Prize in 1970) from the late 1960s to the 70s. These efforts resulted in new high-yielding wheat and rice varieties developed at international agricultural research institutes (The International Center for Maize and Wheat Improvement and the International Rice Research Institute, respectively). These centers, together with two other international agricultural research centers¹¹ also founded under the auspices of the Rockefeller and Ford Foundations, formed the Consultative Group on International Agricultural Research (CGIAR) in 1971, whose Secretariat was housed in the Bank, which has remained one of the major donors from its inception. The CGIAR research centers had an almost single-track mission: to raise food productivity in developing countries. The goals broadened later on to include issues such as sustainability, and more recently nutritional concerns. The Green Revolution focused on basic food staples, such as rice, wheat, maize, and cassava, because of their importance in the diets of the poor.

The bilateral aid agencies U.S. Agency for International Development (USAID)¹² and Department for International Development

were formed during the 1960s, and provided international food aid, directly and via nongovernmental organizations (NGOs). Another approach that the agriculture sector utilized to address the food shortage was through its contribution to food aid and food distribution programs in schools and health clinics. These programs were seen as crucial safety nets for the poor who lacked adequate food. In some countries these would later transform into food voucher programs and other social protection programs, in addition to school feeding as a transfer mechanism for food safety nets.

The priorities of the nutrition community also shifted toward basic food during this period, representing a significant broadening beyond the medical supply-side approach. Emerging data at the time indicated that inadequate consumption of calories was widespread, and the available data were used to define the nutrition problem. No other data on deficiencies were yet available, and even anthropometric data were not available at a national scale in most countries. The priorities of the era are well-summarized by the statement, “Although deficiency of vitamins and minerals may cause serious health problems, especially among children, the therapy is now well known and relatively easy to apply so that the magnitude of this problem is almost negligible in relation to the one created by lack of calories and proteins” (Chafkin et al. 1972). In this period, food was the main intervention directed to child malnutrition. Most NGO nutrition programs were solely focused on food provision, which continued well into the 1970s when corn soy milk and corn-soy blend dominated project budgets with a child nutrition objective.

In the 1960s, the overwhelming priority of the nutrition community was protein supply; in 1964, the Food and Agriculture Organization (FAO) had defined protein as “the heart of the world food problem,” and the nutrition community had addressed the situation with food technology approaches in the previous era. In the early 1970s,

11 International Center for Tropical Agriculture and International Institute of Tropical Agriculture.

12 Then called AID. Although the newly named agency AID was formed during the 1960s, the United States already had foreign aid agencies under different names for a dozen years before that.

concern about protein rapidly fell and was subsumed by concern about calories.¹³ The death knell of the “protein deficiency paradigm” was sounded in an article in the *Lancet* entitled “The great protein fiasco” (McLaren 1974), the same year as the World Food Conference in Rome first used the term “food security”¹⁴ and attention turned to calories as a more urgent priority.¹⁵

If inadequate supply of calories was the main problem, then nutrition certainly needed agriculture as an ally. Arguably, this is the first and last time that agriculture and nutrition have been fairly closely aligned on top priorities.¹⁶ The *food shortage paradigm* continues to this day to be the dominant narrative of agriculture’s primary role regarding nutrition and child survival, where the primary goal is producing more calories, particularly in the form of basic staple crops.

The stakes were also getting higher on the urgent necessity of addressing malnutrition. At the pivotal 1964 International Conference on Childhood Malnutrition at the National Academy of Sciences, evidence of malnutrition affecting cognitive development was formally introduced. This triggered the establishment of a 1965 White House Report “Meeting Nutritional Needs” by an Interagency Task Force on Food and Agricultural Assistance to Less-Developed Countries (Ellis and Berg 1965). In addition to the influential cognitive and physical development evidence, a landmark paper (Berg 1967) opened up the discussion of nutrition as a development issue. The links between malnutrition, mental development, and

economic development paved the way for the initiation of focused attention to nutrition at the World Bank.

4.2 NUTRITION AT THE BANK 1960s–70s

In November 1973, the World Bank Board approved the Policy Guidelines for Bank Nutrition Activities. Preceding this, a nutrition unit was established in the Bank, in the Population Projects Department, which was renamed as the Population and Nutrition Projects Department (see appendix D for more details on the evolution of nutrition work at the Bank).¹⁷ In the midst of an era where hunger was a highly visible problem, it was an important part of President McNamara’s vision to reshape the World Bank as an institution with the primary mission of reducing poverty. In his September 27, 1971, Annual Address to the World Bank Board of Governors, President McNamara called malnutrition “a major barrier to human development.” He stated, “reducing the ravages of serious malnutrition will itself accelerate economic development and thus contribute to the amelioration of poverty. And that there are a number of practical steps that can be taken . . .” Continuing, he emphasized that, “the central conclusion I wish to propose to you [the finance ministers of the world] is that the international development community and the individual governments of the countries concerned must face up to the importance and implications of the nutrition problem.”

The nutrition policy guidelines emphasized the Bank’s potential role as “adding its voice in drawing attention to the problem, by assisting in planning, by furthering the development of programming discipline in this new field through the project process, and by providing additional resources to finance nutrition intervention activities.” What to do about the nutrition problem from an operational sense was still quite undeveloped, and the Bank’s first four nutrition projects (Brazil, Indonesia, Colombia, India) would ultimately advance knowledge considerably. But because of lack of experience and evidence in international nutrition programs, the first World Bank nutrition projects had to have special Board oversight; a very unusual step, demonstrating the nervousness of the Bank to invest in this area.

13 One of the key factors was research showing that people who lacked protein usually lacked calories as well; and that additional protein in the absence of calories would be used by the body for energy rather than protein synthesis. Major advocates for the broader food/calories approach rather than protein were G. Aroyave (see Aroyave 1975) and C. Gopalan.

14 Food security was first defined at the 1974 World Food Conference as “availability at all times of adequate world food supplies.”

15 According to a World Bank policy document, “The major nutrition problem in the world today, according to most nutritionists, is insufficient intake of calories, or food energy” (World Bank 1980).

16 The fields of agriculture and nutrition differed, however, in their emphasis on targeting consumption among the nutritionally vulnerable: “Considerable academic and, to a lesser extent, policy attention has been given of late to food security issues. Two quite different lines of work have emerged – one on supply issues, the other on consumption/nutrition issues. The production work generally ignores the nutrition effects and the nutrition studies rarely take into account the production implications” (Berg Dec 23, 1980).

17 The health sector was not established until 1979.

Despite President McNamara's personal enthusiasm for nutrition as a major force in reducing poverty,¹⁸ "rural development" (or increasing the productivity of small-scale farmers) was selected as the main vehicle. Topics such as population control, employment, and nutrition were considered and deemed not "bankable" enough for the Bank to engage in a sufficiently significant way (Kapur et. al. 1997). The selection of rural development made sense in terms of the Bank's position as a still young institution which had to appease financiers from whom it raised capital. In other words, the financial institution side of the Bank, at this time, was significantly stronger than the development agency side, with which it has since become more associated.

4.3 AGRICULTURE AT THE BANK 1960s–70s

In 1963, realizing the importance of the International Development Association (IDA) within the Bank, and the central nature of agriculture for many IDA countries, President George Woods mandated a quick doubling of the Bank's agricultural program. Outside of the Bank, there was much optimism regarding the potential of modern agriculture to dramatically increase food production and contribute to poverty alleviation. This was propelled by the success of the Green Revolution.

President McNamara's 1973 speech in Nairobi called for a transformative change for the Bank to focus squarely on *poverty alleviation*, which represented a major shift in the World Bank's mission. He clearly identified "rural development" or increasing the productivity of small-scale farmers as the main vehicle for achieving this. In his speech, President McNamara laid out the goal of the support to small farmers to achieve a rate of 5 percent increase in yield per year by 1985 (12 years from the time the speech was given). He noted

that at the time of the speech the comparable rate was about 2.5 percent per year for small farmers. To achieve this ambitious goal, he stated the Bank would continue with its existing agricultural program of mainly irrigation infrastructure and some support to rainfed agriculture, but also to expand into new areas such as agricultural credit, extension, "multi-purpose rural development projects," and agricultural research. President McNamara concluded by stating that 70 percent of the poor live in rural areas, and poverty is caused primarily by the low productivity of small-scale subsistence farmers. Thus, by tackling the productivity of small-scale farmers, countries should make a real dent in poverty alleviation.

Although the importance of agriculture for poverty reduction was clearly articulated, the operational link between agriculture and nutrition was not emphasized. From the start, it was assumed that the overall increase in the aggregate food supply and higher income through agriculture (the dominant occupation of the poor) were the main routes to better nutrition. This is in stark contrast to the emphasis of the new nutrition unit developed the same year. The nutrition unit recognized the complex nature of malnutrition, and laid out a broad menu of interventions which were deemed necessary, including but not limited to increased aggregate food supply and higher income. Within a range of actions called for, the nutrition Policy Guidelines (1973) clearly addressed the need to connect the rural development initiative with nutrition. It sought to leverage the efforts toward increased food production with improved targeting of the poor: "Attention to food production, of itself, is insufficient to satisfy food needs. If investments in production by the Bank [for FY74, \$725 million] and others are to be of maximum benefit to those in need, attention should also be directed to the nutritive quality, processing and distribution of what is produced." It went on to recognize that food supplies "have a major positive effect on the problem of malnutrition (and could have much more if nutrition were given explicit consideration as one of the objectives in the framing of agriculture policies." At the heart of these recommendations was a call for "more explicit attention in agriculture sector surveys to foodstuffs from the view of the consumer need, rather than concentrating primarily on agricultural production." This theme would be repeated in subsequent analytic work, such as in Pinstrup-Andersen (1981), Reutlinger and Selowsky (1976) and Knudsen and

18 From minutes of a 1972 meeting: "In a discussion today, Mr. McNamara . . . reaffirmed his interest in the field of nutrition and in the Bank's role of making a contribution in this area. He pointed out that a contribution can be made both through projects and nonproject interventions. On the latter, he mentioned his desire to see that nutrition elements be incorporated in economic reports, and agricultural sector reports . . . He said that it would be appropriate for the Bank to provide funds for necessary technical assistance [in countries not] equipped with nutrition planners to do the kind of preparatory work necessary for a project . . . In sum, Mr. McNamara's interest in the activity was keen and his expectations high—probably higher than the situation warrants, given the realities of staffing" (Berg 1972).

Scandizzo (1979), where increase in aggregate food availability or household income were shown to be insufficient to solve the “nutrition problem” (calorie deficiency) for society as a whole due to income disparity and/or household expenditure decisions.

Despite the disconnect between rural development and nutrition from the earliest days, McNamara equated poverty eradication to mean, “in practice, the elimination of malnutrition, illiteracy, the

reduction of infant mortality, and the raising of life-expectancy standards to those of the developed nations” (McNamara 1973). The focus on health as the ultimate development outcome harkened back to the commitments of nations at the 1943 Food Conference at Hot Springs. McNamara’s holistic picture of poverty reduction set the stage for integrated programming efforts at the Bank in the years that followed.

Chapter 5 MULTISECTORAL NUTRITION PLANNING AND INTEGRATED RURAL DEVELOPMENT (1970s–80s)

5.1 GENERAL TREND

The overall trend in the international development community in the 1970s emphasized centralized planning to attack social and economic inequalities that resulted in poverty (Thorbecke 2006). Changing priorities in nutrition fit well within this trend. The growing perception in the 1960s that nutrition problems could not be solved without agriculture, vis-à-vis its role in increasing calorie production and targeting the vulnerable, contributed to a shift in the nutrition paradigm from narrow technical fixes to what is now called the “multisectoral nutrition planning era” by the 1970s. One of the main missing pieces in the early programmatic attempts to address nutrition at the community level was analysis of the context and causes of malnutrition. The emphasis shifted to understanding the causes of malnutrition, targeting appropriate multisectoral responses, and trying to involve all sectors relevant to the nutrition problem and not just rely on nutrition specialists. According to Levinson, Balarajan, and Marini (2013): “Interest [in multisectoral nutrition planning] emerged initially from understandings of the diverse causality of malnutrition. . . . Interest arose also, in part, because international development specialists, examining the “world food crisis” of those years and beginning to recognize the importance of combating malnutrition, distrusted the ability of nutritionists—and even health ministries—to address the problem adequately on their own. The slogan, “Nutrition is too important to be left to nutritionists”, was bantered widely.

During this era, a great deal of thinking in academic and development circles investigated the causes of malnutrition and their relative importance and interdependence. In 26 countries, multisectoral planning units were created with assistance from the U.S. Agency for International Development (USAID) and the Food and Agriculture Organization (FAO), with the purpose of coordinating policies and

programs at national level to improve nutrition. They typically included ministries of agriculture, food, health, social welfare, industry, and were usually within planning commissions or the office of president or prime minister (Levinson and McLachlan 1999).¹⁹

Most of these planning units and many other efforts at multisectoral nutrition planning did not accomplish lofty ideals of tackling all causes of malnutrition because of two main downfalls: over-complexity and lack of ownership.²⁰ Ultimately, the main hallmark of the era was *planning*, rather than “multisectoral” as had been the hope. Efforts to provide solid analysis of the determinants of malnutrition, often provided by advisory services of research universities, frequently led to elaborate models that were generally too complex, and dependent on too much data, to be usable (Jonsson 2009; Joy and Payne 1975). The complexity of plans and programs designed during this time also had implications for implementation; they necessitated substantial collaboration between a large number of actors, and were not delivered effectively (World Bank 1987). Participants in one failed program concluded, “*Complexity in intervention and the need for a high degree of intersectoral coordination contradict the principles of successful implementation and require a capacity beyond that of most implementing agencies*” (Ross and Posanai 1988 as cited in Levinson 1995).

The collaboration required, and the lack of incentives for collaborating, relate to the second main problem: lack of ownership of the nutrition issue among those expected to contribute to it. The

19 In some of these units, however, planning ended up being limited to direct nutrition interventions; that is, they weren't always actually multisectoral in reality (Levinson 1995; Field 1987).

20 There were exceptions: Zimbabwe, for instance. See Tagwireyi and Greiner 1994.

creation of multisectoral planning units in 26 different countries would seem to be a positive operational step, but in reality the structure could not substitute for true political priority for nutrition (Jonsson 2009). What political support there was had to do with political priority for reducing food shortage, which was perceived to be mainly a problem for agriculture to solve independently. One by one, the country multisectoral planning units dissolved on an average of 6 years after they had started (Levinson 1995).

Multisectoral nutrition planning “did not work because, in all likelihood, it could not work” (Field 1987). The operational reality was prohibitive even where the theory was sound. It did, however, revolutionize how nutrition was thought about—most fundamentally by identifying the multiple causes of malnutrition, and attempting to find solutions to those causes that were most limiting to better nutrition. “Nutrition has come a long way from the days of fish protein concentrate and lysine fortification as miracle solutions. In the process, the nutrition planning effort has created a new cadre of people working at country and regional levels, with a different view of nutrition problems and how to solve them” (Berg 1987c). The lasting impact of the multisectoral nutrition planning era is seen, for example, in the UNICEF framework on the causes of malnutrition (1990) (see figure 6.1).

5.2 NUTRITION AT THE BANK 1970s–80s

The Bank’s work in nutrition was conceived in this multisectoral planning era, and was founded on the idea that the Bank had an important, if not unique, role in delivering multisectoral work. In laying out possible types of involvement for the Bank, the 1973 World Bank nutrition policy paper revolved around nutrition as a multisectoral issue. Three out of four of the strategic approaches focused on the Bank’s potential to incorporate nutrition into its overall strategy and the work of other sectors. The four approaches were:

1. Financing nutrition projects (with an initial emphasis on design of an overall nutrition strategy)
2. Addition of nutrition components to projects in other sectors²¹

21 The paper specified these other sectors to be “especially food processing, rural development, population, certain types of agriculture and education projects, and perhaps water supply.”

3. Consideration of nutrition consequences of projects in other sectors²²
4. Encouragement of nutrition awareness and analysis by incorporating nutritional considerations in sector surveys and economic reports and through other means.

To give a flavor of the agriculture side of these first three Bank nutrition projects: the main goal of the agriculture components of the Brazil project was to reach the nutritionally vulnerable, through the agricultural extension service, with access to improved inputs, and to produce and market low-cost fortified foods making them more accessible to the poor. This component was very successful and was replicated in all the Bank’s subsequent rural development projects in Brazil (Berg 1987a). In Indonesia, a home and village garden program was implemented as part of the project, with apparently successful consumption and marketing impacts, although it was not integrated with nutrition education programs as hoped. The Colombia project had a subsidized food coupon program, and also a home gardening program designed to increase vegetable intake, including a package of seeds, credit, fertilizer, and agricultural extension that later expanded to include small-scale livestock and fish ponds. The homestead food production component was highly popular and reached over 35,000 households. It consumed over 1/5 of the project budget, but its impact on nutrition was never evaluated (Berg 1987a).

The Tamil Nadu Integrated Nutrition Project (TINP), for many years perceived as the Bank’s flagship accomplishment in innovative²³ (and widely since emulated) nutrition programming, initially was designed to be “a broadly multi-sectoral project addressing selective aspects of food production, processing, and storage as well as the delivery of nutrition and health services” (Berg 1987a). However, “a decision by IDA management to simplify the project” deleted the food track, with an intention of mounting a separate agriculture project to operate in parallel with the nutrition project—this then

22 Agriculture was the field primarily highlighted.

23 “The innovative features of the nutrition delivery component of the TINP include the following: Weight surveillance of children in the target age group 7–36 months; selective supplementary feeding for a limited period of time for children identified as malnourished through the weight surveillance system; Service delivery centers around a village-based community nutrition worker (CNW) with well-defined responsibilities and supported by intensive training and continuous close supervision; Close collaboration between nutrition and health personnel at the level of service delivery” (World Bank 1982).

was to provide the same integrated effect as the original design.²⁴ That agriculture project, however, never materialized. In Senegal there was a similar outcome from a decision to simplify operations.

The push to simplify the design of the “second generation” nutrition projects does not seem related to the success or value of agriculture components in the first three nutrition projects, as those had been quite successful. Rather, TINP began around the same time when “integrated rural development projects” elsewhere in the Bank were failing. The resulting anathema to integrated or multisectoral projects extended to nutrition proposals by association. Similarly, when efforts were made for a more consequential nutrition role inside agriculture projects, the proposed nutrition components commonly became casualties of the Bank’s aim to avoid potential “Christmas tree” projects.²⁵ This concern about perceived complexity served as the main constraint for developing combined nutrition/agriculture projects.

5.3 AGRICULTURE AT THE BANK 1970s–80s

To operationalize the President’s 1973 Nairobi speech that identified rural development as the main vehicle for poverty reduction, the Bank issued a Rural Development Sector Policy paper (World Bank 1975). The goal of the Bank’s new policy was to reduce poverty through increased production and productivity. There was a clear recognition that rural development should involve multiple sectors and thus should aim for improved productivity, increased employment, resulting in higher incomes for target groups, as well as increased access to minimum acceptable levels of food, shelter, education, and health. To further emphasize the focus on rural development for poverty alleviation, a definition of a rural development project was crafted as a project where 50 percent or more of primary (direct) benefits are intended to accrue to the rural poor. Therefore, some agriculture projects, if they met the definition, would also be categorized as rural development projects. If projects

from other sectors, namely education and roads, met the definition, they were also categorized as rural development. During FY68–74, the Bank/International Development Association (IDA) lending for rural development totaled \$1.1 billion (of which 92 percent was for agriculture, 4.4 percent for roads and 3.4 percent for education) (World Bank 1975, Annex 11). Therefore, almost all rural development projects were, in fact, agriculture projects.

The majority of the Bank’s agriculture projects (73 percent), however, did not claim to be rural development projects, or designed to have a targeted focus on the rural poor according to the definition that was used at the time.²⁶ In fact an independent evaluation report of the Bank’s rural development program (World Bank OED 1987) even calls the agriculture projects that are not also rural development projects “nonpoverty (agriculture)” projects. One of the main conclusions of the independent evaluation of the Bank’s rural development program (FY65–86) was that despite the overall objective being poverty alleviation, the Bank’s rural development program was not intended to target the poorest of the rural poor, that is, the landless and laborers, since it was aimed primarily at smallholders with their own land.

One of the key mechanisms for rural development was through *integrated rural development projects* (sometimes also referred to as *area development projects*). These projects tended to have an ambitiously broad set of activities rolled into a single project in a rural area. The description of integrated rural development projects as loosely defined in the Operations Evaluation Department (OED) report (1987): an integrated rural development project would involve two or more components, usually multisectoral, and these would include both social and productive activities. Prior to the late 1990s, project documents were not required to explicitly identify sector or thematic codes. Therefore, it is difficult to know the exact portfolio size or trend of integrated rural development projects. In at least 18 of these integrated rural development projects,²⁷ nutrition was tackled in some form or other (see appendix B). In some

24 “The Region . . . supported the more focused approach [of TINP], in view of the Bank’s own difficulties in staffing and coordinating the preparation and supervision of complex cross-sectoral projects, our relative lack of experience in nutrition, and the Borrowers’ difficulties in coordinating multi-sectoral projects, particularly in view of the general weakness of departments of health and social welfare” (Choksi 1984).

25 This pejorative term implies that seemingly interesting components are added on like ornaments, with little added value compared to the increasing complexity.

26 During FY68–74 lending for all agriculture (including those not labeled as rural development) was \$3.7 billion, and total Bank/IDA lending was \$18.2 billion. Therefore, agriculture was 20 percent of total Bank/IDA lending, and of total agriculture lending, agriculture projects that were also categorized as rural development comprised 27 percent of total agriculture lending (5 percent of total Bank/IDA lending) (data from Annex 11 of 1975 Sector Policy Paper).

27 The breakdown of the 18 projects is as follows: Brazil [10], China, Mauritius, Mexico [3], Papua New Guinea and the Philippines [2].

cases, it was through health interventions such as the Philippines Rainfed Agricultural Development Project—Iloilo (FY80) where salt iodization, iron/folate tablet distribution, and diarrhea management measures were undertaken. In other cases it was through nutrition sensitive agricultural interventions such as in the Mauritius Rural Development Project (FY73) where self-help groups, including kitchen gardening, construction of fish-ponds, duck, poultry, and rabbit raising, were supported.

It is difficult to say precisely when integrated rural development projects began to fall out of favor at the Bank (due to the fact that historical project category coding information is unavailable in the current portfolio software), but the 1987 OED report clearly presented the poor performance of these projects, especially in Africa, and this must have accelerated its decline. For the period studied (1965–86), integrated rural development projects comprised 40 percent of all rural development projects and 55 percent of them were in Africa (hence 22 percent of the total rural development portfolio consisted of integrated rural development projects in Africa). Half of the audits of integrated rural development projects indicated a failure (and $\frac{2}{3}$ of the failures were in Africa), mainly owing to an ambitious and overly complex multisectoral project design which precluded local participation and had to be centrally managed.²⁸ The assessment was based on standard methodologies for project evaluation, namely examining the extent to which intended objectives, expected economic rates of return,

and intended beneficiaries were achieved or reached, as well as timeliness of disbursement. The report suggested that a parallel approach to relieving constraints through several projects over a longer period is often preferable over complex integrated multi-sectoral approaches.

Although the majority of integrated rural development projects were unsuccessful as a whole, there is no information regarding nutrition results. None of the 18 integrated rural development projects that included aspects of nutrition explicitly measured any progress toward nutritional outcomes for even intermediary outcomes such as level of increase in consumption of nutritious foods. This is despite the fact that most of these projects cited high malnutrition rates among the target population as a major justification for the project to begin with. In the Implementation Completion Report of the Brazil Northeast Rural Development projects, one of the lessons learned is to include in future operations “monitorable indicators on communities’ nutritional/health status.” Partly because of the weak monitoring of these nutrition components, unfortunately—unlike the Bank’s self-standing nutrition projects (Berg 1987a)—there is very little assessment of the performance of nutrition-related activities. No significant lessons learned regarding *nutrition* from these projects appear in the Implementation Completion Reports, or in any reports produced by the Bank’s Agriculture and Rural Development department at that time, or by the Bank’s independent evaluation unit.

