UNLEASHING AGRICULTURE'S POTENTIAL
for Improved Nutrition & Health in
MALAWI

26-27 SEPTEMBER 2011 CROSSROADS HOTEL *Lilongwe, Malawi*

CONFERENCE REPORT

Malawi Ministry of Agriculture and Food Security

INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE
IFPRI®
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ACKNOWLEDGEMENTS

The success of the conference is due to unstinting efforts from many parties. The conference was co-organised by the Ministry of Agriculture, Irrigation and Water Development and IFPRI with support from Irish Aid and USAID.

The preparation of conference was guided by a Task Team comprising experts from various institutions, namely: Margie Luwanda, Fiskani Nkana and Purna Wasti (seconded from FAO) of the Ministry of Agriculture, Irrigation and Water Development; Dalitso Kang'ombe of the Ministry of Health; Blessings Botha, Ruth Butao, Phina Rosh Rebello and Laura Lalor of Irish Aid; Violet Orchardson and John Edgar of USAID; Klaus Droppelmann and Ireen Wasambo of the IFPRI-Malawi office, who were backed up by Joshua Valeta, Kitty Maluwa and Celia Swann. The Task Team was ably co-chaired by Irish Aid and USAID while IFPRI-Malawi provided the secretariat.

An IFPRI team based in Washington DC, comprising Rajul Pandya-Lorch, Marcia MacNeil, Sivan Yosef and Shirley Raymundo, provided strategic guidance and logistical support in organizing and conducting the conference.

Special thanks go Hon. Prof. Peter Mwanza, Minister, Erica Maganga, Principal Secretary, and Dr. Jeff Luhanga, Principal Secretary II of MoAIWD, for their support and dedication in getting this conference off the ground, and also to Vincent O'Neill who initiated the Malawi conference and Adrian Fitzgerald who took over the baton as his successor.

This report was compiled by the conference rapporteur, Celia Swann.

Contents

ABOVE: Conference participants.

ABBREVIATIONS

ACTESA	Alliance for Commodity Trade in Eastern and Southern Africa
ADC	Area Development Committee
ADD	Agricultural Development Division
ADP	Area Development Plan
AIDS	Acquired Immunodeficiency Syndrome
A-N-H	Agriculture–Nutrition–Health
ASP	Area Stakeholder Panel
ASWAp	Agriculture Sector Wide Approach
CAADP	Comprehensive African Agriculture Development Programme
CADECOM	Catholic Development Commission in Malawi
CBO	Community Based Organization
CDC	Centers for Disease Control and Prevention
CIAT	Center for Tropical Agriculture
CIP	International Potato Center
CISANET	Civil Society Agriculture Network
COMESA	Common Markets for Eastern and Southern African
CSO	Civil Society Organization
CTC	Community Therapeutic Care
DAECC	District Agricultural Extension Coordinating Committee
DAES	Department of Agriculture Extension Services
DARS	Department of Agriculture Research Services
DDP	District Development Plan
DEC	District Executive Committee
DNHA	Department of Nutrition, HIV and AIDS
DSP	District Stakeholder Panel
DVM	Decentralized Vine Multiplication
ECOWAS	Economic Community of West African States
EPA	Extension Planning Area
FAO	Food and Agriculture Organization of the United Nations
FHA	Farm Home Assistant
FISP	Farm Input Subsidy Program
FNS	Food and Nutrition Security
FRT	Farmer Research Team
FUM	Farmers' Union of Malawi
GDP	Gross Domestic Product
HIV	Human Immunodeficiency Virus
ICN	International Conference on Nutrition
ICT	Information Communication Technology
IDA	Iron Deficiency Anemia
IEC	Information, Education, Communication
IFPRI	International Food Policy Research Institute
JFFLS	Junior Farmer Field Life School
MBS	Malawi Bureau of Standards
MCH	Maternal and Child Health
MDG	Millennium Development Goal
MDHS	Malawi Demographic Health Survey
MGDS	Malawi Growth and Development Strategy
MHEN	Malawi Health Equity Network
MICAH	Micronutrients and Health
MICS	Multiple Indicator Cluster Survey
MoAIWD	Ministry of Agriculture, Irrigation & Water Development
MoH	Ministry of Health
MSH	Management Sciences for Health
MVAC	Malawi Vulnerability Assessment Committee
MVP	Millennium Village Project
NASFAM	National Association of Farmers in Malawi
NCHS	National Center for Health Statistics
NECS	Nutrition Education and Communication Strategy
NEPAD	New Partnership for African Development
NGO	Nongovernmental Organization
NNPSP	National Nutrition Policy and Strategic Plan
NRC	Natural Resources College
NSP	National Stakeholder Panel
OFSP	Orange Fleshed Sweet Potato
OPC	Office of the President and Cabinet
PABRA	Pan African Bean Alliance
PAN	Policy Action Note
PPP	Public Private Partnership
PS	Principal Secretary
RUTF	Ready to Use Therapeutic Food
SFHC	Soils, Food and Health Communities
SOFI	State of Food Insecurity (FAO)
SPCMM	Strategy for the Prevention and Control of Micronutrient Malnutrition
SSA	Sub-Saharan Africa
SUN	Scaling Up Nutrition
UNICEF	United Nations Children's Fund
UNICN	UN International Conference on Nutrition
USAID	United States Agency for International Development
VAD	Vitamin A Deficiency
VDC	Village Development Committee
WALA	Wellness and Agriculture for Life Advancement
WASH	Water, Sanitation and Hygiene
WFP	World Food Programme
WHO	World Health Organization
WVM	World Vision Malawi

Introduction

In February 2011, the 2020 Vision Initiative of the International Food Policy Research Institute (IFPRI) organized an international conference in New Delhi, India on "Leveraging Agriculture for Improving Nutrition and Health." The conference brought together 1,000 stakeholders from 65 countries from all the three sectors of agriculture, nutrition, and health. Their goal was to examine how agriculture could be energized to become a more powerful tool to tackle the persistent problems of food insecurity, malnutrition, and poor health.

Malawi is the first country in the world to organize a national event to follow up on and translate the findings and recommendations from the global conference and develop country-specific policy actions. IFPRI's Malawi office and its 2020 Vision Initiative, in collaboration with the Ministry of Agriculture, Irrigation and Water Development, and supported by USAID and Irish Aid, organized the conference, "*Unleashing Agriculture's Potential for Improved Nutrition and Health in Malawi"* on September 26–27, 2011, in Lilongwe. This conference focused on how agricultural strategies can best be tailored to the Malawian context and result in improvements for nutrition and health. It is crucially important to make linkages—the best agricultural practices will not succeed in improving the nation's nutritional status if there is not good nutritional care and access to health services.

More than 200 key stakeholders attended the conference and were exposed on arrival to a Knowledge Fair that demonstrated initiatives in Malawi. The exhibition followed the value chain from food production through to consumption. Inspired by the local spirit of innovation and the persistence in achieving sustainable solutions, participants then listened to presentations from regional experts, government research institutions, nongovernmental organizations (NGOs), and leading implementers in government and international organizations. Staff from the Ministry of Agriculture, Irrigation and Water Development (MoAIWD) predominated over other ministries, and there was representation from the Department of Nutrition and HIV/AIDS, the Office of the President and Cabinet, and the Ministry of Health.

The event gave maximum opportunity for stakeholder participation in debate. New developments in national research into agriculture prompted special interest, demonstrating Malawi's commitment to reducing macro- and micronutrient deficiency. Equally stimulating were accounts given by NGOs showing how community approaches are the only route to achieving changes in mindsets toward crop diversification and dietary diversification. Development partners are willing to support Malawi's efforts to combat malnutrition, and there was a feeling that very good programs have come and gone over time and the best could be revisited, revised and re-enacted (for example, the MICAH project, Farm Home Assistants). There is considerable scope for integrating the private sector into developing new products, adding value to current foods through food fortification, and marketing complementary foods. Linkages among government, NGOs, and commercial enterprises are vital to the way forward. Following the conference, a policy action plan that identified key areas of action to better link agriculture, nutrition, and health in and for Malawi was developed (see Appendix 1).

The timing of this conference fits well into the activities going on across the country under the Scaling Up Nutrition (SUN) campaign. SUN carries programs and information, education, and communication (IEC) that emphasize the fact that the country may be food secure, however it remains insecure in terms of nutrition. Malawi's agriculture needs to move with the times and tackle the challenge to feed its children with nutritious foods. A well-fed population is the foundation for national development.

THE KNOWLEDGE FAIR

The Knowledge Fair ran concurrently with the conference and provided participants with the opportunity to exchange new information and ideas and to share exciting initiatives in and for Malawi through exhibits, paper posters, electronic posters, videos, music, food tastings, and demonstrations. The fair exhibits were organized according to the different phases of the **food value chain**: each participating organization showcased its own contribution to the chain.

ABOVE: *Top*: The Principal Secretary for Agriculture, Irrigation and Water Development, Erica Maganga, and other officials are shown exhibits promoting nutritional interventions; *Bottom*: Exhibit by the WALA programme, with zondeni, community complementary feeding, low energy stove, etc.

LIST OF EXHIBITORS

POSITION IN THE VALUE CHAIN	ORGANISATION
Policy	Ministry of Agriculture, Irrigation and Water Development (MoAIWD)
	International Food Policy Research Institute (IFPRI)
	OPC—Nutrition, HIV and AIDS
Research and Knowledge Systems	Story Workshop—media for development
	MoAIWD, Department of Agriculture Research Services (DARS)—research on bio-fortification
	International Potato Center (CIP)—research into orange-flesh sweet potato
Production and Marketing	Millennium Village Project (MVP)
	MoAIWD, Land Resources Department—fertility improvement
	Valid Nutrition—production of Ready to Use Therapeutic Food
	Concern Worldwide—Community Therapeutic Care (CTC)
	MoAIWD, Department of Crop Production
	MoAIWD, Department of Animal Health and Livestock
	Management Science for Health (MSH)—support to outreach
Postharvest Handling and Processing	Catholic Relief Services—Wellness and Agriculture for Life Advancement (WALA)
	Bunda College, University of Malawi—ARDEP
Utilization	MoAIWD, Department of Agriculture Extension Services (DAES)
	Concern Universal—LDSP programme
Cross-cutting	DAPP Malawi—Farmers Clubs
	CARE Malawi—community programmes
	University of Western Ontario—gender-aware agricultural research

INAUGURAL PLENARY SESSION: SETTING THE STAGE

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

Rajul Pandya-Lorch, International Food Policy Research Institute (IFPRI)

ABOVE: Rajul Pandya-Lorch

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

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

Global Nutrition and Health Face Many Challenges

Global progress in improving food security in recent years has been substantial, but not sufficient. Significant advancements have been made in reducing hunger through intensifying staple food production, diversifying out of major cereals, reforming economy-wide policies, and improving food quality and human nutrition in the past five decades.[2] However, much remains to be done. The number of people suffering from undernutrition had been on a steady upward track since the mid-1990s, sharply climbing to more than 1 billion in 2009—largely due to the food and financial crisis—before falling to 936 million in 2010.[3] Asia is home to the highest number of undernourished while Sub-Saharan Africa has the highest prevalence of undernutrition. According to the 2010 Global Hunger Index—a combined measure of the proportion of undernourishment, child malnutrition, and child mortality—global hunger has improved only slightly since 1990 and 29 countries have "alarming" or "extremely alarming" levels of hunger.[4] Malawi has made progress from "extremely alarming" in 1990 to "serious" in 2010, which although a significant improvement, still indicates the need for new strategies to tackle this issue. At the same time, a number of developing countries have been struggling with a rapid rise in overweight and obesity among their population (especially in urban areas). In fact, recent estimates

1 IFPRI (International Food Policy Research Institute), *Highlights from an International Conference*, Proceedings from IFPRI 2020 Conference,"Leveraging Agriculture for Improving Nutrition and Health" on February 10–12, 2011, New Delhi.