28 The complex nature of these projects meant that projects faced common problems. The OED report summarized some of the challenges of integrated rural development projects in the following way: “formal coordination arrangements between what amount to competing, or at best indifferent government agencies almost never worked as planned; project research components produced very little of lasting value and, in any case, at a much later date than could make a serious contribution to project returns, internationally recruited staff have difficulty fulfilling intended training functions; and, contrary to assumptions, viable technical packages were frequently either not available at all, not properly identified, or were of only modest potential. . . . Finally, the Bank never developed its own staff, expertise of an integrated structure to respond fully to the needs of these complex projects.” On the last point, the same OED report noted that “treating the development of rural areas as an offshoot of agricultural (production) development, as has been customary in the Bank, tends to overlook the more complex multisectoral nature of the rural development task.”

Chapter 6 NUTRITION ISOLATIONISM AND ERA OF LOW GLOBAL FOOD PRICES (1980s–2008)

6.1 GENERAL TREND

Despite the success of the small group of multisectoral nutrition programs by the Bank and others, the difficulties of multisectoral planning and disenchantment with food as a focus for nutrition caused a shift in direction, toward a sector-specific approach, that is, the development of nutrition as its own “sector.” The projected famines in India had not materialized; yet rates of undernourishment there were not declining substantially, either. Micronutrient supply data showed low increases if any in vitamin A and iron supply (Uvin 1994). The nutrition community’s lack of success convincing other sectors to tackle nutrition through complex coordination and planning led to a period sometimes referred to as “nutrition isolationism” which focused on direct nutrition interventions (such as micronutrients, breastfeeding promotion, child feeding) that did not require multisectoral involvement (Levinson, Balarajan, and Marini 2013). After struggling with what seemed to be an serious lack of political commitment and capacity to address nutrition, direct nutrition interventions were much less politically difficult, as they did not require a substantial change to food systems, or economic, social, and gender inequalities that are the basic causes of malnutrition. According to Reutlinger (1993), micronutrient programs could “reduce human suffering yet do not threaten the existing economic and political structures.”

During this era, rife with internal struggles,²⁹ nutrition came into its own and worked on getting the story straight with regard to the

causes and consequences of malnutrition. The 1990s–2000s were an important time period for building a strong evidence base in nutrition that could motivate political will and action, based on new data, research, evaluation, and analysis.

Nationally representative data on child anthropometry were becoming available in a large number of countries.³⁰ In the mid-1990s, new publications showed that undernutrition was the single largest cause of child death, responsible for over 50 percent of child deaths because of the synergistic effect of undernutrition and infectious disease (Pelletier et al. 1995a). These epidemiologic analyses showed conclusively that undernourished children who fell ill were much more likely to die than well-nourished children; and that the vast majority of child deaths were due to mild and moderate undernutrition, rather than severe.³¹

The term “hidden hunger” also arose in the 1990s—in particular at the 1991 Ending Hidden Hunger conference in Montreal cosponsored by WHO, UNICEF, and the World Bank—as the evidence grew around the consequences of micronutrient deficiency, and its prevalence. Micronutrient deficiencies are harder to survey than body size, requiring either costly blood samples or imprecise estimates based on clinical signs; and national data were unavailable on the prevalence of iron, vitamin A, and iodine deficiency until around 1990.³² (They are still updated only infrequently.) Within the nutrition

29 As recently as 2008, the field of international nutrition was described as follows: “The international nutrition system—made up of international and donor organisations, academia, civil society, and the private sector—is fragmented and dysfunctional” (Morris et al. 2008). In a survey of international nutrition professionals, “Infighting and the absence of consensus on priorities was cited (from among 13 options) as the main disappointment or negative factor” limiting progress in international nutrition (Berg, Levinson, and Moorthy 2008). Ten years earlier, a survey of the nutrition community also found infighting to be the primary negative factor limiting progress. One respondent wrote: “Name me a country, and I’ll name you at least two nutritionists who don’t talk to one another” (Levinson 1997, 2000).

30 Demographic and Health Surveys started in 1984.

31 Earlier analyses of clinical observations had suggested a similarly large role of undernutrition in child mortality (Scrimshaw 1968), but were based on less reliable data, in the absence of population anthropometry data. The malnutrition-mortality association was examined in many subsequent studies, all finding large fractions of mortality due to undernutrition, most notably nearly 30 years later in the new *Lancet* series on undernutrition (2013), where Black et al. reported 45 percent of deaths attributable to undernutrition.

32 Before that, micronutrient deficiency prevalence was estimated from FAO food balance sheets (see UNSCN 1987).

community at this time, the primary tools to address vitamin and mineral deficiencies were supplementation and fortification, with comparatively little emphasis placed on food diversification. Focus on micronutrients alone became almost a single-minded focus in some countries and agencies from the mid-90s to mid-2000s, sometimes to the exclusion of other work needed for addressing undernutrition (Schuftan, Ramalingaswami, and Levinson 1998, World Bank 2006).^{33,34}

Given the increasing clarity around the alarming correlates of poor nutritional status, it was perhaps not surprising that the focus was on activities that directly affected health and nutritional status outcomes, such as micronutrient supplementation, supplementary feeding, immunization, community-based treatment of infectious disease such as diarrhea, and breastfeeding. Randomized controlled trials of direct interventions showed striking results. A landmark meta-analysis of vitamin A supplementation trials showed that twice-yearly doses reduced child mortality by 23 percent (Beaton et al. 1993). This was a major rationale to focus scarce nutrition resources on such an inexpensive and cost-effective intervention.

Emphasis on breastfeeding promotion was also based on new data and trends. Breastfeeding rates had precipitously declined worldwide in the 1950s–70s, and were declared a “crisis” as early as 1973 (Berg 1973). Infant formula was being marketed in low-income countries by the 1960s, with profoundly harmful effects on child morbidity and mortality, in large part due to the infant formula being mixed with contaminated water, watered down, or fed from unclean bottles.³⁵ By 1981, the UN had released the International Code of Marketing of Breast-Milk Substitutes (UN 1981) based on strong and growing evidence of the importance of breastfeeding to child nutrition and survival.

33 One viewpoint: “the attention of the nutrition community and the resources of donors are more attracted by the glamour of micronutrients, a largely technical and often top-down solution (as close to a quick fix bullet as we are likely to get in this field), than by the politically sensitive business of poverty alleviation, people’s empowerment, and equality, necessary to ensure that mothers and children have access to health and educational services and adequate food to eat” (Schuftan et al. 1998 as quoted in Allen 2000).

34 The authors of the World Bank report *Repositioning Nutrition as Central to Development* (2006) wrote, “While we strongly endorse the need to take the micronutrients agenda to completion, it must not crowd out the need for attention to general undernutrition, as has been the experience in several countries and agencies over the past decade” (World Bank 2006).

35 The marketing of breast-milk substitutes has been the most profound contribution to mistrust of the private sector in the nutrition community.

A major conceptual advance, honed from the past multisectoral planning era, was the UNICEF framework on the causes of malnutrition (figure 6.1), accompanied by the “triple A” cycle of assessment, analysis, and action for nutrition (UNICEF 1990). This figure communicates a complex phenomenon succinctly and effectively, to unprecedented agreement among nutrition experts (Pelletier 2002). The UNICEF framework shows the three underlying causes of malnutrition as lack of access to adequate food, unclean environments and lack of access to health care, and inadequate care and feeding practices (“food, health, and care” in shorthand).³⁶

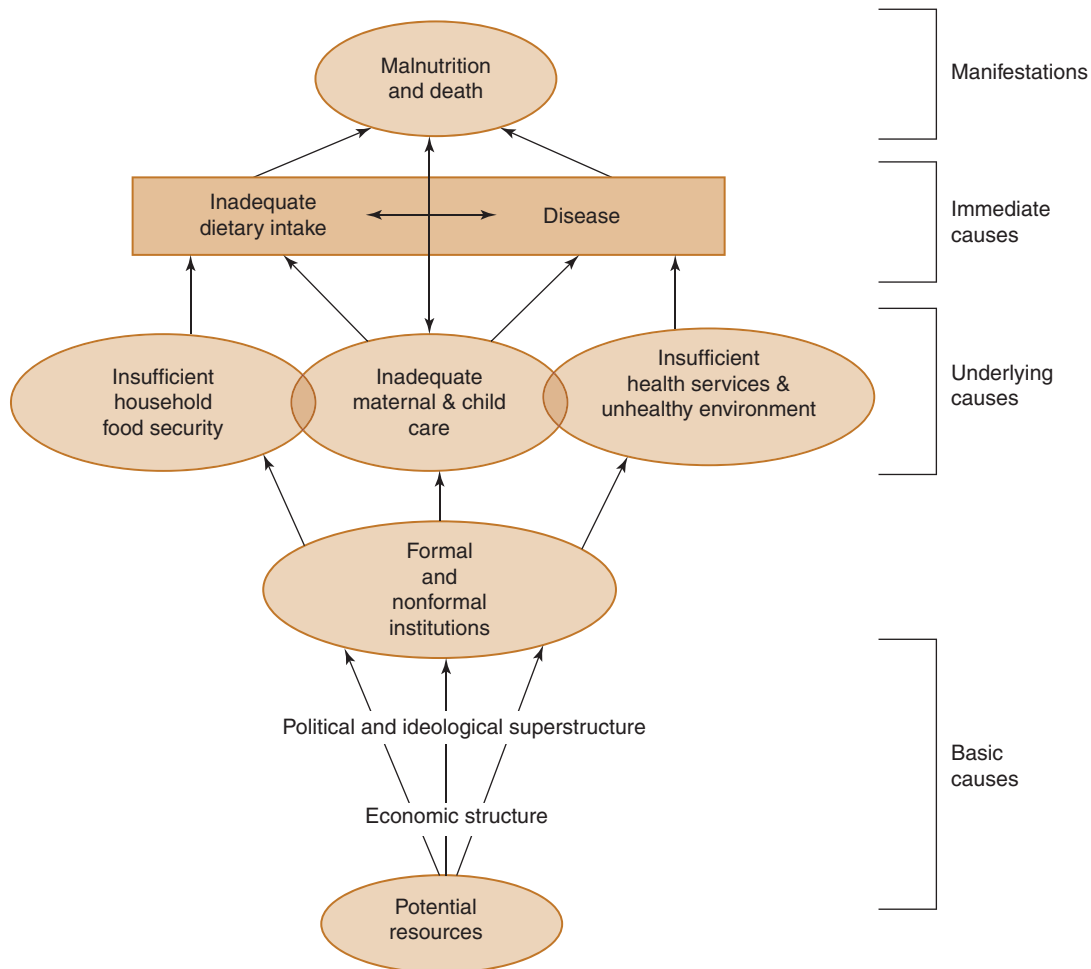
The placement of health and care on par with food in the widely accepted framework was part of the process in the 1980s and 1990s debunking the presumption that good nutrition depends *only* on food.³⁷ It was clear that food, at least as it was conceived and measured in the preceding decade where a “food crisis” loomed, was not solving the problem of malnutrition, even as calorie availability steadily grew as a result of the Green Revolution. Within the agriculture sector, the most relevant contributions to reducing hunger and malnutrition were perceived to be increasing global food supply and incomes, which nutritionists increasingly challenged as oversimplified (Berg 1970; World Bank 1981; Berg 1992).

Yet the field of nutrition was not offering an alternative to the oversimplification of food security; it was not substantively challenging the notion of “food” as a one-dimensional construct summarized as “calories.” In the UN Standing Committee on Nutrition’s³⁸ First Report on the World Nutrition Situation in 1987, dietary energy supply per capita was the only indicator reported with prevalence of underweight. By the Second Report on the World Nutrition Situation in 1992–93, many more indicators were added to reflect the “health” and “care” domains of the UNICEF framework but derivatives of dietary energy supply remained the only indicator for “food.” While the nutrition community was focusing on developing knowledge and indicators for the “health” and “care” domains, and still stinging from unsuccessful multisectoral collaboration attempts in the 1970s–80s, it left the “food” domain alone, allowing “food” to be defined as access to

36 The identification of these as the major causes of undernutrition was not new (Berg 1973), but its pithy communication of them in a single graphic, and its wide acceptance, was important (World Bank and UNICEF 2002).

37 See, for example, Pelletier 2002.

38 At the time, it was called the ACC Sub-Committee on Nutrition.

FIGURE 6.1: Causes of Malnutrition

Source: UNICEF 1990.

calories.³⁹ Still today, remarkably, the percent lacking access to calories (undernourishment) is the only prominent indicator for food security used globally. This time period represents a critical and lengthy departure of the nutrition community, broadly, from dealing with access to nutritious food; although perhaps it was consistent with its earliest roots, bypassing the food problem via isolated nutrients.

By 1977 real-world grain prices were half the 1974 levels, and by 2000 they were about one-quarter the 1974 levels. By the early 1980s, grain stocks had risen to burdensome levels. The significant decline in global food prices led to complacency about the continued need

to invest in agriculture. The share of public spending on agriculture in Asian countries halved from 14 to 7 percent between 1980 and 2004, and in Africa, it declined from about 7 to 4 percent. The share of overseas development assistance to agriculture (by all donors as reported by the Organisation for Economic Co-operation and Development (OECD)) halved from its peak of about 18 percent to 9 percent by the late 1980s and then again to about 4 percent by the early 2000s (Fardoust, Kim, and Sepulveda 2011).

6.2 NUTRITION AT THE BANK 1980s–2008

Almost all of the Bank's work in nutrition had taken place during this era, except for the first four projects (described above). The size of nutrition operations generated by Bank lending, from the establishment of the nutrition program in 1973 to 1998, was \$2.1 billion, far

39 There were, in fact, developments on food security measurement and definition in the 1990s and into the 2000s (for example, in USAID's FANTA Project), as well as operations (particularly in FAO). These efforts did not change the dominance of the dietary energy per capita indicator as the indicator used for food security.

exceeding all other development agencies combined (Alan Berg, personal communication).⁴⁰ For most of this period, however, nutrition *at the Bank* did not embrace “nutrition isolationism” *per se*—no doubt partly because it was led for many years by strong advocates for the strengths of multisectoral nutrition planning. The nutrition unit tried to reach out to other sectors, particularly agriculture,⁴¹ while continuing to increase projects implementing the lower-hanging fruits: the nutrition-specific interventions such as micronutrients, infant feeding, and community-based nutrition. The nutrition unit even offered a Nutrition Advisory Service with the aim of providing nutrition expertise, free of charge, to help other sectors incorporate nutrition into their activities (see box 6.1). Bank analytic work consistently discussed the need for action in agriculture.

Discussions about the Bank’s nutrition policy objectives and priorities were held with senior management throughout the 1980s. Noteworthy from this history is that each reexamination concluded with identical policy objectives and priorities regarding the link with agriculture: primarily, to include nutrition and food consumption of low-income groups as an explicit objective, and to ensure that their effects did not contribute to worsening nutritional status (including for those who were not direct program beneficiaries) (World Bank 1980; Pinstrup-Andersen 1981; Koffsky 1982; Reutlinger 1983; Berg et al. 1986; Berg 1987a). In nearly all of the papers and related extensive high-level deliberations held on nutrition, the significance of the nutrition/agriculture nexus was explicit.⁴²

The nutrition issue was not high on political agendas in general. There was no unified push from the nutrition community, which was

BOX 6.1: The Bank’s Nutrition Advisory Service: An Attempt to Facilitate Nutrition-Sensitive Action

The World Bank’s Health, Nutrition, and Population central unit managed a Nutrition Advisory Service in the 1990s that was essentially an internal consulting firm to meet the demand from Bank project task managers who were looking for consultants on missions to help incorporate nutrition into projects. It was created because staff in other sectors did not have the knowledge, training, or capacity to be able to incorporate nutrition effectively into their work; even if they understood its importance. The activities of the NAS included writing terms of reference, locating and managing consultants, and reviewing their performance. It also served as a knowledge community that produced a nutrition toolkit (World Bank 1996), and held seminars, trainings, and debriefings from task managers who had used the consultant service. The service was partially funded by operations, and partly by trust funds provided by specific countries, such as Japan and Norway. At its peak year, 138 staff weeks were provided (Alan Berg, personal communication). According to Judith McGuire, who managed the Nutrition Advisory Service, “There was a big uptick in action on nutrition because of the Nutrition Advisory Service. It made it easy for task managers to include nutrition.” That said, the majority of requests for help with nutrition came from the health sector. Those who managed the service recalled that it was difficult to generate interest among agriculture task managers. Affiliated Nutrition Advisory Service consultants interviewed could not recall any specific agriculture project that used the service.

primarily engaged in honing direct interventions.⁴³ Concurrently, the development community at large, including agriculture, saw no reason to prioritize nutrition when their main mission regarding “nutrition” was apparently being accomplished quite well: global food supply was more than adequate to meet caloric needs of humanity from 1980–2008, with food prices steadily falling.⁴⁴ This attitude pre-

40 At any given time, the nutrition budget and staffing was only a small fraction of the size of that in agriculture and rural development.

41 In a correspondence with Agriculture and Rural Development Department (AGR) staff, the senior nutrition adviser wrote, “You are right that we ‘do not appear particularly comfortable’ with the way Bank agricultural sector work covers nutrition. I think it is fair to say that in most sector studies the consumption side of the food issue is neglected. In short, to answer your question, ‘there is in my view a need to promote a heightened awareness of nutrition questions in the minds of agricultural project designer and sector analysts. ‘I . . . hope it is an issue we might discuss’ (Berg 1984).

42 The 1980 document, for example, said, “Agriculture and Rural Development Department (AGR) will be responsible for ensuring that nutrition is adequately considered in agriculture sector work and that Bank agriculture and rural development projects are designed to have the maximum feasible beneficial impact on nutrition. A senior AGR officer should be designated as being responsible for these concerns.” (Such a person was appointed on a part-time basis.)

43 As of 1980, the evidence problems were laid out thus: “We have no clear idea of what nutritional interventions work, under what conditions, at what costs in relation to what results. No international research mechanisms exist that are giving sustained and systematic attention to getting the answers.” (Chafkin 1980; These sentences were underlined in the personal copy of the report by the head of planning in the Population, Health, and Nutrition Department.)

44 A sense of this complacency is implied in comments from the nutrition unit on an early draft of an AGR food security policy paper (later revised to reflect these comments): “The [nutrition] situation is not under control as the paper describes. It is a little glib in the assumption that adequate aggregate availability takes care of the hunger problem. In the paper, adequate nutrition is largely used synonymously with adequate food supply. This goes a long way—but is not enough, as we know” (Berg 1983).

veiled both in donor agencies and country governments. So efforts to link agriculture and nutrition on the part of a handful of Bank staff, however strong their rationale, were working against the current. Furthermore, internal norms at the Bank, strengthened after negative experiences with integrated rural development projects, were not supportive of multisectoral or cross-sectoral efforts. Although the narrative of multisectoral nutrition at the Bank has consistently been one of the Bank's theoretical comparative advantages in multisectorality, in reality most projects were confined to a single project development objective.

In the 10 years from FY97 to FY06, 21 projects with nutrition objectives were approved which amounted to 10 percent of the Health, Nutrition, Population Department lending portfolio, plus six additional projects with nutrition in the title or nutrition components or subcomponents, for a total of 27 projects. Most of the projects were general health/maternal and child health projects; only four were freestanding nutrition projects. The types of interventions supported by these operations included growth monitoring and nutritional surveillance (100 percent), micronutrient supplements (52 percent), behavior change (nutrition education, promotion of growth monitoring, breastfeeding, specific dietary changes, and hygiene [48 percent]), and feeding supplements or rehabilitation of malnourished children (41 percent). According to the Bank's independent evaluation group, "the overall performance of the nutrition projects was weak. Only two projects—Indonesia Iodine Deficiency Control and Senegal Nutrition—demonstrated substantial efficacy in meeting their objectives, with resulting changes in nutritional outcomes" (World Bank IEG 2009). However, for over half of the nutrition projects the impact was unclear, "often due to the failure to collect data or report on nutrition outcomes."

Although about half of the nutrition projects from FY97–06 were multisectoral in implementation (with involvement of the water and sanitation, health, social protection and transport sectors), agriculture was notably missing. In the World Bank policy paper in 2003 "*Combating Malnutrition: Time to Act*," agriculture only came up in reference to the ongoing debate on the nutrition narrative and its institutional home. Agriculture did not appear in recommendations around "proven best practices," consensus on "what it will take," or capacity development. Again, this is likely a consequence of two factors: agriculture and food production and the nutrition community's main recent advances in

evidence and practice being off the main development radar. The document's main recommendation was to position nutrition on the poverty and human development agenda. A 1994 Bank publication, "Enriching Lives," showed that micronutrient interventions are among the most cost-effective for improving human capital and included an aim that the Bank would "include micronutrient intervention in every appropriate Bank project where micronutrient malnutrition exists" (and includes an annex listing all the countries with deficiencies in iodine, vitamin A, and iron).

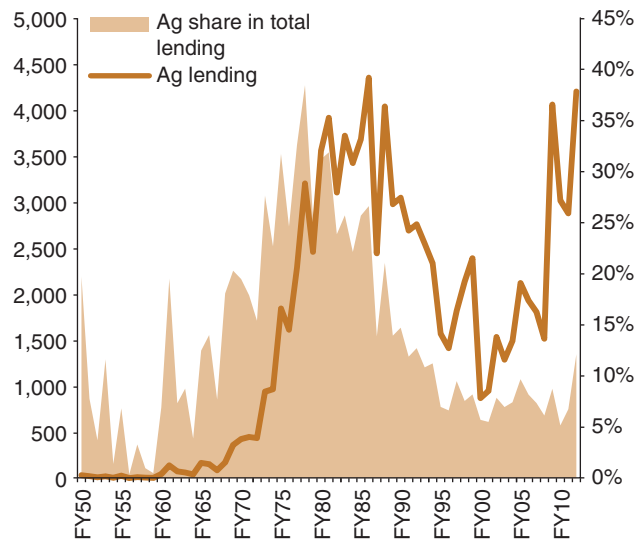
The recommendation was telling, because it was a thinly veiled statement of what was needed *within* the Bank, not just in countries. Between 1999 and 2004, nutrition lending was \$400 million, amounting to only 2.3 percent of human development sector lending (Heaver 2006), and was very low in 2005. The publication of *Repositioning Nutrition as Central to Development* (2006) was pivotal to reviving interest in nutrition within the World Bank. It successfully presented malnutrition as a key barrier to poverty reduction, and ultimately gained senior management support as well as attention externally. At the decision meeting concluding the report's peer review, the Senior Vice President of Human Development Jean-Louis Sarbib agreed to several significant high-level actions that placed nutrition back on the Bank's agenda, and the Bank's involvement in the current global agenda for nutrition.⁴⁵

6.3 AGRICULTURE AT THE BANK 1980s–2008

In terms of lending volume, in FY72 the amounts of the agriculture lending for the International Development Association (IDA) and the International Bank for Reconstruction and Development (IBRD) was \$463 million (15 percent of total IDA and IBRD lending) (see figure 6.2).

45 These actions included a briefing to President Wolfowitz to position nutrition as a corporate priority within the Human Development framework; meetings with regional and central vice presidents and country directors; development of a resource mobilization and a capacity development plan both within the Bank and with client countries to address this agenda; and upstream review by the nutrition team of all Country Assistance Strategies and Poverty Reduction Strategy Papers. According to the decision meeting minutes: "The four key messages to the President will focus on: i) There is unequivocal evidence that nutrition is central to economic and social development, ii) most of the millennium development goals (MDGs) will not be met without addressing nutrition issues, iii) we have the choice to act now or to continue to fail, because economic growth and increased food availability are necessary but not sufficient to improve nutrition; and iv) if we do not act now, we will be repeating the same mistake we made with HIV/AIDS a decade ago" (World Bank 2005).