2 D. Spielman and R. Pandya-Lorch, Millions Fed: Proven Successes in Agricultural Development (Washington, DC: IFPRI, 2009).

3 FAO (Food and Agricultural Organization), State of Food Insecurity in the World 2010 (Rome: 2010).

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

indicate that 35 million out of the world's 42 million overweight children under the age of five live in developing countries.[5]

Deficiencies in important micronutrients such as vitamin A, iron, and zinc are prevalent. Hidden hunger has the potential both to weaken the mental and physical development of children and adolescents—resulting in lower IQ, stunting, blindness, and increased risk of illness and mortality from infections—and to reduce the productivity of adults due to illness and reduced work capacity. An estimated 2 billion people in the world are anemic. The economic cost of micronutrient deficiencies has been estimated to be 2.4–10 percent of GDP in many developing countries.[6] As a result, many regions in the world have been in a downward spiral of low agricultural productivity, low income, increased poverty, and even worse nutrition and health.

Agriculture Presents a Key Opportunity for Improving Nutrition and Health

Past development experiences have shown that the agricultural sector has been the engine of growth in many countries and that a successful economic transformation vitally depends on agricultural development and increased agricultural productivity, especially during the initial stages of a country's development. In fact, a number of studies have found that growth originating from agriculture is often more effective at reducing poverty than growth in other sectors, such as industry and services.[7]

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

Although empirical evidence on the nutritional impacts of agricultural growth is limited, agricultural growth, in particular, has been shown to be associated with a reduction in stunting among children in agrarian countries, with the exception of India.[8] Moreover, agricultural growth is positively and significantly linked with calorie intake (especially at lower levels of calorie consumption), although evidence from the analysis also suggests that the effect on dietary diversity is greater for non-agricultural growth. Furthermore, in the long run, a pro-nutrition growth strategy, which places emphasis on poverty reduction and improvements in education and health outcomes, has the capacity for larger and more sustainable reductions in undernutrition than targeted nutrition interventions (such as supplements and training programs), which are more beneficial in the short run. This finding underscores the need to integrate policies and programs to reduce undernutrition across different sectors and ministries. Furthermore, evidence indicates that the impact of agricultural growth is variable across different measures of undernutrition.[9]

The type of agricultural growth that takes place also matters a great deal for nutrition. In Tanzania, for example, high agricultural growth has done little to improve nutrition because it was driven primarily by crops that poor people were less likely to grow.[10] Experience has shown that growth in staple crops contributes more to poverty reduction and calorie intake than does growth in export crops because poor farmers often lack the financial resources and technologies required to grow export crops.[11]

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5 M. de Onis, M. Blössner, and E. Borghi, "Global prevalence and trends of overweight and obesity among preschool children," *American Journal of Clinical Nutrition* 92, no. 5 (2010).

6 For summary of studies, see A. Stein and M. Qaim, "The human and economic cost of hidden hunger," *Food and Nutrition Bulletin* 28, no. 2 (2010).

7 See for example L. Christiaensen, L. Demery, and J. Kühl, Role of Agriculture in Poverty Reduction: An Empirical Perspective, World Bank Policy Research Working Paper 4013 (Washington, DC: World Bank, 2006); A. de Janvry and E. Sadoulet, "Agricultural Growth and Poverty Reduction: Additional Evidence," World Bank Research Observer 25, no. 1 (2009); and A. Pratt and X. Diao, "Exploring growth linkages and market opportunities for agriculture in Southern Africa," Journal of Economic Integration 23, no. 1 (2008).

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

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

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

11 X. Diao, A. Nin Pratt, M. Guatam, J. Keough, J. Chamberlin, L. You, D. Puetz, D. Resnick, and B. Bingxin, Ethiopia: Growth Options and Poverty Reduction, Issue Brief 45 (Washington, DC: IFPRI, 2006).

In the long term, the best way to conquer malnutrition is to promote a nutrition-sensitive growth strategy. Such a strategy could increase demand for and access to nutritious foods all along the value chain, mitigate the health and nutrition risks associated with agriculture, and breed more nutritious varieties of staple food crops consumed by poor people. It could promote diversification of agriculture into nutritious and high-value products like dairy, horticulture, and fish, which offer great potential for small farmers because they are land saving and labor intensive. Public support systems for agriculture, like credit and extension programs, should be made to work better for women farmers. A more diverse and productive agricultural system will in turn accelerate growth in the rural nonfarm sector, in areas like agro-processing. Investments in rural infrastructure could help ensure that this growth can take place and will contribute to better nutrition. It is important to remember, however, that a growth strategy must be accompanied by investments in safety nets and education, nutrition, and health programs so that the poorest people are not left behind.[12]

Translating Findings to the Regional and Country Levels

Given the complex relationship among agriculture, nutrition, and health, there is an urgent need to examine how global recommendations can be adapted to the regional and country level. Sub-Saharan Africa's renewed commitment to agriculture over the past decade makes this an opportune moment to redefine the agriculture, health, and nutrition paradigm, though it also presents unique development challenges.

Government expenditure in agriculture in the region has more than doubled between 2000 and 2005.[13] Promising initiatives demonstrate the growing recognition of the importance of agriculture for economic development and poverty reduction. Under the 2003 Maputo Agreement, Africa Union heads of state and governments implemented the Comprehensive Africa Agriculture Development Programme (CAADP), which aimed to achieve 6 percent annual agricultural growth in the region. Member countries also agreed to allocate 10 percent of their budget to the agricultural sector. As of 2008, however, only eight reporting countries (Burkina Faso, Ethiopia, Ghana, Guinea, Malawi, Mali, Niger, Senegal) have actually met or surpassed this goal while nine countries reached expenditure shares between 5 and 10 percent, and twenty-eight others allocated less than 5 percent.[14]

While these initiatives to boost agricultural growth show promise for poverty alleviation, as indicated earlier in this note, these alone are not sufficient to improve nutrition and health status. Non-growth strategies can have an important role in strengthening the linkages, but have long been underdeveloped in the region. Agricultural research and development (R&D) can significantly improve agricultural productivity as well as reduce poverty through increased innovation, but 70 percent of spending remains concentrated in just a handful of Sub-Saharan African countries.[15] The region also lags behind other global regions in terms of investment in infrastructure, specifically transportation and telecommunication, which can contribute significantly to growth and poverty reduction.[16] However, the opportunities and challenges for improving nutrition and health vary between countries. This calls for careful adaption of policies and programs to the national and even local context to minimize costs and maximize results.

Malawi has demonstrated long-term commitment toward promoting nutrition and health-friendly policies and programs. Over the past decade, Malawi has made significant progress in reducing malnutrition. However, stunting still remains high at 47.8 percent.[17] In its continuing efforts toward eradicating malnutrition, Malawi has been one of the first countries to support the Scaling Up Nutrition (SUN) initiative and endorse the SUN Framework, an emerging worldwide drive supported by more

12 IFPRI, *Highlights from an International Conference*. Proceedings from IFPRI 2020 Conference, "Leveraging Agriculture for Improving Nutrition and Health" on February 10–12, New Delhi (Washington, DC, 2011).

13 S. Fan, B. Omilola, and M. Lambert, Public Spending for Agriculture in Africa: Trends and Composition, ReSAKSS Working Paper 28 (Washington, DC: IFPRI, 2009).

14 B. Omilola, M. Yade, J. Karugia, and P. Chilonda, Monitoring and Assessing Targets of the Comprehensive Africa Agriculture Development Programme (CAADP) and the First Millennium Development Goal (MDG) in Africa, ReSAKSS Working Paper 31 (Washington, DC: IFPRI, 2010).

15 N. Beintema and G. Stads, African Agricultural R&D in the New Millennium: Progress for Some, Challenges for Many, ASTI Food Policy Report (Washington, DC: IFPRI, 2011).

16 Fan, Omilola, Lambert, Public Spending for Agriculture in Africa: Trends and Composition.

17 Data from 2010 Demographic Household Survey.

BUILDING A MULTI-SECTORAL AGENDA

Four essential building blocks for nutrition-and health-friendly, agricultural development agenda emerged from the discussions at the New Delhi conference:

1. Fill the knowledge gaps

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

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

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

2. Do no harm

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

3. Seek out and scale up innovative solutions

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

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

Opportunities for enhancing nutrition should be identified across the entire value chain. While agriculture traditionally aims to increase food production to improve nutrition, this approach looks for opportunities from the inputs of production to processing to marketing. For example, improvements in transportation and storage can significantly reduce postharvest loss and deterioration of nutritional quality of foods. As a result, producers benefit from higher incomes and consumers can more easily access affordable and nutritious foods.

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

4. Create an environment in which cooperation can thrive

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

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

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

than 100 entities that aims to increase investment and the scope of action in nutrition as a key to the achievement of the Millennium Development Goals. In June 2011, the first lady of Malawi helped to launch the country's own movement "SUN 1000 Special Days." The goal of the national movement is to eliminate stunting in Malawi by focusing on children's first 1000 days, which are critical as they determine whether children can achieve their full potential for cognitive development (UNICEF Media Center). At Malawi's SUN launch event, the National Nutrition Education and Communication Strategy for preventing child stunting was launched, which will enhance the implementation of the movement.

Malawi also implemented an agricultural program that has led to improvements in household productivity, nutrition, and health. Started in 2005, the Farm Input Subsidy Program (FISP) aims to increase small-holder production and improve food and nutrition security by providing targeted, poor households with vouchers for fertilizer, hybrid seeds, and pesticides. As a result of the program, the government estimates that smallholder maize output has increased from 1.3 million metric tons in 2004–05 to 3.66 million metric tons in 2009–2010, leading to large maize surpluses.[18] However, further research on recipient selection as well as increasing the availability of diverse types of crops to ensure that the program achieves the greatest possible impact on nutrition and health are necessary.[19]

Conclusion

As the world faces increasing challenges—including rising food prices, climate change, and threats of water scarcity—countries like Malawi urgently need to take steps to uncover how to maximize the linkages between nutrition and agriculture. First, more research is needed to explore the current and future challenges and opportunities Malawi will face in the coming years in linking agriculture, nutrition, and health and particularly focus on the role of agricultural growth. Second, focus should be on reaching out across sectors and stakeholder groups to build up knowledge, create networks and enhance awareness. Finally, and most importantly, governments, civil society, and private sector should draw from global, regional, and national case studies and scale up their investments in nutrition-and health-friendly agricultural policies and projects.

Framework for Unleashing Agriculture to Be Nutrition- and Health-Sensitive

Purna Wasti, Technical Officer (Food and Nutrition Security), FAO-Malawi

The Problem of Hunger and Malnutrition

ABOVE: Purna Wasti

Hunger and malnutrition remain a major problem worldwide. Globally, 925 million people are hungry and undernourished around 2 billion people (more than 30 percent of the world population) are suffering from micronutrient deficiency, close to 10 million children die before their fifth birthday every year, one third of which are associated with undernutrition, 185 million children below the age of five years are stunted and 148 million of children are underweight.[20]

Sub-Saharan Africa continues to have the highest prevalence of undernourishment with 239 million people undernourished in 2010, slightly less than in 2009. Stunting rates in children less than 5 years of age range from 10–50 percent; an estimated 126 million children are underweight; 200 million Africans are chronically malnourished; and 5 million die of hunger annually. At this rate, chances of reaching the Millennium Development Goals by African countries are remote.

18 African Development Bank Group, Malawi Interim Country Strategy Paper (ICSP) 2011–2012 (Lilongwe, 2011).

19 C. Chibwana and M. Fisher, The Impacts of Agricultural Input Subsidies in Malawi, Malawi Strategy Support Program (MaSSP) Policy Note 5 (Washington, DC: IFPRI, 2011).