FIGURE 6.2: World Bank Agriculture Lending Volume (in Nominal Million US\$) and Share of Agriculture in Total World Bank Lending (IDA and IBRD)



This increased drastically after President McNamara's 1973 speech and its call for "rural development" as the main tool for the Bank's new goal of poverty reduction. Agriculture lending peaked in FY86 at \$4.4 billion (27 percent of total IDA and IBRD lending). Since then, Bank lending to agriculture gradually decreased as developing countries and the development community's overall interest shifted away from agriculture and more toward new competing concerns such as the emerging health crisis (particularly HIV/AIDS), gender issues (especially girls' education), the environment, infrastructure, and energy.

The decline in agricultural lending was a response to rising food supply that led to the growth of surplus stocks and lowered world grain prices, which led to lower preappraisal economic rates of return for some projects, enough to remove them from consideration for Bank funding (Lipton and Paarlberg 1989). Another factor was the almost across the board high project failure rates in the agriculture lending program, as seen in: subsidized credit that was found to be regressive with weak cost recovery; the heavily promoted Training and Visit (T&V) extension system with low sustainability (which was ultimately abandoned); and the overly complex and failed integrated rural development programs.⁴⁶ The prevalence of hunger (using

⁴⁶ In 1987, the proportion of agriculture and rural development project with ex-post rates of return below 10 percent was 39 percent, compared to 17–25 percent in other sectors (World Bank Operations Evaluation Department 1987).

FAO's undernourishment indicator) declined from 18.9 percent in 1990–92 to 12.0 percent in 2011–13 (FAO 2013b). The food shortage that had so motivated intensive investment in agriculture in the 1960s–70s on the whole was no longer a crisis. Food aid and trade were thought to be sufficient to address food security crises.

The Bank's agriculture programming was also greatly influenced by the Bank's increasing emphasis in the late 80s to early 90s on tackling the overall economic crisis in developing countries through market-oriented approaches, best represented by structural adjustment operations. Taxation, foreign exchange, and trade policies in developing countries were generally biased against agriculture and considered to be a key factor in the low performance of the sector in most developing countries at the time (Schiff and Valdes 1992). The 1986 World Development Report (World Bank 1986a) took up the issue of trade and pricing policies in the agricultural sector, and the agriculture sector strategy in 1993 (World Bank 1993) emphasized getting prices right and getting the macro and sectoral environment right in order for the sector to function. An independent evaluation report stated that "*in agriculture, after 1991, the World Bank truly goes to market.*"

The agricultural adjustment loans that arose during this time generally had little focus on consumption issues in general.⁴⁷ An independent evaluation report (Meerman 1997) found that most agricultural adjustment loans FY79–FY95 ignored food security entirely.⁴⁸ In the few cases where agricultural adjustment loans addressed food security, it was through reform or elimination of costly food subsidies for consumers which were a drain on the country's fiscal position, and/or some "social components" that were intended to ease the pain for the poor due to reforms introduced by the project. The design of the Morocco Second Agriculture Sector Adjustment Project (FY87)

⁴⁷ The strategy indicated that food security issues would be supported through targeted assistance programs and through successful completion of global trade talks.

⁴⁸ Meerman (1997) reported that only 6 out of 50 Agriculture Sector Adjustment Loans (AGSECALs) addressed food security issues (Jamaica, Kenya, Madagascar [1986], Mauritania, Mexico [1992], Morocco). Further review by this paper's authors indicated that three other AGSECALs (Burkina Faso, Mexico [1988], and Somalia) also dealt with issues of food security as loosely defined by OED as "the degree to which an individual or group has adequate nutrition at all times." Therefore, we consider that out of 50 AGSECALs between 1979 and 1995, at least nine AGSECAL addressed food security in some way, and some also addressed nutrition explicitly (see appendix B.2).

stood out among the agricultural adjustment loans that addressed food security because it focused on nutrition through the selection of a nutrient-rich kind of flour as the target of the subsidy.⁴⁹

Despite the backdrop of low overall agricultural lending, of which very little was earmarked for food security, the *rhetoric* about food security was increasing globally and within the Bank as the world experienced periodic famine crises. During this era, agriculture's involvement in food security or nutrition was largely through nonproject knowledge activities. Perhaps the pinnacle of intellectual enthusiasm by the Bank's agriculture community was seen at the 1993 Bank-sponsored conference on "Overcoming Global Hunger." This heralded event brought to Washington the likes of the UN Secretary-General Boutros Boutros-Ghali, former President Jimmy Carter, the President of Botswana who had just won the World Food Prize, Nobel Laureates Amartya Sen and Mohammad Yunus, the president and much of the Bank's top management and heads of several international development agencies and major nongovernmental organizations (NGOs). Bank Vice President Ismail Serageldin, the organizer and chair of the conference, contended "food security is about access and nutrition as much as about production."

The conference had been preceded in 1987 by the establishment of a Task Force on Food Security in Africa headed by Africa Vice President Kim Jaycox.⁵⁰ This led to the creation of a small Food Security Unit within the Africa region but otherwise had relatively little interaction with the Bank's regular work program. The Task Force was accompanied by a separate initiative called the Social Dimensions of Adjustment program (SDA) cofunded by France and United Nations Development Program to create data and methodologies for developing targeted poverty programs in Africa by training government officials, and carrying out pilot projects that combined social welfare and income objectives. Africa Vice

49 In this Morocco AGSECAL, the project supported the government in reducing the core food subsidy program to a single commodity, that is, wheat flour, but of a less-refined high extraction rate flour, which is an "inferior good" as well as being nutritionally rich (high in bran content).

50 This was accompanied by a World Bank food security policy paper (World Bank 1986b). Comments from the Population, Health, and Nutrition department to an early draft of the policy emphasized that increased coordination and resources would be necessary for implementing food security actions. (Schebeck 1983 and Berg 1983).

President Kim Jaycox said the initiative would constitute "a major shift in the way we are going to do business," and Senior Vice President of Operations Moeen Qureshi said the food security effort would be "center stage" in African operations. By 1990, SDA was carried out in 29 countries but in practice, the SDA mostly limited its work to statistical procedures and data collection, doing little to spark new lending approaches as had been intended (Kapur, Lewis, and Webb 1997). As the studies were slow in being mounted and then generally took far longer than anticipated to execute, the crisis by then had abated somewhat and only a handful of related operations materialized.⁵¹ In short, the food security initiative petered out and fell far short of expectations.

During this period, there was also a disconnect between what was written in Agriculture and Rural Development strategies, and what actions were actually taken. Two agriculture sector strategies ("From Vision to Action" [1997] and "Reaching the Rural Poor" [2003]) were quite explicit in their stated goals for nutrition, as part of the Bank's agriculture work.

The 1997 strategy ("From Vision to Action") acknowledged food consumption and nutrition policy as one of the "long-ignored issues" (together with land reform) and called on itself to:

1. Better integrate its food and nutrition policy into rural sector strategies and country assistance strategies
2. Better incorporate food policy and nutrition into its lending activities, specifically including them in pilots, adjustment operations, sector investment loans, and safety net operations
3. Include in nonlending assistance to partner countries policy advice that addresses consumption effects of agricultural policies

The 2003 strategy ("Reaching the Rural Poor") was even more ambitious in terms of its attempt to address a whole array of impacts through agriculture and rural development, including nutrition. Specifically, a new area on social well-being included language on improving access to nutrition and health services and improving

51 Of the hundreds of investment operations for Sub-Saharan Africa approved by the Bank in the 8 years after food security was assigned "center stage," only six self-standing food security projects emerged and it is not clear that any of those had their roots in the food security studies (Alan Berg, personal communication).

food security for the rural poor. To improve health and nutrition outcomes, the stated actions were:

1. Advocate the interest of the rural poor to ensure that government resources for health are not biased toward urban constituents
2. Place greater emphasis on improving dietary quality and micronutrient status (fortification, supplementation, biofortification)
3. Promote community-driven multisectoral approaches to improving health and nutrition
4. Promote the status of women in rural development

There is very little evidence to assess progress on these nutrition actions laid out in these comprehensive strategies. A two-phased independent evaluation of the 1997 strategy was positive overall, but noted a disconnect between the vision and action (World Bank OED 1999, 2000).⁵² The evaluation stated that *“although the principles of the rural strategy are generally sound and widely accepted, they are not always reflected in project work. The challenge is to provide an effective framework for action, particularly at the country level.”* Similarly, much was stated in the 2003 strategy but not all of it was achieved. Some attention was paid to promoting the status of women and community-driven approaches in general within agriculture activities, but less on *“improving dietary quality and micronutrient status.”*

Although the social well-being pillar was the second largest among the five pillars, a mid-term implementation review made no mention of nutrition.⁵³

Despite the significant calls to action for food security in the 1980s–90s (especially in Africa), it appears that low food prices and high food stocks, which encouraged developing countries to tax the agriculture sector and thus lower its competitiveness ultimately were the dominant factors resulting in only very modest investments in agriculture as a whole, let alone food security or nutrition. The rhetoric around *“a major shift in the way [the Bank was] going to do business,”* and significant mention of nutrition within the Bank’s agriculture strategies, was not aligned with the deliverables toward which agriculture project task managers were held (and held themselves) accountable, particularly as there was no evaluation of how well the agriculture strategies had addressed food security or nutrition. This is reflected in the extremely limited attention to nutrition in the Independent Evaluation Group 2011 evaluation of agriculture and agribusiness. In sum, there were no incentives for agriculture projects to have and measure explicit nutrition objectives; and of the few food security projects there were, lack of M&E related to food security and nutrition impact makes it difficult to draw out lessons learned.

52 The evaluation included two specific recommendations: (1) to fine-tune the vision, but emphasize action; and (2) to adopt a two-track recruitment strategy where sector specialists would be distinguished from rural development specialists, the latter to be charged with building bridges between the World Bank’s rural family and other families in the Bank (World Bank OED 2000). There is little evidence to suggest that these recommendations were taken up in a systematic way.

53 Major areas of financing within the social well-being pillar were basic health care services, education, and provision of clean water and sanitation.

Chapter 7 TWIN-TRACK AGENDA: NUTRITION-SPECIFIC INTERVENTIONS AND NUTRITION-SENSITIVE DEVELOPMENT AMID HIGH INVESTMENT IN AGRICULTURE (2008–PRESENT)

7.1 GENERAL TREND

Two events in 2008 kick-started the present situation, where increasingly, improving nutrition through agriculture is high on the international development agenda. First, the food price crisis in 2008 rocketed food back onto the international agenda again, after it had lost priority as prices had fallen since the 1970s. At the same time, the publication of the first *Lancet* series on maternal and child undernutrition in 2008 solidified evidence on the consequences of undernutrition, which were extraordinarily effectively leveraged by the nutrition community for advocacy.

Due to low investments in previous decades, the level of global food stocks began to decline in 2000, and as a consequence, global food markets became more vulnerable to shocks. Real prices reached all-time lows in 2000 and then began a gradual recovery that eventually accelerated and peaked in 2008 before declining again during a global recession. The increase in real food prices since 2000 was similar in magnitude to those in the 1970s, with real prices increasing 82 percent from 1972 to 1974 compared with 98 percent from 2000 to 2008. The price spikes in the 1970s occurred more quickly, however, and were driven by easily identifiable shocks (large imports by the Soviet Union and drought), while the increase from 2000 to 2008 was more gradual and caused by a confluence of factors including weather, biofuels, and speculation. Against this background, global attention began to shift back to agriculture (Fardoust, Kim, and Sepulveda 2011).

On the nutrition side, the 2008 *Lancet* series' key conclusions were that undernutrition experienced in the period of pregnancy and the first 2 years of life (roughly the first 1,000 days) had typically irreversible consequences on cognitive development and physical growth and stature, and that these resulted in lower IQ, delayed and less schooling, lower income in adulthood, higher risks during

pregnancy and delivery, higher risk of chronic diseases such as diabetes, and more than a third (revised in 2013 upward to 45 percent) of all child deaths (Black et al. 2008; Black et al. 2013). Much of this knowledge was not new in principle; the lost human capital known “beyond reasonable doubt” when nutrition work first started at the World Bank (Jeliffe 1971).⁵⁴ But the rigorous review of evidence, the concise list of prioritized core evidence-based interventions, and the timing of the series, all aided in widespread acceptance of and attention to the evidence base.

The 2008 *Lancet* series identified 13 priority evidence-based direct nutrition interventions to address maternal and child undernutrition. These formed the initial basis for the Scaling Up Nutrition (SUN) movement, which started as fairly nutrition isolationist, focused on scaling up the direct interventions. Many stakeholders, however, strongly supported including attention to multisectoral efforts. A critical early step was drafting the SUN Framework for Action. Launched at the World Bank/IMF Spring Meetings in April 2010, the framework was endorsed by over 100 organizations (governments, civil society, UN agencies, donors, businesses, and research institutions) and marked the official start of the movement. The framework laid out the key principles and priorities needed for taking action to address undernutrition, including evidence-based *nutrition specific* interventions (such as including promotion of breastfeeding and

54 A peer review comment to the World Bank's *Repositioning Nutrition as Central to Development* (2006), which presented evidence about the burden of malnutrition, noted: “The nutrition and human capital literature of the 60s and 70s says essentially all that this paper says about the burden of nutritional causes, the economic costs and consequences of that burden, and what can be done in cost-efficient ways to address those problems. Knowledge has not been a problem. The problem has been the failure of the Bank and others institutionally to keep up with knowledge and to act on it, and the mistaken approach of acting as if other goals could be met in the absence of nutritional improvements” (World Bank 2005).

micronutrient supplementation), along with investments in *nutrition sensitive* actions delivered through several sectors, including agriculture.

The SUN movement is the first time that a wide-ranging coalition of stakeholders came together in a united front to elevate the fundamental importance of the problem of undernutrition and the feasibility of effectively addressing it. As of today, 50 countries committed to scaling up nutrition have joined the SUN global movement, there have been a spate of political advocacy events for nutrition, and rising commitments from donors. The 2013 Nutrition for Growth G8 Summit event committed \$4.2 billion for scaling up the nutrition-specific interventions, and another \$19 billion for nutrition-sensitive interventions (Government of UK 2013).

While the SUN framework (2010) identified nutrition-specific actions clearly on the basis of the *Lancet* series, it did not explicitly identify what should be done on the nutrition-sensitive side. There is significant will to invest in nutrition-sensitive agriculture among donors and SUN countries, but exactly what this should look like is a work in progress—the subject of multiple international meetings and other forums, and many written documents (FAO 2013c). A common vision emerging through all of this conversation is represented in a consensus statement of Key Recommendations for Improving Nutrition through Agriculture⁵⁵ (Herforth and Dufour 2013).

An important development in agriculture for nutrition is the HarvestPlus initiative by the CGIAR, which develops crops biofortified with micronutrients, especially vitamin A, iron, and zinc in staple crops (wheat, rice, maize, phaseolus beans, and cassava). This started in 1995 as a Micronutrient Project within CGIAR to assemble the package of tools that plant breeders need to produce mineral- and vitamin-dense cultivars. It differs from the Quality Protein Maize (QPM) initiative in that this time it is micronutrient content that is being enhanced, and not protein, as it was earlier (see box 7.1). However, those involved recall that at the inception of HarvestPlus, plant breeders were reluctant to take up the HarvestPlus initiative, recalling their unfortunate experience with QPM and the nutrition community's swift change

⁵⁵ These include 10 recommendations for programming (such as empowering women, diversifying production, and targeting the vulnerable), and 5 for policy (such as increasing incentives/removing disincentives for nutritious food production, and monitoring access to adequate nutritious food and dietary quality).

BOX 7.1: The Quality Protein Maize Story

Serious efforts to improve the nutritional quality of maize endosperm protein began in the mid-1960s at the International Maize and Wheat Improvement Center (CIMMYT) in Mexico, which would later become one of the founding centers of the Consultative Group on International Agricultural Research (CGIAR). Research on developing a maize variety with improved protein quality was a direct response to protein deficiency, then considered the world's most pressing nutrition problem. Unfortunately, initial efforts in developing what later became known as Quality Protein Maize (QPM) produced maize with up to 25 percent lower yield as well as increased susceptibility to fungal ear rots and storage pests. Its soft texture was also not acceptable in many parts of the world where consumers are accustomed to harder grain types (Vasal 2000). By the mid-1970s discouragement set in because of the lack of competitiveness of these varieties and most research projects were either abandoned or drastically reduced. Interest even among the nutrition community had also vanished by that time, replaced by concerns of overall food shortage and broader causes of malnutrition. It took decades more of patient plant breeding research at CIMMYT, the University of Natal in South Africa, and the Crow's Hybrid Seed Company in Illinois to finally develop competitive traits in the mid-1990s. These modern QPM varieties are currently being actively disseminated, particularly in Sub-Saharan Africa (Krivanek et al. 2007).

from emphasizing proteins, then dietary energy, and now micronutrients (Per Pinstrup-Andersen, personal communication).⁵⁶

Similarly, another opportunity where a nutrition problem requires an agricultural solution is in the problem of aflatoxin. Aflatoxins contaminate crops such as groundnuts and maize, and are highly toxic, carcinogenic, fungal metabolites linked to liver disease, stunting, immune system suppression, and death in both humans and domestic animals. Because of its toxicity, aflatoxin contamination is both a food safety and public health issue. Reduction in aflatoxin content in crops through research and deployment of aflatoxin management practice including new methods for aflatoxin detection, crop breeding, biological control, food storage and handling, and postharvest mitigation is one concrete area where agriculture is essential to improving a nutrition problem.

⁵⁶ Per Pinstrup-Andersen was Director General of the International Food Policy Institute (IFPRI) from 1992–2002.

7.2 NUTRITION AT THE BANK 2008–PRESENT

The World Bank has been a major partner in developing the current twin-track agenda of nutrition-specific interventions and nutrition-sensitive development, and operational and analytic work within nutrition at the Bank reflects it. The Health, Nutrition, and Population sector strategy (World Bank 2007) explicitly built on *Repositioning Nutrition as Central to Development* (World Bank 2006), highlighting nutrition as an outcome in itself and malnutrition as a constraint to poverty alleviation and other development outcomes. It stated, “An ambitious agenda is being implemented for scaling up the nutrition portfolio and correcting the declining trend in the Bank’s investments in nutrition.”⁵⁷ Catalytic funds, complemented with trust fund resources from Japan and other donors, were to be used primarily for “rebuilding the Bank’s own staffing capacity to respond to the needs in high-malnutrition burden countries” and “to develop a shared global action plan for scaling up nutrition” (World Bank 2007).

As laid out in the strategy, a batch hire of six full-time nutrition specialists in 2009 helped to reinvigorate nutrition activities within the Bank across the regions. The SUN movement, which defines the current twin-track agenda, was launched at the World Bank/IMF Spring Meetings in April 2010. Funding for the Bank’s engagement reflected the twin-track agenda. For example, a trust fund from the government of Japan supported a combination of nutrition-specific and nutrition-sensitive activities as well as pivotal financing of the early work of the SUN movement including the development of the SUN Framework for Action which articulated the importance of both approaches. The internal environment was conducive to a renewed emphasis on multisectoral work: The Health, Nutrition and Population strategy for FY07-12 emphasized multisectoral approaches for health in general, specifying “strengthen Bank capacity to advise partner countries on a multisectoral approach to HNP results” as one of five new strategic directions⁵⁸ (World Bank 2007).

Analytic work and guidelines have also followed the twin-track agenda. *Scaling Up Nutrition: What will it cost?* (2010) was prepared at

the same time as the SUN Framework, providing cost estimates for scaling up the delivery of the nutrition-specific interventions. Similar costing analyses are being carried out in the Africa region. Since the launch of the SUN movement, the Bank also developed a guidance note, *Improving Nutrition Through Multisectoral Approaches*, and programmatic guidance briefs for agriculture, social protection, and health (World Bank 2013b).⁵⁹ The briefs were designed to meet the demands for practical, accessible operational guidance for client countries as well as Bank and other development partner staff to support nutrition-sensitive activities across multiple sectors.

The SecureNutrition Knowledge Platform: Linking Agriculture, Food Security and Nutrition began in early FY12 and is a cross-sectoral initiative with leadership from Health/Nutrition, Agriculture, and Poverty Reduction units in the Bank. The goal of SecureNutrition is to bring the agriculture, food security, and nutrition agendas closer together by engaging with stakeholders both within the Bank and with external partners to address operational knowledge gaps; enable easy access to new information as it becomes available; encourage the development of networks between institutions, governments, program implementers, and individuals; and support innovation for improved nutrition outcomes through projects in agriculture and food security.

The Bank is currently funding nutrition projects in 39 countries,⁶⁰ a major increase over FY00–06 when only 16 countries had any nutrition-related activities in any sector (Garrett and El Hag El-Tahir 2008). The focus in South Asia is strongly multisectoral; for example, the South Asia Regional Assistance Strategy (SARAS) for Nutrition (2010–2015) was adopted and has helped spearhead nutrition actions. The objective of SARAS is to expand the scale, scope, and impact of the region’s work program on nutrition, while building Bank staff as well as the clients’ commitment to and capacity for multisectoral response to the nutrition crisis in the region. World Bank also supported the development of the Nepal Multi-Sector Nutrition Plan (Government of Nepal 2012) and is supporting the nutrition and

57 Eighty percent was to be used for regional operations, and the rest for activities such as knowledge management, results monitoring, and partnership building.

58 The strategy states, “Multisectorality is one of the most important pillars of the World Bank’s development work . . . The Bank will strengthen its multisectoral work to help countries and international partners achieve the best possible HNP results” (World Bank 2007).

59 The agriculture brief was supported by a background paper (Herforth et al. 2012). Previous work supported by the Bank also led to analyses of working multisectorally in nutrition (Garrett and Natalicchio 2011; Pelletier et al. 2012).

60 Including 6 South Asia countries, 19 African countries, 8 in Latin America and the Caribbean, 4 in East Asia and the Pacific, and 2 in the Middle East.

food security initiatives within it through the South Asia Food and Nutrition Security Initiative (SAFANSI), the 1,000 days project; and Nepal Agriculture and Food Security Project (NAFSP). Afghanistan is also developing a multisector nutrition plan. The Africa region contains the highest number of SUN countries, and numerous new projects and project components (including within agriculture in some countries) are focusing on nutrition in the region. The Latin America and Caribbean region has published a regional companion piece to the global multisectoral guidance note for agriculture, demonstrating strong interest in linking agriculture and nutrition (World Bank 2014). The East Asia and Pacific region is developing a regional strategy for nutrition. Several countries in the region have projects to address nutrition, and there are discussions in several countries about addressing the double burden of undernutrition and obesity (for example, Indonesia; see World Bank 2013c).

7.3 AGRICULTURE AT THE BANK 2008–PRESENT

After the food price crisis starting in 2008, the World Bank announced a “new deal in agriculture” where agriculture lending would double. Bank lending for agriculture reversed course after a bottoming out in FY00 at \$872 million (6 percent of total International Development Association [IDA] and International Bank for Reconstruction and Development [IBRD] lending), and then jumped up after the first global food price hike in 2008, and in FY12 recorded a lending volume of \$5.1 billion (or 15 percent of total Bank lending). The Bank also established a response mechanism to the food price crisis, the Global Food Price Crisis Response Program (GFRP) from its own funds as well as with external donor funds. The World Bank released the 2008 World Development Report: Agriculture for Development, setting the stage for its return to agriculture (from a more broad rural development approach). The report laid out a strong case for the power of agriculture for pro-poor economic growth, as a source of livelihood, and as a provider of environmental services. Despite the comprehensive coverage of issues in the sector, nutrition was dealt with only minimally as part of a two-page “focus” piece on the links between agricultural production and food security. The World Development Report (WDR) was an influential piece for the Bank’s agriculture work to correct the past neglect of agriculture in general, to address the sudden food price crisis, and the urgent need for the development community to

support countries in producing more food to prevent more people from being pushed back into poverty. The agriculture department drew up a new “Agriculture Action Plan FY10–12” in 2009 based on the WDR to lay out its approach for the greatly increased lending program in agriculture. The five pillars of the Action Plan were as follows:

1. Raise agricultural productivity.
2. Link farmers to markets and strengthen value chains.
3. Reduce risk and vulnerability.
4. Facilitate agricultural entry and exit, and rural nonfarm income.
5. Enhance environmental services and sustainability.