20 FAO (Food and Agricultural Organization), State of Food Insecurity in the World 2010 (Rome: 2010).

Nutrition indicators have improved significantly since 2004, yet an unacceptably high proportion of Malawian households have remained food insecure and a large proportion of children are at risk from malnutrition. According to recent estimates from the Food and Agriculture Organization of the United Nations (FAO), 28 percent of the Malawian population (3.9 million) suffers from hunger and undernourishment. Comparison of the 2004 MDHS nutritional status data with the 2010 MDHS data using the previous NCHS/CDC/WHO standard classifications shows that the percentage of children who are stunted has decreased from 48 percent to 41 percent, and the percentage of children who are underweight has decreased from 22 percent to 17 percent (DHS, 2010). Stunting represents short children, and suggests a general impairment of growth, including brain development, and is likely irreversible after the first two years of life.

Micronutrient malnutrition is also a problem in Malawi. Among children aged 6–59 months, 64 percent are anemic and among the women of child-bearing age, 29 percent are anemic. Similarly, 54 percent of children under five have vitamin-A deficiency (VAD). Iodine Deficiency Disorder (IDD) also continues to be a public health concern.

The critical window of opportunity to prevent child stunting and micronutrient deficiencies is while a mother is pregnant and during the child's first two years of life. Lack of access to an adequate diet, low quality complementary foods combined with poor infant feeding practices, and poor health and care during this period are fundamental contributors to child undernutrition.

Food and Nutrition Situation in Malawi

Maize production has increased significantly in recent years and was projected to reach 3.9 million metric tons in 2011 (MoAIWD, 2010). As a result, the number of Malawians in need of food aid has decreased dramatically, from nearly half the population (more than 4.5 million) following the 2004/2005 drought to less than 254,000 today (MVAC).

Despite increased production of agricultural and livestock products in the last 50 years, per capita food availability has stagnated. Overall, dietary energy supply is barely sufficient to meet population energy requirements with population energy requirements of 2054 kcal per capita/day in 2000. Moreover, the diet lacks diversity and is poor in micronutrient-rich foods.

Cereals (mainly maize) contribute more than 50 percent of the daily calorie and protein supply in the food basket, followed by starchy roots and tubers contributing approximately 10 percent (FAOSTAT, 2007). While maize constitutes the cornerstone of the diet, Malawians also eat cassava, rice, and potatoes, although rice is considered a luxury and potatoes are not eaten as a main course. Fruits and vegetables complement these staples. The consumption of animal source foods, fats and sugar is low though increasing among wealthier people in urban areas.

Dietary diversity expressed by Food Consumption Score, which was used by the World Food Programme (WFP) for analyzing the food security and vulnerability analysis in Malawi shows that 11.5 percent of the population has poor, 36.7 percent borderline, and 51.8 percent acceptable food consumption status.

Agriculture–Nutrition Linkages

Agriculture is the major source of food, employment, and income in the developing world. Large numbers of people, especially the poor, are involved directly or indirectly in agricultural activities and derive multiple benefits arising from its multifunctional character. In Malawi, agriculture employs about 80 percent of the total workforce, contributes more than 80 percent to foreign exchange earnings, accounts for 39 percent of gross domestic product (GDP), and contributes significantly to national and household food and nutrition security.

Agricultural policies influence the quantity and quality of foods farmers produce, as well as the range of crops grown and the production methods used. Therefore, agricultural policies can affect human health and nutrition. In turn, health and nutrition policies can affect agriculture by influencing whether farming families are physically able to work their farm. An undernourished workforce is less able to do work, absenteeism and sickness are more frequent, and poor nutrition acts as a brake to agricultural and economic development. Yet although they may share goals, professionals in agriculture, nutrition,

and health rarely have opportunities to discuss areas of mutual interest, exploit synergies, and pursue outcomes together that are beneficial to society.

FAO's Mandate

FAO is a UN specialized agency with the mandate of raising the levels of nutrition and standards of living and ensuring humanity's freedom from hunger by promoting sustainable agricultural development and alleviating poverty. The organization offers direct development assistance and policy and planning advice to governments for improving the efficiency of the production, distribution, and consumption of food and agricultural products; collects, analyzes, and disseminates information; and acts as an international forum for debate on food, nutrition, and agriculture issues.

Focusing on the distinctive relationship among agriculture, food, and nutrition, FAO works to protect, promote, and improve food-based systems to ensure sustainable food and nutrition security, improve diets, combat micronutrient deficiencies, and raise levels of nutrition, and in so doing, achieve the nutrition-related Millennium Development Goals (MDGs).

FAO's Role and Comparative Advantage

FAO possesses expertise relevant to all points of the food chain and is therefore well positioned to bring a broad food-based approach to nutrition. FAO focuses on longer-term preventive solutions aiming to produce sustainable and positive dietary and nutrition outcomes.

The expression "food and nutrition security (FNS)" best describes the integration of nutrition into food security because "food security" and "nutrition security" are not the same thing. Food production matters, but the inclusion of nutrition underscores the need for us to look not only at the quantity of food (calories) but also at the quality of that food in terms of variety, diversity, and nutrient content and to consider both undernutrition and overnutrition. Many food security improvement programs tend at best to assume nutritional benefits or at worst neglect nutrition. The embedding of nutrition within food security reminds us that raising levels of nutrition is the ultimate goal and thereby ensures that nutrition is not neglected or forgotten. Unless nutrition security is improved, MDG1 for ending hunger and raising levels of nutrition will not be automatically achieved. In fulfillment of its mandate, FAO is working to better integrate nutrition into agriculture, food security, and vulnerability policy frameworks.

Promote Nutrition-Sensitive Agriculture and Food-Based Strategies

FAO advocates for nutrition-sensitive food- and agriculture-based approaches as a sustainable strategy for improving the nutritional status of populations. This approach stresses the multiple benefits derived from enjoying a variety of foods, recognizing the nutritional value of food for good nutrition, and the importance and social significance of the food and agricultural sector for supporting rural livelihoods.