Following the overall conceptual framework of the WDR, nutrition is noticeably missing in the description of any of the pillars, which reflects the fact that despite two earlier ambitious rural strategies, which included concrete actions for nutrition (and many other issues), it had failed to enter into the mainstream of business line in agriculture. Nutrition was not included in the Agriculture Action Plan FY10–12 (World Bank 2009). That plan was intentionally not developed as a strategy that would require extensive and costly consultation. It was developed as an action plan, which would be a more pragmatic and operational document intended to guide the overall direction of the Bank’s programming for the agriculture sector. In fact, the word “nutrition” appears only once in the Agriculture Action Plan: in the context of animal nutrition.⁶¹ There is no mention of human nutrition in the document.

There is a noticeable difference in the second Agriculture Action Plan FY13–15 (World Bank 2013a). By that time, the SUN movement was launched and there was wider recognition that multisectoral actions, including those in agriculture, would be key to reducing child undernutrition. The second Agriculture Action Plan maintained the same five pillars as in the first action plan, but also introduced seven areas⁶² to which the Bank would give more emphasis. The second Action Plan recognizes that food production increases do not automatically translate into improved nutritional outcomes

61 “. . . the World Bank Group will support improvements of **nutrition** and genetics of ruminant livestock, storage and capture technologies for manure, and conversions of emissions into biogas.”

62 The seven areas are: climate-smart agriculture, private sector response, risk management, nutrition, gender, governance challenges, and landscape approaches.

for vulnerable groups and thus calls for investments in areas such as women-focused agriculture, adoption of biofortified crops, food fortification, crop diversification to food with high nutrient content, and increased nutrition education through extension and livelihood projects. The Action Plan indicates the Bank's agriculture department's intention to "increase the share of agriculture projects with an explicit focus on nutrition."⁶³ Some agriculture projects with a strong nutrition focus are emerging such as the Nepal Agriculture and Food Security Project supported by the Global Agriculture and Food Security Program (see box 7.2). This project is one of the very few World Bank agriculture projects ever that includes nutrition as an explicit project development objective. The project's inclusion of food security and nutrition goals and indicators is significant indeed and constitutes a step toward aligning with global good intentions and national-level country demand for agriculture investments to improve nutrition of their beneficiaries.

Work on nutrition within agriculture is growing gradually within the country programs in an opportunistic manner responding to emerging demand from clients and donors. In the Latin America and Caribbean region, a nutrition beam was funded to encourage intersectoral collaboration between the nutrition and agriculture units. In the Africa region, a nutrition focal point has been appointed in the agriculture department to develop a pipeline of agriculture projects that could incorporate various nutrition elements. Within the Bank's South Asia region, there has been significant cross-sectoral engagement on food and nutrition security issues through the South Asia Food and Nutrition Security Initiative (SAFANSI), a multidonor trust fund created in March 2010. As part of the Nutrition for Growth Summit commitments in 2013, the World Bank has committed to a review of all agriculture projects for their inclusion of nutrition, to increase the number of agriculture projects that explicitly address nutrition (Government of UK 2013).

The rather sudden focus on nutrition within the Bank's agriculture department is a welcome development. But how far we advance

BOX 7.2: Nepal Agriculture and Food Security Project (NAFSP: Funded by the Global Agriculture and Food Security Program, GAFSP)

The objective of the project is to enhance food and nutritional security of vulnerable communities in selected locations of Nepal. The Project Appraisal Document (2012) states, "Food security will be realized through increased food availability, made possible by increasing productivity of agriculture (both crop and livestock); and nutrition security through improved nutrition, made possible by promotion of diversified diets and improved feeding and caring practices for pregnant and nursing women and children up to 2 years of age."

The nutrition sensitive agriculture interventions include: technology development and adaptation of minor but nutritionally significant crops such as buckwheat, blackgram, soybean, olive, walnut, and lentil. Additional efforts include technological improvements for development of improved breeds of poultry for backyard poultry in mountain areas; support to kitchen gardens as part of rural livelihood enhancement; promotion of women-friendly labor-saving technologies such as treadle pumps to liberate time for self and care; integrating nutrition in the curriculum of district agricultural extension teams; nutrition education to promote diet diversity; and strengthening government food lab capacity to enable analysis of the nutrition value of locally available foods.

Basic nutrition interventions that accompany the above include: nutrition education on nonfood aspects that affect nutrition (hygiene, sanitation, infant and young child feeding and caring practices) as well as better utilization of iron folic acid and micronutrient powder supplements. The last two would be delivered through parallel World Bank-supported operations in the health sector.

Project targets include adding 57,000 to the number of farmers whose crop productivity had increased (of which 50 percent will be women), increasing the proportion of pregnant and lactating mothers with improved intake of nutritious foods by 20 percent, and increasing the proportion of children 6–24 months with appropriate complementary feeding by 30 percent.

63 A similar focus on nutrition has also taken place at FAO and the International Fund for Agricultural Development (IFAD) around the same time. FAO's Office of Evaluation carried out an evaluation of FAO's role and work in nutrition in 2011 (FAO 2011). The findings generally found a low level of support to nutrition in an organization that is supposed to have nutrition as one of its core mandates. Since the evaluation, FAO has instituted organizational changes to strengthen its work on nutrition.

on this agenda still remains to be seen. Also, we should note that nutrition is not the only "new area" that agriculture will focus on. There were six others, some that are directly linked to the corporate priority on climate change such as climate-smart agriculture.

Chapter 8 CONCLUSION

For an institution like the World Bank, the connection between its agriculture projects and its objective of food security and nutrition improvement would seem an obvious one. Improved food security, nutrition, and health, essential to poverty reduction writ large, were central to McNamara's vision for the World Bank in 1973, harkening to world leaders' vision for international collaboration after WWII. But this review of the 40 years since the World Bank began work in both nutrition and rural development shows that despite conceptual interest in linking the two, little sustained action of consequence has occurred. The persistent storyline in agriculture has been that aggregate increase in food supply and improved income are the ways in which it can and should contribute to nutrition. To date, ownership of nutrition issues has been limited in agriculture, and emphasis on food has been low among nutritionists. We draw lessons from this experience to inform and increase the likelihood of greater success of present day and future efforts.

Learning from History

Has the World Bank, and the overall development community, tried to link agriculture and nutrition before? Our findings indicate the answer is yes and no. It is clear that many things to encourage the link between agriculture and nutrition have been tried since 1973. These have not resulted in sustained action or ownership—or a fundamental change in the way agriculture does business—for reasons suggested in the next section on “missing factors.”

8.1 WHAT HAS BEEN TRIED?

Developing analytical work and guidelines. There was no lack of analytical work on improving nutrition through agriculture projects. Identified for this review were at least 54 pieces of country-specific food/agriculture sector-related or economic work and 29 pieces of

global research or other analytical work featuring nutrition (Alan Berg, personal communication). The World Bank even actively cosponsored with the International Food Policy Institute (IFPRI) and the U.S. Agency for International Development (USAID) an international conference on needs and priorities for international agricultural research in the context of nutrition (Pinstrip-Andersen, Berg, and Forman 1984). Guidelines on linking agriculture and nutrition were developed, going back to the initiation of nutrition activities at the Bank, in many ways similar to those written now (see appendix C). These consistently have recommended focusing on vulnerable populations, building nutrition capacity in agriculture projects, and assessing the context to inform project design. Most strikingly, there has been a consistent recommendation to invest in agriculture in line with food requirements for nutrition and with a food consumption objective, ever since the first nutrition policy document in 1973.

Including nutrition in agriculture strategies, along with intermittent high-level support.

There was also, at times, high-level support from senior management. The most significant was the major food security initiative led by the World Bank in the early 1990s. High-level statements were made in 1988–89 and 1993, but nutrition was not explicitly part of agriculture strategy until 1997. The 1997 and 2003 agriculture strategies were the first to squarely address nutrition as one of (many) goals within a broad rural development approach. Unfortunately, these strategies were quite expansive, and the language on nutrition was not effectively translated into the establishment of an adequately budgeted “business line” or a new way of doing business within the agriculture department. The most recent second Agriculture Action Plan FY13–15 (World Bank 2013a) is an improvement since it was developed with extensive internal discussions with regional agriculture teams and includes a

commitment to increase the share of projects that explicitly include nutrition, which is monitored annually.

Providing technical assistance. Most notably, the Nutrition Advisory Service made available senior nutrition consultants who could provide technical assistance for integrating nutrition into projects in any sector in the Bank. This was promoted through free workshops offered by the nutrition department that repeatedly targeted agriculture staff with the intent to have stronger participation from agriculture (Berg 1990, 1991a, 1991b). While the service led to an increase in nutrition activities in health sector projects, the consultants involved cannot recall any agriculture project that used the service (Alan Berg, James Levinson, Judith McGuire, and Per Pinstруп-Andersen, personal communication). Currently, technical assistance is being requested by agriculture project leaders particularly in the Africa and South Asia regions, which may reflect growing interest in nutrition.

Complex multisectorial projects. In the 1970s, the Bank attempted complex multisectorial projects including both agriculture and nutrition, through integrated rural development projects, most of which failed due to major management difficulties and implementation challenges related to the extensive coordination required. Repeating this approach of complex multisectorial coordination in a context of limited ownership of nutrition within agriculture itself, is *not* a recommendation for today. The need for simplicity/feasibility of implementation, and tracking progress to clear targets, are the major lessons learned from these projects. To track progress, targets would need to be in the results-framework and logically linked to the overarching goal of the main project objective.

8.2 MISSING FACTORS: WHAT WAS LACKING TO DEVELOP SUSTAINED ACTION AND OWNERSHIP?

Although the numbers of nutrition-related involvements in agriculture projects have not been altogether insignificant, in all likelihood their ultimate nutrition impact has been limited. There is but scant evidence that intermittent strong endorsements from senior management, the extensive underlying analytical work and the supportive guidelines, seminars, workshops, and other training provided to agriculture colleagues by others in the World Bank had any profound

effect on objectives or priorities of its agriculture programs. Here, we identify factors that appear to have been consistently missing.

Clarity in vision. Despite analytical work that often came to similar conclusions, there has been no clear, unified, easily articulated storyline about what, exactly, agriculture is supposed to do regarding nutrition; nor how such action is integral to agriculture's goals. This would not imply a prescriptive program but would imply clear targets—in other words, clearly defined desired ends, but flexible means. When the globally agreed definition of “food security” shifted from “availability of world food supplies” (1974) to “sufficient, safe, nutritious food to meet dietary needs . . . for healthy and active lives,” no shift in operations reflected the updated vision. Nutritionists have long claimed that income generation and staple crop productivity are insufficient, but have not articulated a clear alternative goal—partly because from about 1980 to 2008 (the era of “nutrition isolationism”) the field of nutrition in general was not focused on food or agriculture. The Bank led a high-level initiative on food security in the mid-1990s that was supposed to ensure that food security will be “center stage” in Africa region operations. The crushing conclusion to this initiative was a total of six projects that focused on food security: “The Bank pulled away from food security in the ‘90s largely because there were so few answers about what should be done” (Katherine Marshall, personal communication).⁶⁴

Targets for success and accountability that make sense for agriculture. For the nutrition community, the goal for decades has been to convince decision makers that nutrition is central to development.⁶⁵ Indicators of nutritional status—particularly stunting and underweight of young children, and micronutrient deficiencies (especially iron, iodine, and vitamin A)—have been essential to communicating the connection between nutrition and many human and economic development outcomes. This agenda has been so

64 K. Marshall was agriculture division chief in east and central Africa from 1979–1986 and country director in the Sahel from 1990–94.

65 The World Bank has had a primary role in this agenda, starting with McNamara's rationale for including nutrition in the Bank's operations to fight poverty, influenced by Alan Berg's 1973 book *The Nutrition Factor*, and most recently by the major technical report “Repositioning Nutrition as Central to Development” and the World Bank's support of the SUN movement.

all-encompassing that global nutritionists frequently conflate the word “nutrition” with “stunting” or other indicators of nutritional status.⁶⁶ As a result, nutritionists’ and economists’ reviews of the evidence base for agriculture and nutrition have focused on nutritional status outcomes (Masset et al. 2011; Webb Girard et al. 2011; Ruel and Alderman 2013). Nutritional status, however, is not generally understood as relevant within the agriculture sector; nor is specifically targeting the 1,000 days during pregnancy and the first 2 years of a child’s life. Infant and child growth is too distant from its activities and is affected strongly by factors outside agriculture’s scope (for example, health status, sanitation, knowledge, and care practices). The understandable result has been that the agriculture community sees “nutrition” (thought of as young child nutritional status) as an issue owned by the health sector. With good reason, few World Bank agriculture projects have ever adopted nutritional status outcomes. There has been relatively little advocacy for other outcomes, such as nutritious food access or consumption, that might be more closely related to agriculture projects’ influence on nutrition.

Relevant monitoring and evaluation in projects. This reflects the absence of any clear target related to food access or consumption. From 1972 to 2000, 42 agriculture and rural development projects were identified that had nutrition activities—not an altogether insignificant number, although a small overall proportion of agriculture projects (Alan Berg, personal communication; see appendix B). These were usually marginal community development activities (such as home gardens, nutrition education), or adding direct nutrition interventions (such as deworming) to an otherwise standard agriculture project. An important observation is that almost none of the World Bank projects that attempted to address nutrition through agriculture actually monitored or measured nutritional or food security outcomes; nor have they included, in their official project completion reports, even qualitative assessments of the specific nutrition activities. This is likely because most of these nutrition-related activities were minor and inconsequential to the

overall project objective.⁶⁷ As such, any potential impacts or lessons remain undocumented. Even in the 1990s at the height of high-level fervor about food security, no World Bank project monitored food security at the household level.⁶⁸ Evaluations of self-standing nutrition sector projects, on the other hand, focused on nutritional status impact and caregiving behaviors. Adding nutrition components might have had some impact on the diets, behaviors, or nutrition of project beneficiaries, but were unlikely to have had any effect on the availability and consumption of nutritious foods at scale. There may have been important technical lessons learned at the project level, but unfortunately the lessons, if any, have not been highlighted systematically.

Nutrition indicators relevant to agriculture. For decades, nutritionists have recommended that agriculture address nutrition by investing in line with consumer needs, meaning in line with dietary requirements. Yet, indicators of access to and consumption of adequate nutritious food are not currently collected globally or made available to inform policy decisions. The indicators that *have* been tracked on food security are indicators of grain stocks and calorie availability; income has also been used as a proxy for food security. If food access is one of the three underlying causes of nutrition (UNICEF 1990); and the available indicators of “food access” are income, grain stocks, and calorie availability—which agriculture has handily improved by almost any measure since the 1970s; then it is understandable that the general perception, within agriculture professionals, is that their work *has* benefited nutrition. If agriculture is to respond to a problem different from lack of calories and income, then there is a need to collect and report data on the problem that needs to be solved.

Level playing field for investments in more nutritious foods.

Added to the lack of vision, targets, and data, *disincentives* abound, related to investing in production and consumption of nutritious food. Projects to produce nutritious foods and diverse production are

66 Laypeople (including policy makers) often conflate “nutrition” with “food consumption,” a concept that nutritionists have worked very hard to reverse. The nutrition community largely rejected “food” because evidence became clear that the *indicator* of “food” (calorie availability) was not a key factor limiting better nutritional status—and there was a need to convince policy makers to do something about nutrition other than growing more staple grains.

67 “Monitoring and evaluating nutrition components may have suffered because they seemed too small to merit much effort. Bank staff overseeing the parent projects have sometimes lacked the technical familiarity, time, or interest” (Berg 1987b).

68 At the time, admittedly, household-level indicators of food security were not yet developed. Such indicators (such as Household Food Insecurity Access Scale (HFAS) and Household Dietary Diversity Score (HDDS)) started to appear in the 2000s from FANTA Project, and are still being further developed.

often operationally more difficult than projects primarily designed for staple crop production given their heterogeneous nature. Livestock and fish projects in the Sahel in the 1990s were designed with a nutrition rationale, but were the most difficult projects to manage, primarily because of food safety and value chain issues—they tended to be “problem projects” (Katherine Marshall, personal communication). In the same era in Africa, research and seed projects (which had a nutritional justification and focused on legumes) were unsuccessful due to lack of capacity and organizational difficulties within countries. In other instances, investment to promote diversification to high-value crops was addressed not for nutrition’s sake, but for its income-enhancing potential. Such investments increase the supply of nutritious foods but there is no conclusive evidence that shows its impact on nutrition, partly due to the fact that actual investments almost never explicitly track the impact of increased supply on actual consumption.⁶⁹ Consumer demand is also a major factor that may incentivize or disincentivize production of nutritious food. Agriculture projects supported by the World Bank are almost always focused on supply-side issues, and typically deal very little with consumption or demand creation activities. Some community development projects have included nutrition behavior change efforts, primarily led by the health or nutrition sector.

8.3 NEED FOR A NEW PARADIGM FOR AGRICULTURE’S ROLE IN NUTRITION

The strongest impetus for a new vision and targets for agriculture is the transformation of the food environment since the 1970s, and the increasing evidence of poor diets and chronic disease in nearly all countries. The prevalence of hunger (undernourishment) has declined by 37 percent since 1990, due to higher food availability and lower food prices (FAO 2013b). However, its correlation with undernutrition is low; in general calorie availability explains less than 30 percent of stunting reduction on average (FAO 2013b), and above a threshold of per capita calorie availability of 2300 kcal, further increases in calorie availability are poorly correlated with

undernutrition (Smith and Haddad 2000). Food prices are volatile due to reasons other than food shortage, including trade policies, futures markets, biofuels, and rising demand for grain-intensive livestock. In addition, since the 1970s some economies have experienced a transformation in the extent to which the food supply and demand is affected by agrifood business. Overweight is now more prevalent than underweight, globally and in some low- and middle-income countries (Black et al. 2013; Popkin 2009). Poor diets affect half the world’s population, including 2 billion with vitamin and mineral deficiencies, and 1.5 billion overweight or obese, with diabetes and child obesity rising fastest in Africa (Black et al. 2013; International Diabetes Federation 2013); Poor diets are widespread among all wealth categories, so that increasing income does not necessarily ensure access to affordable nutritious diets. Diets low in fruits, legumes, vegetables, and whole grains are the top cause of years of life lost worldwide in developed *and* developing countries (IHME 2013).

Based on food supply data compared with dietary recommendations, it is theoretically possible for everyone in the world to eat *enough*, but it is impossible for everyone in the world to eat *nutritious diets*. There is a shortage of fruits and vegetables relative to population needs in most countries in the world (Siegel et al. forthcoming); in Sub-Saharan Africa, per capita legume availability is also very low, only enough to provide about one-quarter of protein needs (Herforth 2010). The *food shortage* paradigm, appropriate in the 1970s, no longer fits today’s data—which show stronger evidence of a *nutritious food shortage*.⁷⁰

The main reason agriculture operations at the World Bank and other international agriculture organizations have not taken nutrition onboard, despite well-reasoned and occasionally very high-level pushes to do so throughout the last four decades, has to do with a core lack of ownership of nutrition within agriculture. This is related to an absence of vision and incentives.⁷¹ The current situation, however, presents an opportunity perhaps greater than ever before

69 For example, communication with a lead economist in the Bank’s South Asia Agriculture and Rural Development Department indicated that at least two current agriculture technology projects do have significant emphasis on the diversification to fruits, vegetables, and other noncereal crops (India National Agricultural Innovation Project (P192735) and Bangladesh National Agricultural Technology Project (P084078). However, an examination of these projects’ results framework shows that there are no official indicators that track research output by crop type, consumption, or nutrition outcome indicators (Madhur Gautam, personal communication).

70 Welch and Graham (1999) have also articulated the need for “A new paradigm for world agriculture: meeting human needs.”

71 The *Lancet* 2013 series on Maternal and Child Nutrition took up the issue of nutrition sensitive interventions in agriculture and other sectors, and concluded that “*nutrition-sensitive programmes hold great promise for supporting nutrition improvements and boosting the scale, coverage, and benefits of nutrition-specific actions. New incentives are needed to support innovations in nutrition-sensitive programmes and unleash their potential to tackle nutrition while also achieving their own goals*” (Ruel and Alderman 2013).

to overcome the identified gaps that have prevented ownership. The current situation includes (1) strong global interest in nutrition (including nutrition-sensitive agriculture), especially among some donors; (2) an increasing recognition of food and dietary problems apart from hunger; and (3) increasing concern for climate-smart and sustainable agriculture, which may be set back by current unhealthy food consumption trends.

8.4 RECOMMENDATIONS

The following points are key take-away lessons from a review of the history of agriculture and food-based approaches to nutrition, through the lens of the World Bank experience. It is expected that many of the proposed actions will be applicable to other development organizations as well.

Recommendation 1: Establish a new common vision globally for agriculture's role in improving nutrition, with measurable outcomes and targets.

In the 1970s, there was a common vision shared among the agriculture and nutrition communities: nutrition science at the time emphasized the importance of calories, the food shortage paradigm was urgently compelling across the development community, and agriculture responded with successful efforts to increase grain productivity. However, subsequent developments included the scientific knowledge that highlighted the importance of noncalorie issues such as micronutrients, as well as advances in food processing technology and the emergence of global agrifood businesses that market convenient processed foods, including so-called “junk-foods.”

The Millennium Development Goals (MDGs) have provided a common vision that has motivated substantial action and investment to achieve the goals. The Scaling Up Nutrition (SUN) movement has also provided a common vision of what is needed to improve nutrition, around which many governments have coalesced. These processes have demonstrated that a globally aligned vision is pivotal for commitment, targets, and actions to pursue.

These processes so far have not effectively created a vision for nutrition that is relevant for agriculture or vice versa, but there are opportunities to do so going forward. The vision for food security in the MDGs was limited to access to adequate calories. It is clear that this is not well-correlated to nutritional status (World

Bank 2013b; FAO 2013b), and we lack global data to show how well it correlates to access to *nutritious* food or consumption of healthy diets. The SUN movement, while underscoring the need for *both* nutrition-specific and “nutrition-sensitive” actions, has not yet strongly articulated what that means for agriculture—although there is still plenty of potential.⁷² The new Global Panel for Agriculture and Food Systems for Nutrition, and the Second International Conference on Nutrition (ICN2), also have the remit to foster a common vision for nutrition that makes sense for agriculture. FAO can support country governments in agricultural systems that support a common vision.

The emerging core vision for agriculture's role in improving nutrition is to increase access to adequate nutritious food⁷³ in alignment with the current UN food security definition as “. . . access to nutritious food to meet dietary needs.” The vision should also be considered in light of data on nutritious food shortage and the triple burden of malnutrition. At the same time, the vision is related to gender equity (providing gender equitable opportunities for income generation and reduction of time and labor burdens), and environmental sustainability. The vision need not require agriculture and rural development to address all of the limiting factors to improved nutritional status in rural communities—many of which fall in the health and water and sanitation sectors. If the agriculture sector were held accountable to targets for *access to adequate nutritious food* rather than only dietary energy, these targets could provide an incentive for ownership and action.

Beyond contributing to overall well-being, consumption of nutritious food/demand patterns are important to agriculture's main bottom lines: productivity, employment, and profitability.⁷⁴ Current

⁷² See Herforth and Dufour 2013.

⁷³ A key message of the *Call to Action: Nutrition in the Post-2015 Development Agenda*: “Access to a range of diverse foods, reflected in dietary quality, is core to adequate food for all. Producing more diverse, nutritious foods is aligned with and supports the broader objectives of sustainability and resilience” (<http://thousanddays.org/wp-content/uploads/2013/09/Nutrition-in-the-Post-2015-Agenda-Key-Messages.pdf>). See also FAO 2013a, FAO 2013c, World Bank 2013b, Bill and Melinda Gates Foundation 2014.

⁷⁴ Nutritional status *per se* is probably not central to agriculture's success; while it can affect farmers' productivity, there are many other more limiting factors to productivity advancements (seed access, soil quality, water availability, and so on). This contrasts to the education sector, as poor nutritional status has been shown strongly to limit both learning capacity and school attendance, resulting in lower educational attainment—the key bottom line for education.