The approach encourages and equips people to consider their total diet in relation to their preferences, individual lifestyle factors, physiological requirements, and physical activity levels. Started early, this approach can contribute to physiological, mental, and social development, enhance learning potential, reduce nutritional disorders, and contribute to the prevention of diet-related diseases later in life. The fact that malnutrition continues in countries despite their apparently having adequate food supplies highlights the need to overcome poverty, marginalization, and neglect. We need to increase the production and availability of food while at the same time ensuring that the poor, the marginalized, and the neglected have access to good quality, safe, and nutritionally adequate food.

To achieve the availability and consumption of nutritionally adequate foods, the following are some of the suggested strategies:

- Diversify production of vegetables and fruits with micro-nutrient rich varieties
- Promote production of animal sourced foods for improving diets and nutrition
- Protect biodiversity to protect the quality of diets
- Select crops based on nutritional content in addition to yields and market value
- R&D programs breed plants and livestock that enhance nutritional quality
- Reduce post-harvest losses via improved handling, preservation, storage, preparation, and processing techniques

- Train extension workers and households in basic nutrition and food preparation skills to ensure that food security is translated into nutrition security

Create an Enabling Environment and Increase Investments in Agriculture

An enabling environment to fight hunger and malnutrition includes good governance, the absence of conflict, and political, economic, and social stability combined with an enabling macroeconomic and sector policy environment. Resources must be available for agricultural and rural development at a level that reflects the key role agriculture has in building sustainable livelihoods for the world's poorest people. It is also necessary to slow down the rate of rural to urban migration and prevent a further widening of the rural–urban income gap.

Recognize the Vital Role of Women in Agriculture and Rural Development

Economic growth and development are reduced if gender inequalities are not addressed. Gender inequality in education and employment reduces rates of economic growth; similarly, gender inequality in access to productive resources and inputs in agriculture reduces efficiency and rural development. Consequently, it is imperative to enhance the status of women in the rural production system, family, and society to attain food security and sustainable agricultural development.

Raise Food and Nutrition Security Higher Up the Political Agenda (ICN+20)

In order to give new impetus to worldwide efforts on behalf of hungry and malnourished people to achieve the MDG Summit targets, FAO and WHO are jointly making plans in collaboration with our sister agencies and other global stakeholders in nutrition (partners in the UNSCN and in the SUN movement) to convene an international conference on nutrition (ICN) 20 years after the 1992 ICN (ICN+20). The conference will be held in 2013 as part of efforts to strengthen governance for nutrition and to revitalize the role of nutrition at the international level, including political and policy coherence and coordination and international cooperation.

The conference will (1) provide an opportunity for reviewing progress made since the 1992 ICN in the collective effort to address nutrition problems and identify major constraints encountered in the implementation of National Plans of Action for Nutrition, and (2) review the achievements at country level for (a) scaling up nutrition through direct nutrition interventions and nutrition-sensitive development policies and programs; (b) identifying policy measures in health, agriculture, trade, consumers' policies, and social support to improve global nutrition and develop consensus around a global multisectoral nutrition framework; (c) strengthening political and policy coherence and coordination for improving global nutrition; and (d) raising the political will necessary to mobilize the resources needed for achieving nutrition-related MDGs through a balanced multisectoral approach.

What Is FAO Doing in Malawi to Tackle Food Insecurity and Undernutrition?

Established in 1986, the FAO-Malawi program has been supporting the Government of Malawi in improving agriculture, forestry and fisheries practices and ensuring good nutrition for all Malawians. FAO is currently leading the cluster of economic growth and food and nutrition security under the United Nations Development Assistance Framework (UNDAF), a joint UN framework of assistance to the Government of Malawi.

FAO successfully implemented the Special Programme on Food Security (1997–2005). As a result, the Government of Malawi adopted a food security policy that recognizes the important role of small-scale irrigation, improved access to farm inputs and participatory extension approaches. Similarly, with FAO support, a national action plan for food security and nutrition in Malawi has been formulated to support food security programs and interventions. FAO has supported the government in the development of the Agriculture Sector Wide Approach (ASWAp) and the incorporation of food and nutrition security objectives, strategies, and actions. The nutrition component of the ASWAp focuses on food and dietary diversification with emphasis on processing and utilization of locally available high nutritive value foods; intensified nutrition and consumer education; and enhanced capacity building and institutional strengthening for implementation of nutrition programs at all levels.

Currently, FAO is assisting the Government of Malawi with food and nutrition security policy advice and program outreach to link agriculture and nutrition. The following are some of the programs recently completed or currently being implemented in Malawi:

- Improving Food Security, Nutrition Policies and Programme Outreach (Kasungu, Mzimba) with nutrition and food security interventions for the nutritional well-being of 29,000 households (2008–2014)
  - » Nutrition and food security policy adviser based at Department of Nutrition, HIV and AIDS from 2009 to 2011; post to be filled for an additional four years
  - » Outreach project: Nutrition focus on dietary diversification with emphasis on optimizing young children's and family diets.
- Capacity Development in Food and Nutrition Security (2010–2012)
  - » 8 middle-level managers from DNHA, MoAIWD, MOH and MoWCCD in MSc in Nutrition and Food Science, Bunda College of Agric enrolled and pursuing the course
  - » 120 frontline workers were trained at Natural Resources College (NRC)
  - » Technical assistance for ASWAp food and nutrition component has been provided to the Ministry of Agriculture, Irrigation and Water Development (2011)
- One Family One Fruit Tree (Balaka, Kasungu, Machinga, Mzimba) to promote dietary diversification and nutritional health, through the production and use of fruits at household level (2009–2010)
- Garden-based Learning Models (Lilongwe, Machinga, Mangochi, Mchinji, Ntcheu) for improved household nutrition through Junior Farmer Fields and Life School (JFFLS) in collaboration with UNICEF and WFP (2009–2010)

We have reason to believe that all our ongoing efforts will contribute to improved food security and will raise awareness among policymakers and program implementers about the importance of linking agriculture with nutrition. However, there continue to be many challenges to be addressed. Africa in general and Malawi in particular is facing continuing high rates of undernourishment and much remains to be done. Especially in a context of high food prices, the agriculture sector must work even harder to eliminate undernutrition and micronutrient deficiencies. Thus it is vital for nutritionists and agriculturists to work together and to develop policies and strategies for improving diets and raising levels of nutrition in Malawi. FAO welcomes Malawi's commitment, as one of the "early riser" countries, to the Scaling Up Nutrition initiative (SUN) and is ready to provide its full support to this initiative in collaboration with partner agencies. I hope this conference will contribute and build synergy with the SUN movement to end stunting in Malawi.