SUMMARY OF PROPOSED KEY ACTIONS

Global Development Community

1. Ensure that the new post-2015 framework moves beyond hunger as defined only by inadequate calories, toward a more holistic goal, targets, and indicators for “access to adequate food”—meaning consistent access to diverse, nutritious diets.
2. Further develop appropriate metrics of access to and consumption of adequate nutritious food, and monitor them.*
3. The Scaling Up Nutrition movement, the Global Panel on Agriculture and Food Systems for Nutrition, the ICN2 accountability framework, Renewed Efforts Against Child Hunger and Undernutrition (REACH), and other partners need to develop a harmonized and aligned vision, targets, and indicators for interactions with stakeholders.
4. Build a community focused on nutrition within agriculture technical agencies (FAO, IFAD, WFP, and so on) to strengthen ownership.

World Bank Group

1. Conduct analytical work and collaborate with other technical agencies on indicator* development through the research department (for example, in the Living Standards Measurement Study (LSMS), the South Asia Food and Nutrition Security Initiative (SAFANSI).
2. Monitor access to adequate nutritious diets in food security projects.
3. In agriculture projects, systematically include health impact assessments that can identify health hazards and risks (for example, water quality, vector-borne disease risks), and develop cost-effective mitigation methods.
4. In International Finance Corporation (IFC) loans, explore the development of appropriate standards based on public health risks of food products that are supported through IFC financing.
5. Explore “food systems strengthening” through results-based financing based on targets for the indicators developed.* Learn from experience of the health sector in health systems strengthening.
6. Include a nutrition lens in standard agriculture sector policy review and dialogue and expenditure reviews to clarify nutrition consequences of large-scale production or consumption subsidy programs.
7. Support requests by regional or national initiatives such as the Comprehensive Africa Agriculture Development Programme (CAADP) in Africa in developing an operational planning for nutrition sensitive agriculture.

Note: *Examples of indicator types include the following: (1) Availability and affordability of nutritious food, indicated by relative prices of dietary food groups at national and local market levels; (2) Dietary quality; (3) Sustainability of diets; (4) Household food insecurity experience measures; (5) For some projects, “nutrient yield” (for example, target micronutrient per ha). Some indicators of food access have already been developed, such as the HFIAS (Coates et al. 2007), HHS (Ballard et al. 2011), Food Consumption Score (WFP 2008), and Household Dietary Diversity Score (Swindale and Bilinsky 2006). These have shown correlation with nutritional status to varying degrees (Tiwari et al. 2013) and are valid proxies of food quantity (Leroy et al. forthcoming). For individual dietary quality, the Women’s Dietary Diversity Score (FAO 2011, Swindale and Bilinsky 2006) has been validated for overall nutrient adequacy (Leroy et al. forthcoming).

food demand trends (such as rapidly rising demand for meat and ultra-processed foods) pose significant sustainability and distributional risks, as they are a dominant driver of resource use and environmental outcomes including climate change (Kastner et al. 2012; Marlow et al. 2009). Recent research suggests that dietary changes (specifically, reduced meat and dairy consumption) are necessary to achieve the 2°C climate change target set by the United Nations Framework Convention on Climate Change (Hedenus et al. 2014). Thus it will be difficult for agriculture to be truly climate-smart if it supports current food demand trends. Moreover, if challenges and risks to nutritious food production can be overcome, they present

an opportunity for increased farm profits, especially for women. There may be important alignment between diverse, nutritious diets for nutrition, poverty, gender, and sustainability goals. This will be increasingly important in the context of defining priorities for the post-2015 agenda.

Establishing a new common vision, targets, and indicators is underway, but building commitment to it will require new evidence. The recent experience in nutrition shows that evidence was essential for generating political attention and commitments to improving nutrition. Not only the quality and strength of evidence mattered,

but also what questions were being asked. For nutrition-specific interventions, the right questions were essentially the themes of the *Lancet* series on maternal and child undernutrition in 2008: “Where is malnutrition?” “What are the consequences of malnutrition?” “What works to reduce malnutrition?” For improving nutrition through agriculture, the main questions would be similar, but focused on food access and dietary intake:⁷⁵ “Where (and for whom) are food access and diets inadequate?” “What are the consequences of poor diets on health, productivity, and environmental sustainability?” “What policies underpin access to nutritious food and dietary quality of populations?” At present, generation of the needed evidence is strongly limited by lack of data and indicators of the key outcomes: nutritious food access and dietary quality. Better data is a first step to better evidence.

Unlike direct nutrition interventions, few of these kinds of questions can be answered by randomized controlled trials (Pinstrup-Andersen 2013); many would require population-level analyses of food and dietary trends, related to food and agricultural policies and investments. This requires a shift in mindset among nutrition advocates, who have made great headway for the nutrition cause through demonstrating efficacy of specific interventions. Nutrition-sensitive development targets the *underlying* causes of malnutrition, while nutrition-specific interventions target immediate causes of malnutrition (World Bank 2013b p25; Ruel and Alderman 2013). Therefore it is generally inappropriate to hold both to the same standard of short-term impact on nutritional status, which is much more amenable to change based on direct nutrition-specific interventions. Interestingly, FAO differentiates between “nutrition-specific agriculture” (that enhances nutrient content of food, such as biofortification or zinc fertilizers), and “nutrition-sensitive agriculture” (that increases access to nutritious food and ensures no negative effects on other causes of malnutrition) (FAO 2013a). Evidence for the efficacy of biofortification, then, can be generated in a similar way to other direct

75 These questions follow the core vision of increasing access to and consumption of nutritious food. Other questions, however, will also be important, such as how agriculture policies and projects affect women’s discretionary income, time, and labor; and how agriculture policies and projects can improve health and sanitation environments and reduce disease risk.

nutrition interventions, although its effective delivery faces at least as many hurdles.⁷⁶

Recommendation 2: Level the playing field in public agriculture support.

The structure of research, development, and public support for agricultural crop and livestock improvement has not focused on making nutritious crops less risky and more profitable to produce. The success of the Green Revolution was limited to basic cereals and had relatively lower success in the case of other crops such as sorghum, millet, cassava, and tropical legumes. Part of the reason for the limited success is that unlike the case of wheat and maize, these crops have had no research from developed countries to draw upon (Pingali 2010). Thanks to the Green Revolution, real cereal prices have fallen over time despite the doubling of developing country population from 1965–1999. For noncereal crops such as legumes and vegetables, production did increase but did not keep pace with growth in demand. There was no commensurate investment or technological change in the nonstaple sector. Consequently, inflation-adjusted prices of many nonstaple foods have increased over time (Graham et al. 2007) and the price of staples decreased relative to nonstaples such as legumes and vegetables (Bouis 2000), and led to more calorie-rich but less nutrient-dense diets (Gómez et al. 2013). The vision of increasing access to nutritious foods among vulnerable populations would include support to overcoming technical challenges that limit production all along value chains (perishability, food safety, crop/animal disease, and seed quality issues, for example). This could enable the rural poor to gain access to higher-value markets while producing nutritious foods.⁷⁷ Agricultural policy, including research and development, is needed to incentivize nutritious food production, and to end the incentives toward

76 The website of the the Bill and Melinda Gates Foundation (BMGF) includes the following question: “How should impact indicators and ‘standards of credible evidence’ vary across the value chain for different interventions (for example, biofortification, improved food processing and storage methods, behavior change, policy change)” (BMGF webpage)?

77 Although smallholder farmers engaged in horticulture often earn higher incomes than cereal producers, the primary limitations to engaging in horticultural production is lack of market access and market information, and biological/land constraints, as yield improvements in fruits and vegetables have been lower than in cereals (Weinberger and Lumpkin 2005).

SUMMARY OF PROPOSED KEY ACTIONS

Global Development Community

1. Increase research and development on fruits, vegetables, and legumes,* including through public investment (Consultative Group on International Agricultural Research [CGIAR], the world vegetable center [AVRDC], and National Agricultural Research System [NARS]), and public-private partnerships.
2. Invest in developing within-country capacity to do R&D and seed system development for nutritious crops and livestock of local importance, including underutilized crops.
3. Invest in reducing risks associated with horticultural and small-scale livestock/dairy/fish production.
4. Develop innovative ways to ensure equal access of risk management tools for all crops (not just for basic grains).
5. Invest in analysis of agriculture policy to estimate producer support at crop/food group or cropping system level.

World Bank Group

1. Conduct sector reviews and policy impact assessment to estimate producer support at crop/food group or cropping system level, including agriculture and IFC support.
2. Invest in analysis on risk reduction strategies for producers of noncereal crops.
3. Analyze the effect of climate-related diversification on availability of diverse foods and on diets.

* About 5 percent of CGIAR's research funding goes toward legumes (through CRP 1.1 on drylands and CRP 3.5 on grain legumes) (Iftikhar Mostafa, personal communication). CGIAR does not have a research program specifically on fruits and vegetables. The budget of AVRDC, an international nonprofit research and development institute, was \$13 million (AVRDC 2013), roughly 1 percent the size of CGIAR research funding in 2013.

less-healthy, less-sustainable diets.⁷⁸ “Plant breeding and distribution of high-yielding major crops as a development strategy, and subsidies dedicated to a narrow range of crop commodities have contributed to the increasing global availability of a limited number of major crop plants, with lesser priority given to nutritional diversity” (Khoury et al. 2014). Such investments can distort consumer

78 See Graham et al. 2007 for a careful discussion on ways to stimulate growth in the nonstaple food sector for the major cropping systems around the world.

choice and, over time, “crowd out public investments that would do more to boost nutrition” (Fan, Pandya-Lorch, and Fritschel 2012).

In a similar way, the nutrition community should not be narrowly focused on micronutrients when dealing with food, even though there is a role for micronutrient-based approaches. Biofortification initiatives present themselves as an intermediate solution to nutrient deficiencies, while the end goal is diverse diets (Bouis et al. 2011).⁷⁹ It is important that this point is clear to agriculture technical agencies, and that nutritionists do not limit their advocacy to specific micronutrients through agriculture. There is an important lesson in the efforts in the 1960s to breed Quality Protein Maize, followed by evidence that lysine (and protein in general) was not the main limiting factor to adequate nutrition through food. While evidence is clear that iron, zinc, and vitamin A deficiencies are widespread and pose grave risks to health and human development, it should be equally clear that food-based approaches should not be limited to targeting only a small number of micronutrients, when adequate diverse, nutritious diets are the end goal.

Recommendation 3: Create demand for nutritious and sustainable food.

In the past, agriculture tackled the issues of consumer policies such as food subsidies. These activities have mainly been absorbed into the social protection agenda. Thus, agriculture became solely focused on supply issues—raising productivity to feed a growing population while adapting to a changing climate. Opportunities for improving nutrition outcomes requires changes in the supply side, but also on the demand side, that is, people need to be informed of the nutritional quality of foods, and social marketing efforts are needed to maintain, or in some cases shift, social norms that support healthy eating. The global “supermarket revolution” and the lengthening of the food value chain in developing countries cannot

79 “To reiterate, the long-term task of public food policy is to stimulate growth in the nonstaple food sector (sometimes referred to as “high-value” agriculture) through any number of instruments—agricultural research, education, building infrastructure, and improving markets for agricultural inputs and outputs, to name a few. However, this is a several-decades-long process. In the meantime, there are specific, cost-effective steps (such as biofortification and adding zinc and selenium to fertilizers) that can be taken to utilize agriculture to improve mineral and vitamin intakes in the shorter term” (Bouis et al. 2011).

SUMMARY OF PROPOSED KEY ACTIONS

Global Development Community

1. Develop social marketing strategies based on nutrient or health attributes of nutritious foods (for example, “nutrition-focused marketing”), learning from social marketing of biofortified crop varieties.
2. Increase consumers’ nutrition knowledge, particularly where this is a limiting factor to demand for nutritious food.
3. Support, as appropriate, other possible actions outside of the agriculture sector that affect food consumption norms, such as incentives for nutritious food purchase, restrictions on food advertising to children, nutrition in school curricula, and healthy school meals programs to instill healthy eating norms, including menu labeling and food vouchers.
4. Invest in analyses of environmental and distributional impacts of likely food demand changes.

World Bank Group

1. For climate-smart agriculture strategy, incorporate evidence of the sustainability/climate impacts of likely food demand changes.
2. Invest in sector review/policy analysis to ensure that current producer supports are not incentivizing unhealthy food consumption patterns or unsustainable production.

be ignored, and policy makers should engage with the private sector to create a viable market for nutritious, healthy foods, while promoting consumer education, product labeling, and appropriate marketing rules for junk food targeted at children. This requires a shift in mindset that looks not just at the production phase, but the entire food system including postharvest value chain, as well as consumer policy including behavioral change. FAO’s 2013 State of Food and Agriculture (SOFA) report titled “Food systems for better nutrition” sets forward a framework for this approach, highlighting the food system view and presents basic principles that are advocated in common by international development institutions and inter-agency UN bodies (FAO 2013a). SOFA 2013 presents a framework for food system interventions for better nutrition (figure 8.1).

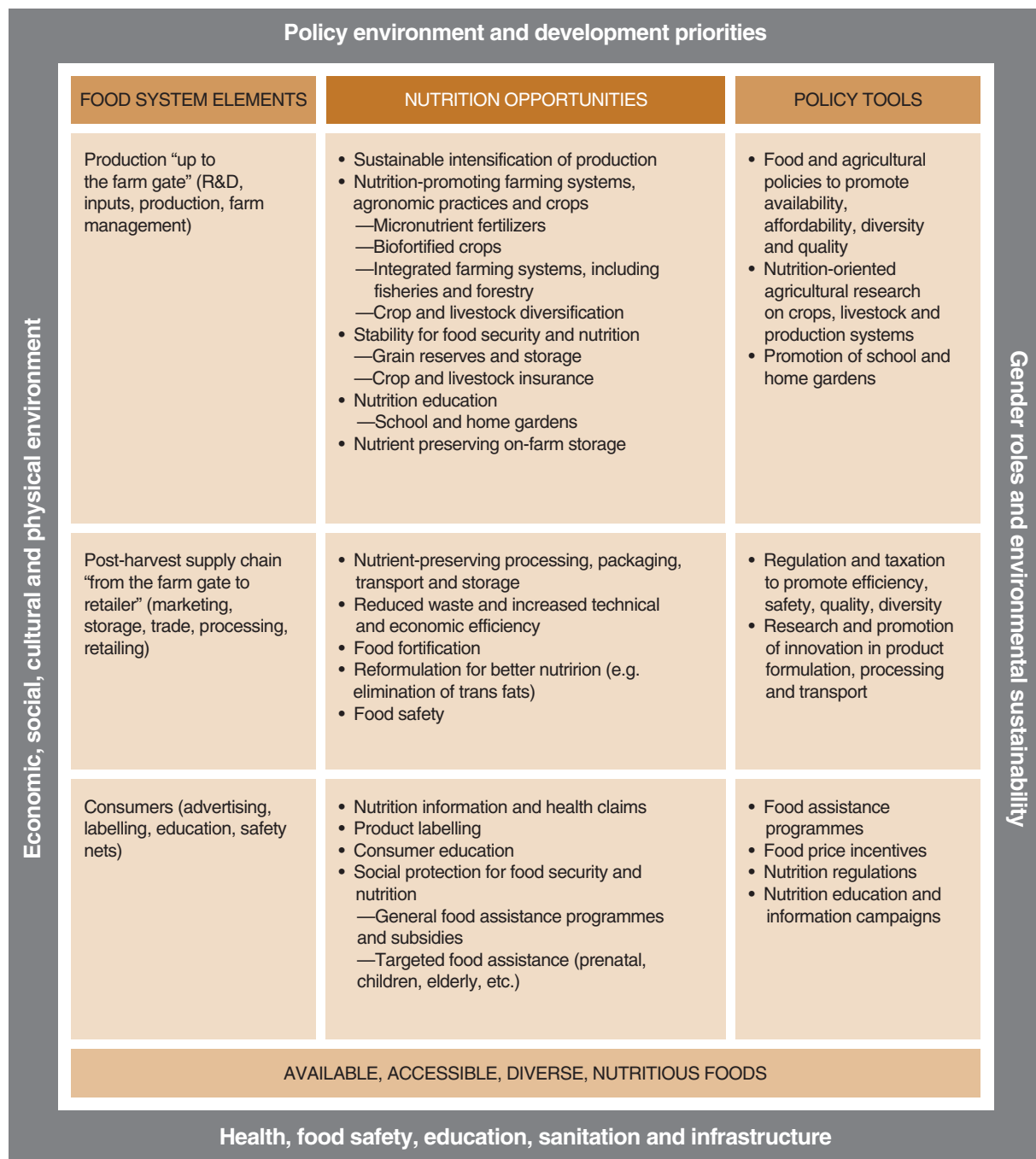
Postproduction interventions and demand creation may be necessary to ensure profitability of, and demand for, nutritious and sustainably produced foods. It is unclear how the World Bank agriculture department will engage in these levels, given that its activities focus almost exclusively on the supply side. There is need for further research to highlight the importance of demand-side factors, especially on effective policies and actions to affect consumer preferences.⁸⁰ Furthermore, as the part of the World Bank Group that finances agribusiness, the IFC may have a role in engaging on the postharvest side to ensure good nutrition practice (for example, limits in trans-fats, sugar, sodium), or to safeguard against unhealthy food environments. There is not yet an established standard for good nutrition practice, but some examples of voluntary pledges and commitments exist, and the World Bank Group could engage with country governments on an accountability framework to promote healthy food environments (Kraak et al. 2014). The kinds of foods produced and consumed have impacts on both public health and environmental sustainability (Foresight 2011), and integrating these outcomes into policy dialogue and financing decisions across the World Bank Group could help countries reduce health and environmental problems associated with unhealthy diets.

Recommendation 4: Build and sustain capacity for addressing nutrition through agriculture, and monitoring progress.

Adequate capacity is needed if the World Bank, and the development community as a whole, are to respond to political will to reduce child malnutrition through agriculture. This entails capacity building in client country governments (national and local), civil society organizations, development partner organizations, and consultants.

Specifically, capacity is needed to (1) monitor indicators of nutritious food access, as described in Recommendation 1, (2) adequately design and implement nutrition-sensitive agriculture policies and programs that respond to the food and nutrition situation. Monitoring nutritious food access is a key recommendation for informing options to improve it, as described in Recommendation 1. Country systems may have the capacity to collect some of the relevant data (such as food prices of diverse foods at local or district level), but lack the capacity to analyze, interpret, and act on the data

⁸⁰ For a review see Hawkes et al. 2013.

FIGURE 8.1: Food System Interventions for Better Nutrition (from FAO SOFA 2013)

Source: Reprinted from FAO *The State of Food and Agriculture 2013* (FAO 2013a).

that would be collected. For agricultural projects such as those supported by the World Bank, there is a need for technical and financial support for more informative monitoring and evaluation. In addition, increases in nutrition technical staff may be helpful to support design and implementation of nutrition-sensitive agriculture.

There is also a need to (3) support coordination between agriculture and food sector actors along value chains (such as production, marketing, processing, food safety, and so on). Lack of coordination among these actors within country governments was a challenge identified in past projects that aimed to increase production

SUMMARY OF PROPOSED KEY ACTIONS

Global Development Community

1. Partner with other agriculture organizations to develop a basic training for agriculture-nutrition staff, consultants, and graduate students.
2. Fund university research and training programs on food systems that treat nutrition and sustainability as integral to agricultural development.
3. Provide ongoing support to country governments to support capacity in monitoring systems.
4. Provide ongoing support to country governments to support coordination between the agriculture and food sector actors along value chains (including production, transport, processing, retail, food safety, and so on).

World Bank Group

1. Invest in capacity and adequate resources for rigorous monitoring and evaluation (M&E) (including household surveys where needed) in agriculture projects.
2. Increase number of nutrition and/or food and nutrition security staff in the relevant global practice groups.
3. Formally establish community of practice on food, including members of all the relevant global practices.

and marketing of nutritious foods (Katherine Marshall, personal communication).

One reason capacity is low is that the intersection between agriculture, nutrition, and sustainability is not usually part of post-graduate training in agriculture. Even in the United States, very few universities offer training in better integrated research and evaluation tools across agriculture and nutrition, such as mainstreaming the nutrition dimension in farming system research (Fan, Pandya-Lorch, and Fritschel 2012).⁸¹ Delivery science is also a critical part

⁸¹ Some notable exceptions are Cornell University Division of Nutrition Sciences international nutrition program, Leverhulme Centre for Integrative Research on Agriculture and Health (LCIRAH), and Tufts Friedman School of Nutrition Sciences, as well as several new food centers and institutes, such as the Berkeley Food Institute. Some programs that had a strong focus on the agriculture-nutrition linkage existed in the past but have since been discontinued, for example, at Brown, MIT, Stanford, and Meharry Medical College along with international nutrition thrusts at the University of California at Berkeley and the Harvard School of Public Health (Levinson 2000).

of academic training needs, that is, the ability to analyze why an intervention or policy does or does not work, based on how it is implemented.

In the short term, agricultural technical agencies may need to team up to develop a common core training for agriculture-nutrition consultants and food policy analysts, who could work with development agencies and country governments. The International Fund for Agricultural Development (IFAD), the Food and Agriculture Organization (FAO), and the Leverhulme Centre for Integrative Research on Agriculture and Health (LCIRAH) are developing a training course along these lines.

8.5 CONCLUDING THOUGHTS BASED ON THE HISTORY OF ADDRESSING MALNUTRITION

Recurrent interest in the same topic does not necessarily mean repeating history. It is worth noting that many of the nutrition-specific interventions now considered solidly evidence-based were tried earlier and initially met with little success. In the 1950s–60s, the first international applied nutrition programs focused on food supplements, breastfeeding, community based nutrition, and malnutrition rehabilitation. They did not work very well due to lack of targeting and analysis of the causes of undernutrition.

The 1970s broadened into multisectoral solutions to nutrition with a significant emphasis on agriculture and food-based solutions to malnutrition. Thinking around the causes of malnutrition advanced greatly; but unwieldy multisectoral planning units, integrated rural development projects, and unrealistic data needs led to disillusionment with action for nutrition multisectorally, including through agriculture.

From the 1980s–2008, the nutrition community gathered a strong evidence base on nutrition-specific actions, grounded in a unified understanding of the causes of malnutrition (that is, the UNICEF framework 1990). Interventions very similar to the 1950s worked much better with the lessons learned of causal analysis, targeting, and disaggregation of data in research and monitoring to understand who would benefit. The culmination of the improved evidence base for nutrition-specific actions was the 2008 *Lancet* series on maternal and child undernutrition. There was very little attention to agriculture or food-based solutions.

After 2008, attention returned to agriculture and possible links to nutrition with the food price crisis. This is now the second time the development community has focused in earnest on agriculture and food-based approaches to nutrition. A lesson learned in the history of nutrition is that it may take some time to get alignment, to get the right data to answer the right questions, and to build the needed capacity. This is what has happened, to a large degree, on the nutrition-specific side. Pieces are in place now that were not there in the 1970s—including the triple burden of malnutrition highlighting an apparent shortage of adequate *nutritious food*, higher advocacy for “nutrition-sensitive agriculture” than ever, and the increasing imperative of climate-smart agriculture. New research and action on nutrition-sensitive agriculture is taking place, and more called for, to have a lasting impact.

Appendix A THE ROLE OF THE WBG ARCHIVES IN THE REVIEW OF NUTRITION-SENSITIVE AGRICULTURE KNOWLEDGE PRODUCT

A.1 NUTRITION BACKGROUND/ORIGINS OF ENGAGEMENT

President Kim's Science of Delivery Initiative and Information and Technology Services Vice President Stephanie von Friedeburg's support to the World Bank Group (WBG) Archives eArchives digitization project inspired a partnership between the WBG Library & Archives Development Team (LAD) with the SecureNutrition Knowledge Platform (SNKP). This partnership resulted in the Historical Review of Nutrition Sensitive Agriculture Knowledge Product (P148433).

The WBG LAD team collaborated with a team of subject matter specialists on the topic of nutrition and food security. The objective was to develop a knowledge product that leveraged the information assets of the Bank's archives and library in order to showcase the depth of resources available in the Bank, and to demonstrate how they can be used to inform current attempts on mainstreaming nutrition in the Bank's agriculture operations.

The SNKP already featured a robust section of Resources, but these resources were only the most current from the past few years. The SNKP team identified an opportunity to incorporate older reports for use by the SNKP community. Historical reports discussing nutrition were identified in the World Bank Documents & Reports repository (<http://documents.worldbank.org>). In addition, archival records from the WBG Archives dating back to 1972 were identified for inclusion in the platform.

The final form of the Historical Review of Nutrition Sensitive Agriculture Knowledge Product was determined by LAD and SNKP after analysis of the available archival records and identified key knowledge gaps. The final product is derived from a historical analysis utilizing archive references and interviews of subject matter experts to produce a research paper and interactive web-based

timeline to be hosted on the SNKP website.⁸² The timeline will have links to documents in the archives and other resources that will be of interest to the external SecureNutrition community. The intent is to inform current policy work undertaken by the Agriculture and Environmental Services and health, nutrition, and population (HNP) departments of the World Bank.

A.2 NUTRITION AVAILABLE RESOURCES

The World Bank manages a number of different repositories of information. The WBG Archives contains the historical program-related and administrative records produced by the World Bank Group institutions, and offers a vast amount of original source material related to economic development. The WBG Archives serves all five WBG organizations: the International Bank for Reconstruction and Development (IBRD), the International Development Association (IDA); the International Finance Corporation (IFC); Multilateral Investment Guarantee Agency and International Centre for Settlement of Investment Disputes (both of the World Bank Group). The collection covers a broad perspective on the business activities of the Bank, including records relating to lending operations, policy decision making, relations with donor and client countries, and administration.

A subset of archival documents is cataloged at the individual document level in a curated online repository internally referred to as ImageBank. A large subset of these materials is available to the general public in the Documents & Reports⁸³ repository. This repository contains final World Bank Documents, for instance: Project Appraisal Documents (PADs), Program Documents (PGDs), President's Reports and Memoranda, Economic and Sector Works, Evaluation Reports

⁸² www.securenutritionplatform.org.

⁸³ www.documents.worldbank.org.

and Studies, Global Environment Facility & Montreal Protocol Project documents, and Oral Histories. The collection also contains working papers, publications, briefs, and newspapers.

In 1994 the Integrated Records and Information System (IRIS) repository was launched for internal staff. A precursor to the current WBDocs repository, IRIS was originally launched as a part of a large-scale scanning project to replace microfiche. Over time this repository grew to become the official system of record for storage of the Bank's digital records. The Bank migrated to the WBDocs repository in phases beginning in 2011. WBDocs is now the official repository for all records of the Bank which are created on computers, also known as electronic or born digital records.

All of these repositories are overseen by the WBG Knowledge and Information team (ITSKI). ITSKI provides global access to the current and historical materials to both internal and external audiences to empower Bank Group staff and the global development community with business intelligence for project and analytical work. Information experts at the Integrated Reference Desk assist Bank staff with finding and using research information, including both archival materials from the WBG Archives and electronic documents found in the Bank's official repositories.

WBG staff can request records from the Archives at any time. Requested records are sent to Washington each weeknight by courier from the WBG's off-site records repository, the Mine. Records requested by 1:00 p.m. normally are available from the Archives by 9:00 a.m. the following business day. Since 2010, a new Access to Information Policy opens to the public a large amount of development information.

A.3 NUTRITION LESSONS LEARNED FROM THIS ENGAGEMENT (FROM ARCHIVE AND FROM SNKP TEAM)

The resources available in the WBG Archives are unique and can guide research in new directions. The collaboration of subject matter experts and archivists can dramatically improve the final product of research. This joint effort may uncover information that is rare and has rarely been seen by others. Materials which may not have made it into the final versions of official reports of the past may illuminate the thinking of today and challenge current beliefs.

The two biggest challenges to this collaboration were refining the focus of the research topics and the standard challenge that archival materials present regarding time needed to review materials only described in aggregate.

Given the broad range of available resources, it took a great deal of time to identify the most appropriate path of research and the best approach for presenting that research. The focus of the research shifted a number of times over the course of the collaboration. This is part of the nature of archival research, which brings us to our second challenge.

Archival records are described at an aggregate level. This means that it is not possible to identify individually useful records without a great deal of hands-on work with the records. In addition, predicting where the records of interest might be is a collaborative process that requires both the expertise of the WBG archivists and subject matter experts. In an era in which many expect immediate identification of and access to research materials, the more organic and drawn-out process of finding archival records can be a major hurdle.

Without the institutional memory of staff members who understand the relative significance (or insignificance) of various records, it is difficult to correctly identify important materials. During the course of this project, the project advisor, who had worked at the World Bank during the 1970s–1990s, guided the team toward highly significant material (that is, major policy statements, analytical pieces, initiatives of senior management, and so on).

A.4 SERVICES THAT ARCHIVES COULD OFFER TO BANK TEAMS TO SUPPORT THE BANK'S KNOWLEDGE AGENDA

The records in the custody of the WBG Archives can provide a foundation for the Bank's knowledge agenda. The following proposed services and programs could facilitate the usage of WBG Archives records by both Bank teams and external researchers:

- Continued digitization of archival records disclosed for public access.
- The creation of WBG Archives Holdings web platform. This website will make the search of archival holdings easier. It

will also enable discovery of digitized materials, downloadable as PDFs.

- Improve access to project related materials. Manifests of folders in WBG Archives custody per project will be added to the operational (OPS) portal Documents tab.
- Provide assistance for Bank staff to identify freelance researchers who can be hired to do hands-on first review of materials in archives, perhaps a “white glove” type service.
- Coordinate with Library staff in creation of Project Alerts emails. These emails are sent to Task Team Leaders (TTLs) for new projects. They remind TTLs of the materials and resources available to them through the library. After a critical mass of folder manifests for projects exist in the OPS portal, Project Alert templates could be modified to draw TTLs’ attention to this new resource for doing research into the history of their project area.

Appendix B PROJECTS THAT HAVE ADDRESSED NUTRITION THROUGH AGRICULTURE

TABLE B.1: Examples of 17 Area Development (or Integrated Rural Development) Projects That Addressed Nutrition

YEAR	PROJECT NAME	NUTRITION ACTIVITY (FROM APPRAISAL REPORTS)	OUTCOME (FROM COMPLETION REPORTS)
FY73	Mauritius RD	<ul style="list-style-type: none"> A self-help program including the construction of kitchen gardening, fish ponds, duck and poultry raising Establishing rural health centers that would provide nutrition and health education services 	<ul style="list-style-type: none"> “Represented a bold departure from projects supported by the Bank in the past” (“innovative”) Extension service provided for about 2,300 kitchen gardens and for over 1,700 rabbit hutches (due to cultural reasons the rabbit program was unsuccessful) “Considerable benefits” were generated in terms of the cash income earned from the marketed surplus from kitchen gardens Improvements of village infrastructure, especially construction of health centers, markets, village halls, roads, and water supplies were undertaken but on a reduced scale due to rising costs and insufficient demand. Only three of the projected five health centers were established. The completed health centers, public water taps, and village roads improved the quality of life of the villagers but also resulted in considerable time savings, freeing up beneficiary time for productive economic activities, such as more intensive cultivation of kitchen gardens and handicraft industries.
FY75, FY77, FY81	Mexico PIDER I, II, III	<ul style="list-style-type: none"> Support the National Company for Popular Subsistence (CONASUPO) to enhance rural marketing (storage warehouse and retail stores)—fortified tortilla flour was one of the items carried Research on further fortification opportunities for products to be sold at CONASUPO stores (for example, fortified hot sauces, fish protein concentrate to be used as fortificant in various foods) Supporting farmers in select micro-regions to diversify beyond maize into beans, fruits, vegetables, and small animals Introducing an integrated package of supporting services including health care and home economics extension Rural health offered as part of a minimum package of social services, which included nutrition education 	<ul style="list-style-type: none"> Overall PIDER I and II economic benefits were well below those projected at appraisal. For PIDER III, the government indicated to the Bank that it would be difficult to calculate a rate of return given the paucity of reliable and disaggregated economic data by type of project. Although one of the stated objectives of CONASUPO was to increase the availability of lower cost and better quality food to the rural poor, the emphasis was on the former (a quote from a CONASUPO official in the ICR “<i>we have to solve the quantity problem first before we can worry about the quality</i>”). Little activity in the rural marketing and nutrition component supporting CONASUPO since only 20% of project funds were spent because there was no agency (inside or outside of the Secretariat of Planning and Budget) that was prepared to take responsibility for approving the execution of this component. CONASUPO has been somewhat hesitant to move aggressively forward in the nutrition area because this is presumably the realm of the National Nutrition Institute. The Institute undoubtedly has the requisite nutritional technical expertise but CONASUPO has the operational delivery system skills. An inter-institutional partnership was therefore pursued but the result was mixed. Support to productive activities detailed and comprehensive information on the impact of specific project investments was lacking making it impossible to assess precisely project successes and failures, and their causes. A high proportion of livestock investments (beef, dairy, pigs, and poultry) were uneconomical due to faulty design, producer inexperience, inadequate technical assistance, social conflict, and marketing difficulties; orchard investments are mixed. Women’s home extension program was a success; other kinds of extension were not. The inclusion of home economists in the agricultural extension service began in 1964, with four teachers assigned to instruct rural women in such areas as nutrition, child care, sewing, sanitation, and home improvement. The program grew to 345 home economists in 1970 and reached 796 in 1975. PIDER financed approximately 50% of the Secretary of Agriculture’s home economics program. School classrooms and health facilities under PIDER I offered much improved infrastructure, but their benefit depended heavily on their staffing. The access to health facilities (among other project benefits) provided a “much improved quality of life” (no specific outcome for nutrition education).

(continued)

TABLE B.1: (continued)

YEAR	PROJECT NAME	NUTRITION ACTIVITY (FROM APPRAISAL REPORTS)	OUTCOME (FROM COMPLETION REPORTS)
FY80	Philippines rainfed agricultural development (Iloilo)	<ul style="list-style-type: none"> A wide array of crops and livestock production were supported mainly for local consumption purposes with the aim of reducing anemia Health interventions to reduce anemia such as subsidies for the production and distribution of salt ironization in order to make it available at the same price as unfortified salt; iron/folate tablets distribution; deparasitization drugs to rid the population of worms, including hookworm; equipment for the biochemical determination of Hb in blood Other health interventions such as diarrhea management through the provision of supplies for oral rehydration; equipment for production and packaging of rehydration mixture 	<ul style="list-style-type: none"> The livestock component was generally successful from a production standpoint except for goats. The ICR made no mention of its consumption effect. The multiple cropping component was successful. Average cropping intensity rose to 200% and rice yields rose from 3.8 tons/ha/yr to 5.6 tons/ha/year (both exceed appraisal estimates). The ICR made no mention of its consumption effect. The related health and nutrition program substantially reduced the incidence of diarrhea through home-made oral rehydration therapy (salt-sugar solution), the prevalence of anemia through iron supplementation, and the incidence of parasitism through improved sanitation (provision of water pumps) and curative medication.
FY81	Philippines agricultural support services	<ul style="list-style-type: none"> Strengthening the Ministry of Agriculture's Central Office in project planning, preparation, implementation, management, and monitoring capability Support the Food and Nutrition Research Institute in the preparation and implementation of the second National Nutrition Survey to be used as the data base for the proposed Food and Nutrition Plan. 	<ul style="list-style-type: none"> The second and third national surveys were funded and pilot programs were implemented to test new approaches to addressing nutrition problems. Staff were trained and vehicles and equipment provided. Studies and workshops to implement the Food and Nutrition Plan were funded with a focus on determining measures to enhance the nutrition of families in depressed areas.
FY85	Papua New Guinea West Sepik provincial development	<ul style="list-style-type: none"> Support services to subsistence agriculture, cash crops including tree crops and vegetables Construction of food farms at six high schools, including vegetable gardens, poultry and small livestock to improve diets and reduce food procurement expenditures. Introducing the Community School Agriculture and Nutrition Program to 38 community schools where school vegetable gardens (about 1 ha) would be constructed, and instruction in good nutrition and gardening practices would be provided. Vegetables from the school garden would be used for a school lunch program. 	<ul style="list-style-type: none"> The project's success in improving the productivity and production in agriculture is mixed. Incremental production of food crops has been far below appraisal targets, primarily because of inadequacies in the support services, lack of technological recommendations (food crops) and marketing constraints (vegetables). However, the livestock development activities, particularly poultry, and tree crop development have been reasonably satisfactory. It is possible that some of the incremental production of vegetables and livestock products are consumed on farms and thereby contribute to improved nutrition. It is difficult to assess the impact of the agricultural development component on farm income, employment, and nutrition because of a lack of relevant data. However, given the reduced prices of cocoa and rubber since the mid-1980s, it appears that the project's tree crop interventions resulted in only minimal impact on farmer income. The nutrition activities (including the school farm programs) failed because they were not suitably detailed nor were the combined roles and responsibilities of the Health, Education, and Primary Industries' Divisions clearly specified, or subsequently resolved. Most of these problems could have been overcome by a project launch workshop which would have meant that all parties had a clear idea of their role and responsibilities. The Community School Agriculture and Nutrition Program was dropped altogether. Five high schools established food farms.
FY85–87	Brazil Program of integrated areas of the Northeast (Sergipe, Rio Grande, Bahia, Piaui, Pernambuco, Ceara, Maranhao, Alagoas, Paraiba, Minas Gerais)	<ul style="list-style-type: none"> Rural extension services including social extension workers cooperating in teams with agricultural extensionists to work with farm families to improve sanitation, child care, family nutrition, small animal husbandry, and vegetable gardening Community development funds to support agricultural and nonagricultural local development projects, such as building of fish ponds and small animal production schemes 	<ul style="list-style-type: none"> The ICRs reported very little in terms of concrete outcomes. It relied heavily on a Government report by the Superintendency for the Development of the Northeast (SUDENE). The SUDENE report steers away from estimating income, production, and job generation, citing methodological difficulties, and relies on interviews with association/community members concerning subproject benefits: of the most-frequently cited is employment and income generation, followed by better family nutrition, increased family production, and transportation of production and people. The ICRs suggested that more monitorable indicators should have been used for communities' nutritional/health status (among others).

TABLE B.1: (continued)

YEAR	PROJECT NAME	NUTRITION ACTIVITY (FROM APPRAISAL REPORTS)	OUTCOME (FROM COMPLETION REPORTS)
FY95	China Southwest poverty reduction	<ul style="list-style-type: none"> The project has six components: (1) social services including an in-school supplementary nutrition program and nutrition surveillance monitoring system; (2) labor mobility; (3) rural infrastructure including the labor intensive construction of rural roads, safe drinking water supply systems, small-scale irrigation and drainage works, biogas digesters, and rural electrification; (4) land and farmer development, using menus of crop and livestock activities to increase upland agricultural productivity and reverse the trend of environmental degradation; (5) Town & Village Enterprise (TVE) development; and (6) institution building and poverty monitoring 	<ul style="list-style-type: none"> Achievement of the project objectives and outputs was highly satisfactory. First, the project had a major positive impact on national poverty reduction policy by (a) demonstrating the effectiveness of a new multisectoral poverty reduction model in China's most severely affected areas, and (b) directly involving senior policy makers in the design and implementation of this new model. The new integrated rural development project approach to poverty reduction—which the government calls the “Southwest Project” model—was first extended to the 26 counties of the ongoing Qinba Mountains Poverty Reduction Project (QBPRP), and the Chinese government continues to extend the lessons of the “Southwest Project” approach to the poverty reduction program throughout China's poor counties. The nutrition supplementation activity was ineffective because of the complicated nature of distributing the food and social constraints to anything but a fully equal distribution, that is, targeting only the very poorest children for nutritional supplementation was not found to be an acceptable practice at the local level. The ICR did not address other nutrition-related outcomes from any of the components.

TABLE B.2: Examples of Nine AGSECALs Projects That Addressed Food Security (and in Some Cases Nutrition)

YEAR	PROJECT NAME	FOOD SECURITY ACTIVITY (FROM APPRAISAL REPORTS)	NUTRITION CONSIDERATIONS (FROM APPRAISAL REPORTS)
FY86	Madagascar agriculture sector adjustment loan	Reform of the rice market by eliminating the official distribution system	None
FY88	Mexico agriculture sector adjustment loan	<ul style="list-style-type: none"> Gradual shift from general to targeted food subsidies; and a gradual consolidation of food subsidies to one existing organization (CONASUPO) Reform of the food coupon program to ensure that the nominal prices of the food coupons kept pace with tortilla prices 	A nutrition study was carried out to improve the monitoring of the government's food and nutrition programs. The study recommended (i) improving the capacity of the institutions involved; (ii) improving inter-institutional coordination; (iii) better targeting of assistance to populations at risk; and (iv) the establishment of a food and nutrition monitoring program.
FY91	Mexico agriculture sector adjustment loan II	Reform of food consumption policies to reduce poverty, provide income protection to the poor, and improve the nutritional status of the most vulnerable groups of the population	<ul style="list-style-type: none"> Piloting a food, nutrition, and health pilot project aimed at providing food assistance to approximately 45,000 rural families in the states of Nuevo Leon, Tamaulipas, San Luis Potosi, and Mexico; and test different methods for operating a nutrition and health program. Implementing a process and impact evaluation of the pilot project and other existing government food consumption programs
FY88	Morocco second agricultural sector adjustment loan	Mitigate the extent of the expected impact of higher food prices from the planned liberalization of the cereals sector on the poor	Restrict food subsidy to high extraction rate flour (which has a high bran content and thus is more nutritious) generally consumed only by the poor.
FY89	Somalia second agricultural sector adjustment loan	Reform to liberalize agricultural marketing and other sectors of the economy	A comprehensive plan was drawn to finance a number of actions to address the cost of adjustment to be borne by vulnerable groups. As part of this exercise, the Ministry of Health and UNICEF jointly carried out nutrition surveys in four areas of Mogadishu.
FY90	Mauritania agriculture sector adjustment and investment project	Reduce the role of the Agency for Food Security (CSA), a public agency that purchases and processes surplus cereals (rice, sorghum, millet, and maize), sells commercial food aid, and distributes free food aid.	None
FY90	Jamaica agricultural sector adjustment loan	Reduce the role of the Jamaica Commodity Trading Corporation (JCTC) which was a monopoly in basic food import, and sold them to consumers at subsidized prices.	None
FY91	Kenya second agricultural sector adjustment credit	Reform the agricultural sector to contribute to fiscal stabilization. Tranche triggers included completion of a food security action plan, adoption of a drought contingency and early warning plan, and monitoring the impact of adjustment on vulnerable groups and targeting assistance to them	The completed food security action plan included intended action for nutrition.
FY92	Burkina Faso agricultural sector adjustment loan	Reform to liberalize domestic marketing and prices of traditional cereals at producer and consumer levels and liberalizing (external) trade in traditional cereals	This AGSECAL intended for a separate project (the Food Security and Nutrition project (FY92)— see table B.3) to support the implementation of a food security action plan to address issues of impact on living standards and nutrition status.

TABLE B.3: Examples of Other Projects That Addressed Nutrition through Agriculture or Rural Development Managed by Population, Human Resources, Urban, and Water Operations Departments

YEAR	PROJECT NAME	RESPONSIBLE BANK SECTOR	NUTRITION ACTIVITY (FROM APPRAISAL REPORTS)	OUTCOME (FROM COMPLETION REPORTS)
FY90	India Tamil Nadu nutrition project	HNP	Project supported the local procurement of therapeutic food supplements to be produced by women's working groups and local factories. The former would provide employment as well as nutrition education, and the latter would encourage development of food processing and marketing systems.	While performance of the service delivery of the supplements was noted, the ICR did not report on procurement source, or the intended benefits that were supposed to accrue to the suppliers.
FY91	Cameroon food security project	ARD	<ul style="list-style-type: none"> • Providing micro-credits to farmer groups to create employment opportunities and raise the purchasing power of rural groups, particularly women, improve feeding and dietary practices through a pilot nutrition education program for high risk groups (children under 5 and pregnant and lactating women), increase efficiency in marketing and storage of foodstuffs • Nutrition education to encourage changes in inappropriate child feeding and maternal dietary practices by providing research and analysis of child feeding and maternal dietary practices; formulation of a national nutrition education strategy; development and testing of educational material; implementing a pilot program in several departments of the three provinces with the highest rates of malnutrition; evaluation of the pilot program and the development of guidelines for the expansion of nutrition education throughout the country. 	<ul style="list-style-type: none"> • The micro-credit carried out by the project was able to generate some profitable farming activities, but was not a success from a micro-finance point of view since the recovery was low (73%), and also the intended transition of the micro-credit scheme for cash-generating activities to a commercial bank did not occur since there was no interest from the commercial bank side. • 40% of the women in nutrition groups improved their nutritional knowledge, and 20% of these women actually improved their nutritional practices.
FY91	Malawi population, health and nutrition sector credit	HNP	<ul style="list-style-type: none"> • Training and equipping of 5,500 community health volunteers. • Carrying out and evaluating the three experimental models of community-based nutrition innovations: (1) provision of food supplements through the WFP; (2) income generation activities and the introduction of labor-saving technologies for women to reduce their caloric expenditure; and (3) area-based, integrated programs including packages of agricultural inputs and food for lowest income women • Finance a study to assess the feasibility of salt iodization 	<ul style="list-style-type: none"> • It is difficult to precisely measure project effectiveness in terms of health status improvements, nor to attribute these results to the project alone, but iodine deficiency nationally declined dramatically from 41.5% in 1990 to 27.0% in 1996. • A number of the income generation activities for women were quite successful as pilot schemes. A final assessment of the maize mill component, for instance, indicated that sound market research on the choice and finding locations for mills, good management procedures, and reliable back-stopping services have made these schemes viable undertakings that contribute to the socioeconomic uplifting of women and their families. Maize mills were also shown to significantly reduce the amount of time and labor women spend to process their food so that they could spend more time to do other activities.
FY92	Sao Tome and Principe agricultural privatization and smallholder development project	ARD	<ul style="list-style-type: none"> • Support the diversification of agricultural production from cocoa through privatizing the publicly owned agricultural sector and promoting smallholder production, increased agricultural research on food crops such as vegetables, pulses, root crops and cereals, pineapple, tree fruits, and spices • Support the reviving of beef production in coconut areas 	<ul style="list-style-type: none"> • Diversification of production has been limited and food crop production, which did increase, mainly banana and matabala and small animal products (chickens, pigs, and goats), primarily for the limited local market is now facing marketing outlet problems. • A detailed socioeconomic survey was planned but never carried out. Thus, it is impossible to evaluate the full impact of the project on beneficiary incomes and their living conditions. • Unintentionally, the natural resources were severely affected by the lack of technical support services when farmers cut cocoa shade trees to compensate for their falling income as cocoa prices fell in 1999.