Remarks by Irish Aid

Adrian Fitzgerald

The devastation of famine and hunger is part of Ireland's own history. This legacy of famine has taught us the importance of diversified agriculture, and the production of good food remains a key part of our economy today. The Government of Ireland has made an expressed commitment to work to eradicate hunger through Ireland's development cooperation program, Irish Aid. We know that to eradicate hunger countries have to produce sufficient food. But that is not enough. To address under nutrition requires that farmers produce nutritious and diversified food crops. This is the nexus among agriculture, nutrition and health. While it might appear to be straightforward, this conference will show that there are many issues to be addressed.

ABOVE: Adrian Fitzgerald

Countries that are agriculture based like Malawi derive most of their nutritional needs for a healthy life from the food that they produce and the income that agriculture can generate to enable access to a nutritious

diet. However, experience has shown that the links among agriculture, nutrition, and health may not be taken into consideration in the way business is conducted. This conference is crucial to trigger action that links the three areas and encourages sectors to work together for the benefit of vulnerable people in Malawi.

In February of this year IFPRI organized the global Conference on Leveraging Agriculture for Improved Nutrition and Health, in New Delhi, India. Malawi must be congratulated for being the first country to follow up by holding a national event to develop a country strategy, so soon after the New Delhi conference. This demonstrates the commitment of Malawi to improving the nutrition and health of all its people and confirms the early riser status of Malawi as designated under the Scaling Up Nutrition (SUN) movement.

In his statement at the UN High-Level Meeting on Nutrition on September 20, 2010, Ireland's Tanaiste—the deputy prime Minister and Minister for Trade and Foreign Affairs—commended how Malawi, in the 1,000 days special campaign, brought knowledge of the SUN initiative to the whole population targeting change at national, district, and household level. It is this ownership at all levels and across all sectors of society that will contribute to the success of the SUN initiative.

This conference today brings together key policy, program and research experts in agriculture, nutrition, and health from the Government of Malawi, civil society organizations, academia, the private sector, and development partners as well as visitors from other countries who have come to learn and to benefit from the different experiences. These two days offer an excellent opportunity to learn from each other and to explore challenges, opportunities, and gaps regarding links among agriculture, nutrition, and health. This conference will help enable Malawi define how the agricultural sector can become the engine for improving the lives of all its citizens.

I want to take this opportunity to assure you that Ireland, through its development program "Irish Aid," is committed to supporting a strong agricultural sector in Malawi. We will continue to support the Farm Input Subsidy Program and other efforts to achieve food security and to diversify food production to include legumes and other nutritious crops. We will deepen our commitment to support sustainable agricultural business through support along the legume value change, through a range of work to develop a strong national certified seed industry for legumes, Irish potatoes, orange-fleshed sweet potato, and rice. We will continue our support for agroforestry, particularly fruit and macadamia trees.

We will work hard with the Government of Malawi and all our partners. We will continue our very productive partnership with USAID to jointly deliver on many of these commitments. Finally, I wish to highlight a few issues that I hope can be taken into consideration in your deliberations during these two days:

1. How can we effectively trigger action and promote integrated public policy for agriculture to address the nutrition and health needs of Malawi?
2. Women play a particularly important role in agriculture and in family nutrition and health. How can we ensure that the particular circumstances of women are taken into account more systematically when implementing policies and plans?
3. To what extent will this conference address the issue of gender and education when it comes to agriculture, nutrition, and health?
4. How well do the farmers themselves, many of whom are women, understand the link among agriculture, nutrition, and health and how can farmers become champions producing nutritious, healthy food?

With these remarks, I wish you success in this conference. The organization has involved a very big team effort among Government of Malawi, IFPRI, the United States, Ireland, and other development partners. Such collaboration will continue to be crucial if we are to sustain the momentum and implement the learning from this conference. It is my sincere wish and firm belief that the outcomes of the conference will, indeed, unleash the potential of agriculture to be at the center of Malawi's efforts to bring about sustainable, nutritious, and diversified food security, and thus contribute to a better future for all the people of Malawi.

Remarks by USAID

Doug Arbuckle

ABOVE: Doug Arbuckle

The Government of Malawi continues to demonstrate exceptional commitment to food security and nutrition issues. Malawi has shown leadership on these issues, which is an example to many countries in Africa and throughout the world. These efforts are starting to show results. For example, the most recent Demographic and Health Survey showed substantial decreases in stunting in Malawi. With the recent national launch of the Scaling Up Nutrition (SUN) Initiative, Malawi is poised to make strides in reducing malnutrition and improving the health of all Malawians.

Through this conference, we are again highlighting the important role that agriculture plays in the elimination of malnutrition and undernutrition. We all know that there are important linkages between health and agriculture. Global surveys show that, in aggregate, increased agricultural productivity directly leads to improved nutritional status. What is less clear to both policymakers and practitioners is how this process happens in individual countries, regions, and villages.

I am pleased to see such an experienced group of both Malawian and international presenters at this conference. Your experience and presentations will provide ideas and evidence that can be used to better design policies and strategies that accentuate agriculture's role in improving nutrition and human health.