TABLE B.3: (continued)

YEAR	PROJECT NAME	RESPONSIBLE BANK SECTOR	NUTRITION ACTIVITY (FROM APPRAISAL REPORTS)	OUTCOME (FROM COMPLETION REPORTS)
FY91	Sri Lanka poverty alleviation project	HNP	<ul style="list-style-type: none"> A nutrition fund was supported to reduce the proportion of wasting and stunting in children and reducing the incidence of low birth weight and the prevalence of maternal malnutrition. To this end, the project developed a set of innovative nutrition interventions including nutrition training and education in baby food preparation, weaning practices, child weight measurement, and general nutrition and food preparation. The project also supported a multidimensional program which included: nutrition counseling and training, growth promotion activities, and education on sanitation, home gardens, livestock rearing and early childhood development. 	<ul style="list-style-type: none"> The achievement of project objectives was partial and unsatisfactory. The overall objectives, expansion of employment opportunities and incomes among the poor, and the reduction of malnutrition among mothers and young children, were achieved to a limited extent. Child malnutrition fell from 38% in 1987 to 33% in 1995, and unemployment declined from 14% in 1985–90 to 10% in 1997. Project activities are likely to have contributed to these improvements in malnutrition and unemployment. Among the reasons of failure was the absence of synergies among the separate funds. Project interventions in one fund failed to lead smoothly to interventions in other funds. According to the design, social mobilization and nutrition activities under one fund were expected to prepare beneficiaries for participation in the credit and micro-enterprise development fund, the rural works fund, and nutrition activities. However, such progression of activities from one fund to another was limited due to weak understanding of the importance of promoting synergy between activities of the four funds and poor coordination of efforts.
FY92	Ghana national agricultural extension project	ARD	About half a million farm households would be directly reached by improved agricultural extension services. Women farmers would be reached not only with improved production technology but also with technologies for improving the home environment, for food processing and preservation, and for saving energy and labor in their daily tasks.	<ul style="list-style-type: none"> Technology adoption rates were high for many cereals, legumes, and horticultural crops. However, increase in production and farmer incomes due to adoption of improved technologies were constrained by high input and marketing costs. Achievement of people-level impacts, especially on nutrition, is uncertain. The project made substantial gains in institutionalizing a unified professional extension service in Ghana.
FY92	Burkina Faso food security and nutrition project	ARD	<ul style="list-style-type: none"> Ran concurrently with the AGSECAL Household Food Security Interventions to finance income-generating activities (directed primarily at women's groups) such as home gardening, poultry raising, fattening of small ruminants, the making of handicrafts, flour mills, sheanut presses for oil extraction, local beer brewing, food processing, and petty trading. Grain marketing is excluded (even though it is potentially profitable) since, in Burkina, it is predominantly a male activity. A nutrition communication campaign including a beneficiary assessment, a rapid assessment of training needs of NGOs and agricultural extension workers responsible for women's activities in the provinces, nutrition education message development, training of 150 agricultural extension workers and 64 NGO agents in nutrition education, and a multimedia nutrition education campaign. 	<ul style="list-style-type: none"> 90% of all activities undertaken were profitable with average financial rates of return exceeding 40% per month. Women used their profits to supplement household expenditures on nutrition and education (22 to 34% of their profits) and to accumulate cash savings. Overall, 70% of the women, and 60% of the women's groups, who benefited from project loans opened savings accounts in decentralized financial institutions. The nutrition communication campaign appears to have met its stated objective of improving the nutritional status of children by changing women's behavior (in particular child feeding practices and spending habits). Nutritional impact indicators or targets were not defined at appraisal. During the mid-term review, the Bank recommended that the nutritional impact of project activities be measured quantitatively. Although this was not done, village representatives and beneficiaries themselves regularly monitored the nutritional status of infants and children using a simple upper arm measurement technique developed in India (bandelekte Shakir). This information was used to assess the effectiveness of the training programs and messages but was never systematically collected by the PMU.
FY92	Chile small farmer services project	ARD	Technology transfer, involving both farm-oriented extension and home-centered assistance (family kitchen gardens, water treatment, improved diets and cooking methods, awareness of education, and health service)	<ul style="list-style-type: none"> The overall outcome of the project is unsatisfactory and sustainability is unlikely. As a consequence of the government's changing focus on extension, most original project goals were only partially pursued. There is no mention in the ICR on the home-centered assistance that was envisioned during the design of the project.

(continued)

TABLE B.3: (continued)

YEAR	PROJECT NAME	RESPONSIBLE BANK SECTOR	NUTRITION ACTIVITY (FROM APPRAISAL REPORTS)	OUTCOME (FROM COMPLETION REPORTS)
FY93	Mozambique food security capacity building project	HNP	<ul style="list-style-type: none"> • Policy development through strengthening capacity of monitoring of poverty and household food security status and strategies • Development of a poverty and food security database on poverty including information on food supply and nutrition surveillance • Support for two national food security conferences, a series of workshops and high-level policy seminars to create widespread awareness and debate of food security issues • Curriculum development for the inclusion of food security/nutrition-related courses at training institutes in health 	<ul style="list-style-type: none"> • The government designed several strategic policy documents in food security, population, and poverty, and has completed a number of key pieces of analytical work orienting government policy. Principal among the latter is the first national Poverty Assessment, which resulted from substantial field work, including the first national household expenditure survey. • Awareness among policy makers on the issues of food security and poverty has increased significantly. • A small cadre of local staff benefited from considerable technical training and experience; and a number of workshops and seminars took place. • The Intersectoral Food Security and Nutrition Group was established in 1997 and was involved in development of the Food Security and Nutrition Strategy and supporting documents. • Institutional cooperation in the country and in the region was established. The strengthened Faculty of Agronomy and Forestry Engineering and the Ministry of Planning and Finance engaged in a continuous collaboration on the following activities: <ul style="list-style-type: none"> – formulation of the food security and nutrition policies and strategies; – poverty analysis; – analysis of the district food security and nutrition profiles.
FY95	Senegal community nutrition I	HNP	<ul style="list-style-type: none"> • A nutrition program, consisting of Information, Education, and Communication (IEC) interlocutors, supported by supplementary feeding in urban areas and a small fund for research and development • The food supplement will be produced locally, using only local foodstuffs (pearl millet, roasted cowpeas, roasted peanuts), except for sugar and a multivitamin/mineral mix which will be imported. • A pilot rural household food security program to develop labor-intensive community micro-projects, such as wells, village health posts, classrooms, school canteens, community gardens, food storage facilities, and maintenance of communal roads which are of principal benefit to the poorest households. 	<ul style="list-style-type: none"> • The project was successful in recuperating the malnourished children who participated in the program. Almost 70% of the malnourished children at the time of entry in the program recuperated or gained sufficient weight to become above two standard deviations (weight per age). • The food supplement, financed by WFP, turned out to be much more expensive than estimated at appraisal, largely due to the high costs of raw materials (maize and millet). In order to reduce the cost, the formula of the food supplement was changed during the third year of implementation. Instead of using high-priced local millet, cheaper imported maize was used as the basis for the formula. The fluctuations in the price and availability of raw materials for the production of the food supplement caused problems for the weaning food production units and jeopardized the availability of the food supplement for the nutrition centers. The distribution of the food supplement was irregular at times, which had a negative impact on the participation in the growth monitoring program and the IEC sessions. • The pilot rural household food security program was added late in the project design phase and was less well prepared. The objective was complex and its focus very different from the other objectives. The detailed design of the activities began only after the MTR. The feasibility study and the proposal for pilot interventions were finalized during the last year of the project (component rating unsatisfactory). • The project demonstrated that production of the food locally has advantages, such as promotion of national production units, employment, and promotion of raw materials production. However, this is a process that requires sufficient start-up time, substantial technical assistance, and close monitoring.

TABLE B.3: (continued)

YEAR	PROJECT NAME	RESPONSIBLE BANK SECTOR	NUTRITION ACTIVITY (FROM APPRAISAL REPORTS)	OUTCOME (FROM COMPLETION REPORTS)
FY02	Ethiopia food security project	ARD	<ul style="list-style-type: none"> Child Growth Promotion (CGP) activities—social mobilization, weighing and measuring of children 2 years and younger, and counseling for pregnant and lactating women Food marketing initiatives—conduct studies to inform reforms and institution building for: (i) improved management of food aid to secure a stable price environment for domestic producers and traders; (ii) establishment of a food market information system; (iii) development of a warehouse receipt and inventory credit system for traders; and (iv) the development of a competitive and efficient market in warehousing services sufficient to support a warehouse receipt system 	<ul style="list-style-type: none"> CGP—CGP activities did not have a discernible effect on the likelihood of a child's weight being recorded. However, there was a positive and significant effect on behavior and on knowledge. Women in CGP kebeles were 7% more likely to exclusively breastfeed at least one child in the first 3 days of life and were 12% more likely to identify correctly the recommended age to introduce complementary foods. Indicator: Average increment in the number of months of food consumption covered from own resources among vulnerable HHs in targeted communities (target: 3 months; baseline: n/a) Outcome: Oromiya (all woredas) 4.3 months Amhara (25 woredas): 1.25 months SNNPR: 2004 entrants: 1.02 months 2005 entrants: 1.98 months 2006 entrants: 1.11 months Tigray (5 woredas): 1 month Indicator: % of children under 2 within project kebeles weighed each month (average for the year) (target: 70%; baseline: n/a) Outcome: Amhara: 72% Oromiya: 49% Tigray: 76% SNNPR: 84% The food marketing initiatives were cancelled and implemented under a separate project.
FY03	India food and drugs capacity building project	HNP	<ul style="list-style-type: none"> Improve the quality and safety of foods and drugs by strengthening the regulatory framework and incorporating components of consumer education and public-private partnerships. Training of about 2,000 food inspectors and 500 analysts in public sector laboratories and recruitment of additional qualified staff; new construction and equipping of six central and nine state laboratories; renovation and equipping of nine existing laboratories and public health offices at central and five laboratories at state levels. 	<ul style="list-style-type: none"> The project contributed significantly to the strengthening of policies and regulatory capacity in the food and drug sector. However, due to the novel nature of the project for the Bank and for the client, disbursement remained stagnant and at the end of the project, more than half of the project amount was cancelled. The lack of coordination between the food and drugs sector was one factor which led to a lack of interest and commitment in some states to a project mandated by the center. Also, due to the project size (\$54 million), the amount received per state was too little for the states to evoke much interest or ownership of the project, especially for the decision makers and as a result, they did not give high priority for the project implementation. The ICR makes no explicit mention for nutrition.

Appendix C SAMPLES OF WORLD BANK GUIDELINES ON ADDRESSING NUTRITION THROUGH AGRICULTURE

1. World Bank. 1973. *Policy Guidelines for Bank Nutrition Activities*. Population and Nutrition Projects Department.

Background paper:

Chafkin, S., Pines, J., Berg, A., and Longhurst, R. "A Review of Possible World Bank Actions on Malnutrition Problems - American Technical Assistance Corporation" – January 1972, Folder 347351, World Bank Group Archives, Washington, D.C., United States.

2. World Bank. 1980. *Nutrition, Basic Needs, and Growth*. Population, Health, and Nutrition Department, World Bank.
3. Koffsky, N. 1982. "Nutrition in Agriculture Sector Work Guidelines." PHN and AGR, World Bank.

Background papers:

Pinstrup-Andersen, P. 1981. "Nutritional Consequences of Agricultural Projects: Conceptual Relationships and Assessment Approaches." World Bank Staff Working Paper No. 456, World Bank.

Scandizzo, P. 1981. "Analyzing Nutrition Effects of Agricultural Projects." AGR Interim Guidance Note No. 7, World Bank.

4. Berg A., S. Basta, N. Koffsky, F. J. Levinson, J. Pines, 1986. "Guidelines for work in nutrition." World Bank.

Background papers:

Martin, T. 1983. "Nutritional Consequences of Agricultural Development Projects: A Survey of Experience." AGR and PHN, World Bank.

Reutlinger, S. 1983. "Nutritional Impact of Agricultural Projects." AGR/ARU 14, World Bank.

5. World Bank, 2013. *Improving Nutrition through Multisectoral Approaches*.

Background paper:

Herforth, A, Jones, A., Pinstrup-Andersen, P. 2012. "Prioritizing Nutrition in Agriculture and Rural Development: Guiding Principles for Operational Investments." HNP Discussion paper, World Bank.

Appendix D EVOLUTION OF NUTRITION PLACEMENT AT THE WORLD BANK

For a full description, see the Records of Population, Nutrition, and Health of the World Bank Group Archives: <http://web.worldbank.org/WBSITE/EXTERNAL/EXTABOUTUS/EXTARCHIVES/0,,contentMDK:23263805~pagePK:36726~piPK:36092~theSitePK:29506,00.html>

1968:

Population is formally started by the creation of the **Population Projects Department (PNP)** under the Vice Presidency of Projects.

1972:

Within PNP, the **Nutrition Unit (PNPD2)** was created. PNP was subsequently renamed the **Population and Nutrition Projects Department** but retained its original acronym.

1975:

The nutrition functions of **PNP (PNPD2)** were transferred to **Agriculture and Rural Development Department (AGR)**. PNP reverted to its previous title, the Population Projects Department (PNP). At that time, AGR consisted of three divisions: general agriculture, economics and resources, **and rural development & nutrition (AGRNU)**.

[Between 1975 and 1979, nutrition was housed in the Agriculture and Rural Development department]

1979:

The **Population, Health, and Nutrition Department (PHN)** was established reflecting the Bank's expanded role in the health sector. Nutrition work carried out under AGRNU moved to PHN. PHN

functioned as a Central Operating Projects department, maintaining responsibility for policy formulation, research and operational support, as well as the planning, direction, and supervision of project and sector work (PHN staff were not placed in the regional vice presidencies).

1987:

A Bank-wide reorganization resulted in the termination of almost all organizational units. The Vice Presidency, Sector Policy and Research (PRE), was established in May 1987. PRE had five departments reporting to it including the new **Population and Human Resources Department (PHR)**. This department integrated the functions of PHN and the Education and Training Department (EDT); it also assumed responsibility for activities related to 'strengthening the role of women in development.' The PHR had four divisions: Education and Employment Division (PHREE); **Population, Health and Nutrition Division (PHRHN)**; Women in Development (PHRWD); and Welfare and Human Resources Division (PHRWH). At this time, the operational functions conducted by the former PHN were passed to the regions (PHR units were now present in regional vice presidencies).

1993:

Three new thematic vice presidencies were created: **Human Resources Development and Operations Policy (HRO)**; Finance and Private Sector Development (FPD); and Environmentally Sustainable Development (ESD). At this time, PHR was terminated and its functions were split between a reconstituted **Population, Health, and Nutrition Department (PHN)** and a new Education and Social Policy Department (ESP). Both of these departments

were placed in the HRO vice presidency. The PHN had no divisions but had task-specific teams including a Population Team, Health Team, and **Nutrition Team**.

1995:

HRO became **Human Capital Development and Operations Policy (HCO)**. At this time education, health, nutrition, and populations functions were again combined in a single department named the new **Human Development Department (HDD)**. The nutrition team continued under HDD.

1997:

The thematic Vice Presidencies were reorganized to strike a better balance between “country focus” and “sectoral excellence.” The result

of the 1997 restructuring was four networks: the Environmentally and Socially Sustainable Development Network (ESSD); the Finance, Private Sector Development, and Infrastructure Network (FPD); the **Human Development Network (HDN)**; and the Poverty Reduction and Economic Management Network (PRM).

As part of this reorganization, the HDD was broken into three teams that were linked to HDN. The teams were: Education Team (HDNED); **Health, Nutrition, and Population Team (HDNHE)**; and the Social Protection Team (HDNSP). In 2003 an HIV/AIDS Global Program Team (HDNGA) was created and added to the HDN.

[This structure remains in place till June 2014. As of July 2014, the four networks will be replaced by 14 Global Practices. Nutrition will be carried out in the Health, Nutrition, and Population Global Practice.]

REFERENCES

Resources from the World Bank Group Archives

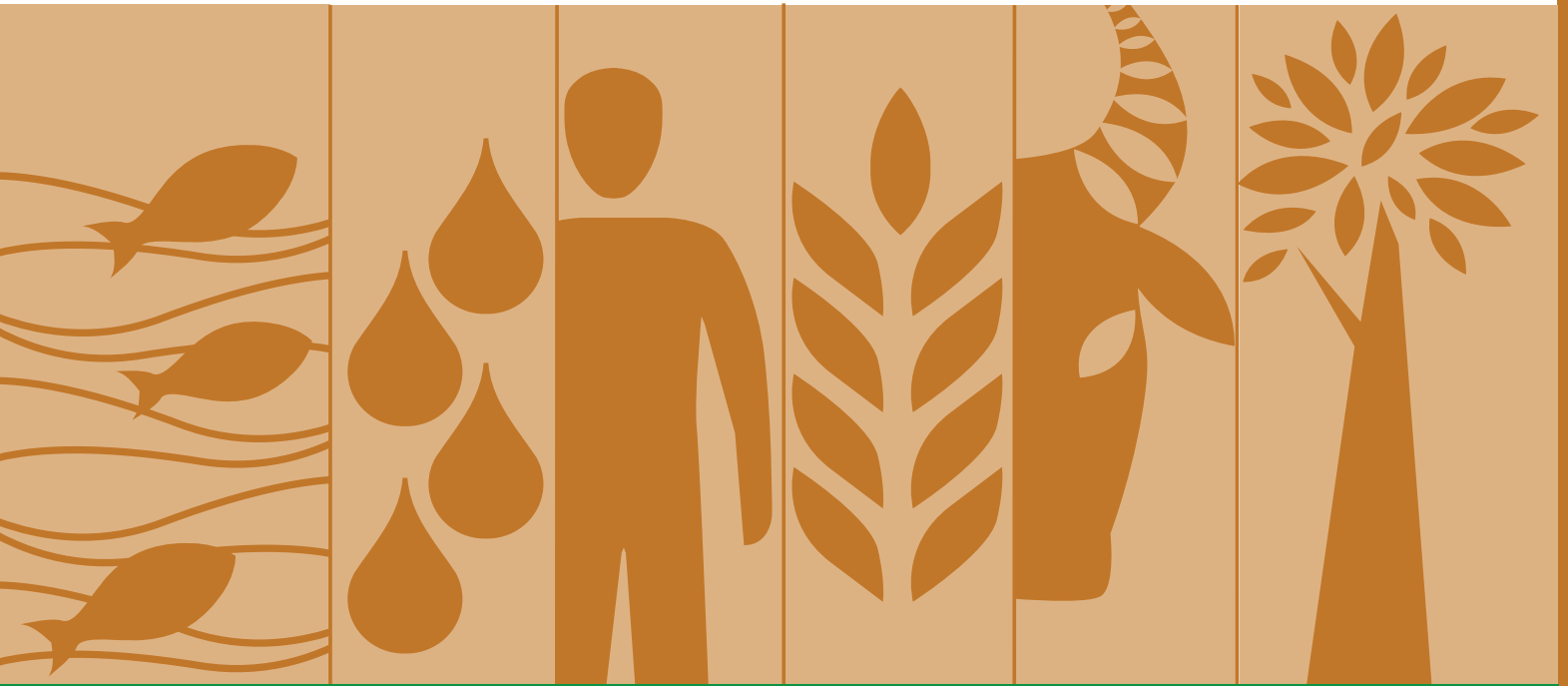
- Berg, A. Meeting with Mr. McNamara (IDA/IBRD/IFC Office Memorandum), September 19, 1972, (A1994-050) Population and Nutrition—Operations Policy File—Volume 03, Folder ID: 30036119, ISAD(G) Reference Code: WB_IBRD/IDA_WB_IBRD/IDA_89, Fonds: Records of the Population, Health, and Nutrition Sector, World Bank Group Archives, Washington, D. C. United States.
- Berg, A. Back to Office Report: Discussions for Food Risks Meeting (World Bank/IFC Office Memorandum), Dec. 23, 1980, (A1995-032) Policy & Research Unit—3.2.2 Food Subsidies/Pricing Policy, Folder ID: 1046791, ISAD(G) Reference Code: WB_IBRD/IDA_WB_IBRD/IDA_89, Fonds: Records of the Population, Health, and Nutrition Sector, World Bank Group Archives, Washington, D. C. United States.
- Berg, A. AGR's Food Security Paper—Some Hurried Comments (World Bank/IFC Office Memorandum), April 4, 1983. (A1995-032) Policy & Research Unit—3.2.2 Food Subsidies/Pricing Policy, Folder ID: 1046791, ISAD(G) Reference Code: WB_IBRD/IDA_WB_IBRD/IDA_89, Fonds: Records of the Population, Health, and Nutrition Sector, World Bank Group Archives, Washington, D. C. United States.
- Berg, A. Your May 22 memo (World Bank/IFC Office Memorandum from Alan Berg (PHN) to Donald C. Pickering, AGRDR), June 5, 1984, Policy Review Committee—Nutrition and Basic Needs Staff Review, Folder ID: 1057525, ISAD(G) Reference Code: WB_IBRD/IDA_WB_IBRD/IDA_89, Fonds: Records of the Population, Health, and Nutrition Sector, World Bank Group Archives, Washington, D. C. United States.
- Berg, A. New & Noteworthy in Nutrition No. 9 (World Bank/IFC/MIGA Office Memorandum), Report No. 78378 May 3 1990, Report No. 78373, <http://documents.worldbank.org/curated/en/1990/03/17853671/new-noteworthy-nutrition>, World Bank Group, Washington, D.C., United States.
- Berg, A. New & Noteworthy in Nutrition No. 12 (World Bank/IFC/MIGA Office Memorandum), Feb 5 1991, Report No. 78736, <http://documents.worldbank.org/curated/en/1991/02/17852875/new-noteworthy-nutrition>, World Bank Group, Washington, D.C., United States.
- Berg, A. New & Noteworthy in Nutrition No. 14 (World Bank/IFC/MIGA Office Memorandum), Aug 15 1991, Report No. 78378, <http://documents.worldbank.org/curated/en/1991/08/17852944/new-noteworthy-nutrition#> World Bank Group, Washington, D.C., United States.
- Berg, A. New & Noteworthy in Nutrition No. 16 (World Bank/IFC/MIGA Office Memorandum), Feb. 21 1992, Report No. 78380, <http://documents.worldbank.org/curated/en/1992/02/17853533/new-noteworthy-nutrition> World Bank Group, Washington, D.C., United States.
- Chafkin, S. Nutrition and Development: Is there anything more to say? (Mr. J. Warford's personal copy of a paper given on Oct 9 at the Third Asian Nutrition Congress.) (A1995-032) Policy & Research Unit—3.1 Nutrition Research, Folder ID: 1046790, ISAD(G) Reference Code: WB_IBRD/IDA_WB_IBRD/IDA_89, Fonds: Records of the Population, Health, and Nutrition Sector, World Bank Group Archives, Washington, D. C. United States.
- Choksi, M. Nutrition Review; comments sent from Mary Choksi (AEA) to Mr. Gautam S. Kaji, Director, AEA. (World Bank/IFC Office Memorandum), Sept. 27, 1984, Policy Review Committee—Nutrition and Basic Needs Staff Review, Folder ID: 1057525, ISAD(G) Reference Code: WB_IBRD/IDA_WB_IBRD/IDA_89, Fonds: Records of the Population, Health, and Nutrition Sector, World Bank Group Archives, Washington, D. C. United States.
- McNamara, Robert S. 1973. *Address to the Board of Governors by Robert S. McNamara*. Presidential speech. Washington, DC: World Bank. <http://documents.worldbank.org/curated/en/1973/09/9064930/address-board-governors-robert-s-mcnamara>
- McNamara, Robert S.. 1977. *Annual meeting of the Board of Governors address by Robert McNamara, President, World Bank Group*. Washington, DC: World Bank. <http://documents.worldbank.org/curated/en/1977/11/15501717/annual-meeting-board-governors-address-robert-mcnamara-president-world-bank-group>
- Schebeck, E.M. Comments on the Food Security Policy Paper (World Bank/IFC Office Memorandum), April 14, 1983, (A1995-032) Policy & Research Unit – 3.2.2 Food Subsidies/Pricing Policy, Folder ID: 1046791, ISAD(G) Reference Code: WB_IBRD/IDA_WB_IBRD/IDA_89, Fonds: Records of the Population, Health, and Nutrition Sector, World Bank Group Archives, Washington, D. C. United States.
- World Bank, Part 1: Nutrition Delivery Services (Tamil Nadu), Dec 1982, (A1995-032) Policy & Research Unit – 3.7 Nutrition Delivery Services—Tamil Nadu, Folder ID: 1046792, ISAD(G) Reference Code: WB_IBRD/IDA_WB_IBRD/IDA_89, Fonds: Records of the Population, Health, and Nutrition Sector, World Bank Group Archives, Washington, D. C. United States.
- World Bank, Detailed comments from peer reviewers/regions/agencies: Nutrition ESW, P094568—Repositioning Nutrition in the Bank, June 9 2005, World Bank Group Archives, Washington, D.C., United States.

- World Bank, Nutrition ESW Meeting Minutes, P094568 - Repositioning Nutrition in the Bank, June 14 2005, World Bank Group Archives, Washington, D.C., United States.
- World Bank. 2000. *Transcript of oral history interview with Ismail M. Serageldin held on October 25 and 26, 2000*. World Bank Group Archives oral history program. Washington DC ; World Bank. <http://documents.worldbank.org/curated/en/2000/10/18004733/transcript-oral-history-interview-ismail-m-serageldin-held-october-25-26-2000>
- World Bank. 2007. *Transcript of oral history interview with Katherine Marshall held on January 30 and 31, 2007*. World Bank Group Archives oral history program. Washington DC ; World Bank. <http://documents.worldbank.org/curated/en/2007/01/17973057/transcript-oral-history-interview-katherine-marshall-held-january-30-31-2007>
- ### Other Resources
- Allen, L. 2000. "Ending Hidden Hunger: the History of Micronutrient Deficiency Control." *Background analysis for the World Bank-UNICEF Nutrition Assessment Project*. World Bank. http://www.ceecis.org/iodine/01_global/01_pl/01_01_other_1999allen.pdf.
- Aroyave, G. 1975. "Amino Acid Requirements and Age." In *Protein-Calorie Malnutrition*, edited by Robert Olson. New York: Academic Press.
- AVRDC. 2013. "The World Vegetable Center Financial Statements for the Years Ended December 31, 2013 and 2012, with Report of Independent Auditors." <http://avrdc.org/>.
- Ballard, T., J. Coates,, A. Swindale,, and M. Deitchler, 2011. "Household Hunger Scale: Indicator Definition and Measurement Guide." *Food and Nutrition Technical Assistance, Version 2 (FANTA-2)*. Washington, DC, United States.
- Beaton, G., R. Martorell, K. Aronson, B. Edmonston, A. Ross, B. Harvey, and G. McCabe. 1993. "Effectiveness of Vitamin A Supplementation in the Control of Young Child Morbidity and Mortality in Developing Countries." *Nutrition policy discussion paper 13*. Toronto, Canadian International Development Agency. http://www.unscn.org/layout/modules/resources/files/Policy_paper_No_13.pdf.
- Berg A., S. Basta, N. Koffsky, F. J. Levinson, and J. Pines. 1986. "Guidelines for Work in Nutrition." PHN Technical Note 86-12." World Bank. Washington, DC, United States.
- Berg, A, J. Levinson, and D. Moorthy. 2008. "A Survey of the International Nutrition Community." *12th Dr. Abraham Horwitz memorial lecture: Reflections from the Front Lines: Swimming Upstream with Optimism*. http://www.unsystem.org/scn/Publications/HorwitzLecture/horwitz_lectures.htm.
- Berg, A. 1967. Malnutrition and National Development. *Foreign Affairs*.
- . 1970. "Increased Income and Improved Nutrition: A Shibboleth Examined." *International Development Review*.3: 3-7.
- . 1973. *The Nutrition Factor*. The Brookings Institute. Washington, DC, United States.
- . 1987a. Nutrition Review. World Bank. Washington, DC, United States.
- . 1987b. "Malnutrition: What can be done?" *Lessons from World Bank Experience*. Baltimore, MD.
- . 1987c. "Nutrition Planning Is Alive and Well, Thank You." *Food Policy*. 365-375.
- Bill and Melinda Gates Foundation. 2014. "Sustainable Agriculture, Food Security and Nutrition in the Post-2015 Framework." Discussion paper. <https://docs.gatesfoundation.org/documents/Post%202015%20Food%20Security%20Discussion%20Paper.pdf>.
- . 2014. "Agricultural Development: Optimizing Nutrition Outcomes from Investments in Agriculture." <http://www.gatesfoundation.org/What-We-Do/Global-Development/Agricultural-Development/Optimizing-Nutrition-Outcomes-from-Investments-in-Agriculture>.
- Black, R. et al. 2008. "Maternal and Child Undernutrition: Global and Regional Exposures and Health Consequences." *The Lancet* 371 (9608): 243-260.
- . 2013. Maternal and Child Undernutrition and Overweight in Low-income and Middle-income countries. *The Lancet* 382 (9890): 427-451.
- Boudreau, F. 1943. "The Food Conference at Hot Springs." *Nutrition Reviews*1 (11): 321-326.
- Bouis, H. 2000. "Special Issue on Improving Nutrition Through Agriculture." *Food and Nutrition Bulletin* 21 (4).
- Bouis, H., P. Eozenou, and A. Rahman. 2011. "Food Prices, Household Income, and Resource Allocation: Socioeconomic Perspectives on Their Effects on Dietary Quality and Nutritional Status." *Food and Nutrition Bulletin* 32 (1):S14-S23.
- Chafkin, S., J. Pines, A. Berg, and R. Longhurst. 1972. "A Review of Possible World Bank Actions on Malnutrition Problems." World Bank. Washington, DC, United States.
- Coates, J., A. Swindale, and P. Bilinsky. 2007. "Household Food Insecurity Access Scale (HFIAS) for Measurement of Food Access: Indicator guide." *Food and Nutrition Technical Assistance, Version 3 (FANTA-3)*. Washington, DC, United States.
- Cooke, S., J. Anderson, G. Larson, P. Van de Velde, and S. Park. 2011. "50 Years of IDA Assistance to Agriculture FY1961-2010 Draft." World Bank. Washington, DC, United States.
- Davis, C. and E. Saltos. 1999. "Dietary Recommendations and How They Have Changed Over Time." In *America's Eating Habits: Changes and Consequences*. United States Department of Agriculture, Economic Research Service, Food and Rural Economics Division. Agriculture Information Bulletin No. 750.
- Ellis, F., and A.Berg. 1965. "Meeting Nutritional Needs, Report of the Sub-Group on Nutrition, Interagency Task Force on Food and Agricultural Assistance to Less-Developed Countries."
- Erlich, P. 1968. "The Population Bomb." Sierra Club-Ballantine Books.
- Fan, S., R. Pandya-Lorch, and H. Fritschel. 2012. "Leveraging Agriculture for Improving Nutrition and Health: The way forward." In *Reshaping Agriculture for Health*, edited by S. Fan and R. Pandya-Lorch. Washington, DC: IFPRI.
- FAO Office of Evaluation. 1996. "Rome Declaration on World Food Security and World Food Summit Plan of Action". Rome: FAO
- FAO Office of Evaluation. 2011. "Evaluation of RAO's Role and Work in Nutrition." Rome: FAO.
- FAO Office of Evaluation. 2011. Guidelines for measuring household and individual dietary diversity. Rome: FAO

- FAO Office of Evaluation. 2013a. "The State of Food and Agriculture: Food Systems for Better Nutrition." Rome: FAO
- FAO Office of Evaluation. 2013b. "The State of Food Insecurity in the World 2013." Rome: FAO.
- FAO Office of Evaluation. 2013c. "Synthesis of Guiding Principles on Agriculture Programming for Nutrition." Rome: FAO.
- Fardoust, S., Y. Kim, and C. Sepulveda. 2011. "Food Security: The Need for Multilateral Action. Post Crisis Growth and Development." World Bank. Washington, DC, United States.
- Field, J. 1987. "Multisectoral Nutrition Planning: A Post-Mortem." *Food Policy*. 12 (1): 15–28.
- Foresight. 2011. "The Future of Food and Farming." *Final Project Report*. The Government Office for Science, London.
- Garrett, J., and S. El Hag El-Tahir. 2008. "Nutrition Beyond the Health Sector: A Profile of World Bank Lending in Nutrition from 2000–2006." HNP Discussion Paper. World Bank. Washington, DC, United States.
- Garrett, J., and M. Natalicchio. 2011. "Working Multisectorally in Nutrition: Principles, Practices, and Case Studies". IFPRI. Washington, DC, United States.
- Gómez, M., C. Barrett, T. Raney, P. Pinstруп-Andersen, J. Meerman, A. Croppenstedt, B. Carisma, and B. Thompson. 2013. "Post-Green Revolution Food Systems and the Triple Burden." *Food Policy*. <http://dx.doi.org/10.1016/j.foodpol.2013.06.009>.
- Government of Nepal National Planning Commission. 2012. "Multi-Sector Nutrition Plan for Accelerating the reduction of Maternal and Child Under-Nutrition in Nepal, 2013-2017 (2023)." Kathmandu. http://scalingupnutrition.org/wp-content/uploads/2013/03/Nepal_MSNP_2013-2017.pdf.
- Government of UK, 2013. Nutrition for Growth Commitments. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/207274/nutrition-for-growth-commitments.pdf.
- Graham R., R. Welch, D. Saunders, I. Ortiz-Monasterio, H. Bouis. et al, 2007. "Nutritious Subsistence Food Systems." *Advances in Agronomy* 92: 1–74.
- Hawkes, C. et al. 2013. "A Food Policy Package for Healthy Diets and the Prevention of Obesity and Diet-Related non-Communicable Diseases: the NOURISHING Framework". *Obesity Reviews* 14: 159–168. <http://onlinelibrary.wiley.com/doi/10.1111/obr.12098/pdf>.
- Heaver, R. 2006. "Good Work but Not Enough of It: A Review of the World Bank's Experience in Nutrition." HNP Discussion Paper, World Bank. Washington, DC, United States.
- Hedenus, F., S. Wirsenius, and D. Johansson, 2014. "The Importance of Reduced Meat and Dairy Consumption for Meeting Stringent Climate Change Targets." *Climatic Change*. doi:10.1007/s10584-014-1104-5.
- Herforth, A. 2010. "Nutrition and the Environment: Fundamental to Food Security in Africa." In *The African Food System and its Interaction with Human Health and Nutrition*, edited by P. Pinstруп-Andersen. Ithaca, NY: Cornell University Press in collaboration with United Nations University.
- Herforth, A., and C. Dufour. 2013. "Key Recommendations for Improving Nutrition Through Agriculture: Establishing a Global Consensus." *SCN News*. 40: 33–38.
- Herforth, A., A. Jones, and P. Pinstруп-Andersen. 2012. "Prioritizing Nutrition in Agriculture and Rural Development: Guiding Principles for Operational Investments." HNP Discussion paper, World Bank. Washington, DC, United States.
- Hunt, C., and H. Atwater. 1917. "How to Select Foods. U.S. Department of Agriculture." *Farmers Bulletin* No. 808. Washington, DC, United States.
- Institute for Health Metrics and Evaluation (IHME). 2013. Global Burden of Disease Interactive Tool. <http://www.healthmetricsandevaluation.org/tools/data-visualizations>.
- Jeliffe, D. 1971. International Diabetes Federation, 2013. "Summary of the October. International Conference on Nutrition, National Development and Planning." *Diabetes Atlas* 6. <http://www.idf.org/diabetesatlas>
- Jonsson, U. 2009. "Paradigms in Applied Nutrition."
- Joy, L. and P. Payne. 1975. "Food and Nutrition Planning." FAO, Rome.
- Kapur, D., J. Lewis, and R. Webb. 1997. "The World Bank: Its First Half Century. Volume 1: History." The Brookings Institute.
- Kastner, T. et al. 2012. "Global Changes in Diets and the Consequences for Land Requirements for Food." 109 (18).
- Khoury, C. et al. 2014. "Increasing Homogeneity in Global Food Supplies and the Implications for Food Security." *Proceedings of the National Academy of Sciences*. www.pnas.org/cgi/doi/10.1073/pnas.1313490111.
- Knudsen, O. and P. Scandizzo. 1979. "Nutrition and Food Needs in Developing Countries." *Staff Working Paper* No. 328, World Bank. Washington, DC, United States.
- Koffsky, N. 1982. "Nutrition in Agriculture Sector Work Guidelines." PHN and AGR, World Bank. Washington, DC, United States.
- Kraak, V., B. Swinburn, M. Lawrence, and P. Harrison. 2014. "An Accountability Framework to Promote Healthy Food Environments." *Public Health Nutrition*.
- Krivanek, A. et al. 2007. "Breeding and Disseminating Quality Protein Maize (QPM) for Africa." *African Journal of Biotechnology* 6 (4): 312–324.
- Leroy, J. M. Ruel, E. Frongillo, J. Harris, and T. Ballard. "Measuring the Food Access Dimension of Food Security: A Critical Review and Mapping of Indicators."
- Levinson, J. 1995. "Multisectoral Nutrition Planning: A Synthesis of Experience." In *Child Growth and Nutrition in Developing Countries: Priorities for Action*, edited by P. Pinstруп-Andersen, D. Pelletier, and H. Alderman. Cornell University Press.
- . 1997. "A 50th Anniversary Stocktaking: How Are We Doing in International Nutrition?" The 10th Annual Martin J. Forman Memorial Lecture. Cairo, Egypt.
- . 2000. "Searching for a Home: The Institutionalization Issue in International Nutrition."
- Levinson, J., and M. McLachlan. 1999. "How did we get here? A History of International Nutrition." In *Scaling Up Scaling Down: Overcoming Malnutrition in Developing Countries*, edited by T. Marchione. Gordon and Breach.
- Levinson, J., Y. Balarajan, and A. Marini. 2013. "Addressing Malnutrition Multisectorally: What have we learned from recent international experience?" New York: UNICEF.

- Lipton, M., and R. Paarlberg. 1989. "The Role of the World Bank in Agricultural Development in the 1990s." IFPRI. Washington, DC, United States.
- Marlow, H. et al. 2009. "Diet and environment: does what you eat matter?" *Am J Clin Nutr* 2009;89 (suppl):1699S–703S.
- Meerman, J. 1997. "Reforming Agriculture: The World Bank Goes to Market." World Bank
- McLaren, D. 1974. "The Great Protein Fiasco." *The Lancet*: 93–96.
- Morris S. et al. 2008. "Effective international action against undernutrition: why has it proven so difficult and what can be done to accelerate progress?" *The Lancet* 382 (9890): 608–621.
- Pelletier, D. 2002. "Toward a Common Understanding of Malnutrition: Assessing the Contributions of the UNICEF Framework." In *World Bank/UNICEF Nutrition Assessment*. Washington, DC, United States.
- Pelletier, D., E. Frongillo, D. Schroeder, J. P. Habicht. 1995a. "The Effects of Malnutrition on Child Mortality in Developing Countries." *Bulletin of the World Health Organization*, 73(4): 443–448.
- Pelletier D., K. Deneke, Y. Kidane, B. Haile, and F. Negussie. 1995b. "The Food-First Bias and Nutrition Policy: Lessons from Ethiopia." *Food Policy* 20 (4): 279–298.
- Pelletier, D., E. Frongillo, S. Gervais, L. Hoey, P. Menon, T. Ngo, R. Stoltzfus, A. Ahmed, and T. Ahmed. 2012. "Nutrition Agenda Setting, Policy Formulation and Implementation: Lessons from the Mainstreaming Nutrition Initiative." *Health Policy and Planning* 27(1):19–31. doi: 10.1093/heapol/czr011
- Pingali, P. 2010. "Global Agriculture R&D and the Changing Aid Architecture." *Agricultural Economics* 41 (1): 145–153.
- Pinstrup-Andersen, P., Berg, A., and Forman, M., 1984. "International Agricultural Research and Human Nutrition," IFPRI and UN ACC Subcommittee on Nutrition.
- Pinstrup-Andersen, P. 1981. "Nutritional Consequences of Agricultural Projects: Conceptual Relationships and Assessment Approaches." World Bank Staff Working Paper No. 456. World Bank.
- . 2013. "Nutrition-Sensitive Food Systems: from Rhetoric to Action." *The Lancet* 382 (9890): 9–10.
- Popkin, B. 2009. "The World is Fat: The Fads, Trends, Policies, and Products that are fattening the Human Race." *Avery Trade*.
- Reutlinger, S., and M. Selowsky. 1976. "Malnutrition and Poverty: Magnitude and Policy Options." World Bank staff occasional papers No. 23, World Bank. Washington, DC, United States.
- Reutlinger, S. Aug. 1983. "Nutritional Impact of Agricultural Projects." AGR/ARU 14, World Bank. Washington, DC, United States.
- . 1993. "Addressing Hunger: An Historical Perspective of International Initiatives." Background paper prepared for the conference on Overcoming Global Hunger, World Bank, Washington, DC, United States.
- Ross, J., and E. Posanai. 1988. "The Activities of the Nutrition Section: Alternatives to Intersectoral Nutrition Planning." *Papua New Guinea Med J* 31(2): 141–145.
- Ruel, M., and H. Alderman. 2013. "Nutrition-sensitive interventions and programmes: how can they help to accelerate progress in improving maternal and child nutrition?" *The Lancet* 382 (9890): 66–81.
- Schiff, M. and A. Valdes. 1992. "The Plundering of Agriculture in Developing Countries." World Bank. Washington, DC, United States.
- Schuftan, C., V. Ramalingaswami, and J. Levinson. 1998. "Micronutrient Deficiencies and Protein-Energy Malnutrition." *The Lancet* 351 (1812).
- Scrimshaw, N. 1968. "Historical Concepts of Interactions, Synergism and Antagonism between Nutrition and Infection." *The Journal of Nutrition* 133. (1): 316s–321s.
- Siegel, K., M. K. Ali, A. Srinivasiah, R. A. Nugent, and K. M. Venkat Narayan. "Do we produce enough fruits and vegetables to meet global nutritional guidelines now and in the future?"
- Smith, L., and L. Haddad. 2000. "Overcoming Child Malnutrition in Developing Countries: Past Achievements and Future Choices." Food, Agriculture, and the Environment Discussion Paper 30. IFPRI. Washington, DC, United States.
- Stanton, B. 2001. "Agricultural Economics at Cornell: A History, 1900–1990." Ithaca, NY: Cornell University. <http://dyson.cornell.edu/about/history.php>.
- Swindale, A., and P. Bilinsky. 2006. "Household Dietary Diversity Score (HDDS) for Measurement of Household Food Access: Indicator Guide." *Food and Nutrition Technical Assistance, Version 2 (FANTA-2)*. Washington, DC, United States.
- Tagwireyi, J., and T. Greiner. 1994. "Nutrition in Zimbabwe: An Update." World Bank. Washington, DC, United States.
- Thorbecke, E. 2006. "The Evolution of the Development Doctrine, 1950–2005." UNU World Institute for Development Economics Research Paper No. 2006/155.
- Tiwari, S., E. Skoufias, and M. Sherpa. 2013. "Shorter, Cheaper, Quicker, Better: Linking Measures of Household Food Security to Nutritional Outcomes in Bangladesh, Nepal, Pakistan, Uganda, and Tanzania." Policy Research Working Paper 6584, World Bank. Washington, DC, United States.
- Trowell, H. 1950. "Problems Raised by Kwashiorkor." *Nutrition Reviews* 8 (6): 161–163.
- United Nations, Advisory Committee on the Application of Science and Technology to Development (ACAST) 1968. *International Action to Avert the Impending Protein Crisis*.
- UNICEF. 1990. "Strategy for Improved Nutrition of Children and Women in Developing Countries." New York: UNICEF.
- UN International Code of Marketing of Breast-Milk Substitutes. 1981. <http://www.who.int/nutrition/publications/infantfeeding/9241541601/en/>.
- UN Standing Committee on Nutrition. 1987. "First Report on the World Nutrition Situation."
- UN Standing Committee on Nutrition. 1993. "Second Report on the World Nutrition Situation."
- Uvin, P. 1994. "The State of World Hunger." In *The Hunger Report: 1993*, edited by P. Uvin. World Hunger Program, Brown University. Verdon, Switzerland: Gordon and Breach Science Publishers. 1–48.
- Vasal, S. 2000. "The Quality Protein Maize Story." *Food and Nutrition Bulletin* 21: 445–450.
- Weinberger, K., and T. Lumpkin. 2005. "Horticulture for Poverty Alleviation—the Unfunded Revolution." Shanhua, Taiwan: AVRDC—The World Vegetable Center, AVRDC Publication No. 05-613, Working Paper No. 15.

- Welch, R., and R. Graham. 1999. "A New Paradigm for World Agriculture: Meeting Human Needs; Productive, Sustainable, Nutritious." *Field Crops Research* 60: 1–10.
- Williams, C. 1935. "Kwashiorkor: a Nutritional Disease of Children Associated with a Maize Diet." *The Lancet* 1935(2): 1151–1152.
- World Bank. 1973. *Policy Guidelines for Bank Nutrition Activities*. Population and Nutrition Projects Department, World Bank. Washington, DC, United States.
- . 1975. *Rural Development Sector Policy Paper*. PUB-588, World Bank. Washington, DC, United States.
- . 1980. *Nutrition, Basic Needs, and Growth*. Population, Health, and Nutrition Department, World Bank. Washington, DC, United States.
- . 1981. *Malnourished People: a Policy View*. World Bank. Washington, DC, United States.
- . 1986a. *World Development Report: The Hesitant Recovery and Prospects for Sustained Growth, Trade and Pricing Policies in World Agriculture*. World Bank. Washington, DC, United States.
- . 1986b. *Poverty and Hunger: Issues and Options for Food Security in Developing Countries; A World Bank Policy Study*. World Bank. Washington, DC, United States.
- . 1993. *Agricultural Sector Review*. World Bank. Washington, DC, United States.
- . 1994. *Enriching Lives: Overcoming Vitamin and Mineral Malnutrition in Developing Countries*. World Bank. Washington, DC, United States.
- . 1996. *Nutrition Toolkit*. <http://go.worldbank.org/7K1WV3B4M0>.
- . 1997. *From Vision to Action*. World Bank. Washington, DC, United States.
- . 2003a. *Combating Malnutrition: Time to Act*. World Bank. Washington, DC, United States.
- . 2003b. *Reaching the Rural Poor*. World Bank. Washington, DC, United States.
- . 2006. *Repositioning Nutrition as Central to Development*. World Bank. Washington, DC, United States.
- . 2007. *The World Bank Strategy for Health, Nutrition and Population Results*. World Bank. Washington, DC, United States.
- . 2008. *World Development Report: Agriculture for Development*. World Bank. Washington, DC, United States.
- . 2009. *Agriculture Action Plan FY10-12*. World Bank. Washington, DC, United States.
- . 2013a. *Agriculture Action Plan FY13-15*. World Bank. Washington, DC, United States.
- . 2013b. *Improving Nutrition through Multisectoral Approaches*. World Bank. Washington, DC, United States.
- . 2013c. *The Double Burden of Malnutrition in Indonesia*. World Bank. Washington, DC, United States.
- . 2014. *Agriculture for Nutrition in Latin America and the Caribbean: From Quantity to Quality*. <http://www.iica.int/Esp/Programas/SeguridadAlimentaria/IICAPublicaciones/B3257i.pdf>.
- World Bank Independent Evaluations Group, 2009. *Improving Effectiveness and Outcomes for the Poor in Health, Nutrition, and Population: An Evaluation of World Bank Group Support Since 1997*. World Bank. Washington, DC, United States. <http://web.worldbank.org/WBSITE/EXTERNAL/EXTOED/EXTWBASSHEANUTPOP/0,,contentMDK:22163572~menuPK:6080533~pagePK:64829573~piPK:64829550~theSitePK:4422776,00.html>.
- . 2011. *Growth and Productivity in Agriculture and Agribusiness: Evaluative Lessons from WBG Experience*. World Bank. Washington, DC, United States.
- World Bank Operations Evaluation Department. 1987. *World Bank Experience with Rural Development 1965–1986*. World Bank. Washington, DC, United States.
- . 1999. *Rural Development: From Vision to Action?* Report No. 19448, World Bank. Washington, DC, United States.
- World Bank Operations Evaluation Group. 2000. *Updating the World Bank's Rural Development Strategy*. World Bank. Washington, DC, United States.
- World Food Programme. 2008. *Technical Guidance Sheet—Food Consumption Analysis: Calculation and Use of the Food Consumption Score in Food Security Analysis*. Rome: WFP.
- World Health Organization. *Health Topics: Nutrition*. <http://www.who.int/topics/nutrition/en/>.



<http://datatopics.worldbank.org/hnp/>



www.worldbank.org/archives



AES
Agriculture and
Environmental Services



WORLD BANK GROUP

Agriculture and Environmental Services (AES)
1818 H Street, NW
Washington, D.C. 20433 USA
Telephone: 202-473-1000
Internet: www.worldbank.org/agriculture