Malawi is a focus country for two of President Obama's important presidential initiatives: Feed the Future, which is our agriculture and food security initiative, and the Global Health Initiative. Both initiatives highlight nutrition as a priority objective and as an area for collaboration between the health and agriculture fields. We understand that for us to reach our overarching goal of achieving Millennium Development Goal 1 of halving malnutrition and hunger, the health and agriculture fields must work together.

In Malawi, the United States Government plans to support activities in value chains such as dairy and legumes that have the potential to both improve household income and also household nutrition through the increased consumption of these foods. We also plan to better integrate nutritional behavior change communication messages into agricultural development and business trainings. This approach is already being incorporated into our current food security projects and we hope to demonstrate results by monitoring improvements in dietary diversity and such indicators as stunting and underweight in target communities over time.

Finally, I would just like to take this opportunity to reaffirm the United States Government's commitment to assisting the Government of Malawi in both the agriculture and health sectors through our support of both a Health Sector-wide Approach and an Agriculture Sector-wide approach. I am confident that our joint collaboration will contribute to a healthier, better educated and food-secure Malawi, which will be further the development of this great country. I wish you all the best in this conference and also the application of the knowledge and messages discussed here.

Inaugural Speech by the Minister for Agriculture, Irrigation and Water Development

Hon. Prof. Peter Mwanza

ABOVE: Peter Mwanza

The main objective of this conference is to inform, influence, and catalyze action by key stakeholders to better use investments in agriculture in order to sustainably reduce malnutrition and ill health for vulnerable people in the country. In other words, the conference is working towards setting the center stage for players to work together in coming up with lasting strategies of unleashing the potential of Agriculture for improved nutrition and health in Malawi and not just eradicating hunger.

The conference is timely for Malawi as the country is in the process of implementing various strategies in these three sectors (agriculture, health, and nutrition) and beyond, in order to meet the targets of the Millennium Development Goals (MDGs) by 2015, the Malawi Growth and Development Strategy (MGDS), and targets at the sector level. Some of these strategies include the Strategy for the Prevention and Control of Micronutrient Malnutrition (SPCMM), the National Nutrition Education Communication Strategy (NNECS), the Agriculture Sector Wide Approach (ASWAp), and the Scaling Up Nutrition (SUN) initiative, just to mention a few. All these parties were actively involved in the planning process for these strategies and will implement them in a collaborated manner. As such, the conference we are holding today and tomorrow will thus catalyze the collaboration between Agriculture, health, and nutrition sectors.

With special reference to the SUN, the agriculture sector falls in each of the three broad areas of the initiative. These are: (1) food security for all, which is in line with the food security policy, (2) nutrition-focused development, which is the essence of our gathering here and (3) nutrition-specific Interventions, which have also been incorporated in the ASWAp. It is therefore clear that the sector is key and indeed committed to the SUN agenda.

There exist strong linkages among these three sectors (agriculture, health, and nutrition) as evidenced by sector policies that talk to each other such as the food and nutrition security policies; the ASWAp; the national overarching policy for the Government of Malawi (the Malawi Growth and Development Strategy [MGDS]); the other strategies already mentioned above; and many more too numerous to mention. As a way of harnessing the thrusts of these respective policies and strategies, a number of committees were deliberately put in place and are represented by members from the three sectors. These include the Information Systems Committee, Food Security Policy and Programmes Committee, and the Nutrition Committee, among others.

Such fora give the stakeholders opportunities to plan and execute their activities in a harmonious and sustainable manner, without creating any overlaps. But perhaps as a country, we have not yet exhausted the potential of agriculture to improve people's nutrition, as well as their health. Nevertheless, I don't think this outstanding issue is a mammoth task for Malawi since we already have existing structures for such initiatives on the ground. What needs to be done is simply to rejuvenate the existing linkages for better outcomes.

The agriculture sector therefore needs to ensure food and nutrition security in this country, as well as generate incomes that can be spent by people including farmers on health care in addition to other uses. In turn, this will enhance productivity of Malawian people, hence food and nutrition security. It is therefore clear that strong linkages in these three sectors are integral to Malawi's economic growth and should therefore be achieved and maintained at all costs. I have confidence that our interaction in the course of the two days will unfold tangible ways of bringing out the best approaches that can sustainably achieve this necessary desire.

Let me remind you of one of the major successes of my ministry in the recent past. Almost all of us present here are aware that Malawi has been realizing food surpluses since the 2005–2006 agriculture season owing to the Farm Input Subsidy Program (FISP). This is mainly due to the sound leadership

of His Excellency Prof. Bingu wa Mutharika, President of the Republic of Malawi. His leadership has created a conducive environment for various stakeholder participation in the agricultural sector and beyond. Ever since he came into power, the country has realized maize surpluses of up to 1.3 million metric tons.

However, even if this is the case, about 41 percent of the children are stunted, there are high infant and under-five mortality rates, and high maternal mortality rates. This is partly due to poor diets that are easily accessible by majority of people in this country. The diet for the country is unfortunately dominated by cereals, primarily maize; roots; and, to a certain extent, bananas that are starchy. It is for this reason that the Ministry of Agriculture, Irrigation and Water Development has put in place deliberate policies to promote dietary diversification, agriculture diversification, and dietary improvement for vulnerable gender categories. The ministry implements a number of activities including campaigns to teach farmers of the six food groups that are the main sources of dietary diversity. During the campaigns, issues of food safety during food processing, storage, and utilization are emphasized to the farmers, in an effort to improve their nutrition status. To complement this, farmers are encouraged to diversify their food production, including rearing of small stock that are affordable e.g. rabbits, goats and poultry as good sources of the food values that are needed by the body

My ministry encourages research in commodities that are rich in nutrient values. I am happy to report that two of our research stations have been working tirelessly in coming up with crop varieties that are rich in micronutrients. Technically, this is biofortification which is more sustainable. For instance, Bvumbwe research station is working on a tomato variety that is rich in vitamin A while Chitedze research station is working on beans that are rich in zinc and iron. In recognition of the need to scale up these initiatives in order to have an adequate coverage of beneficiaries in the future, the ministry has highlighted agricultural diversification and dietary diversification as one of the priority areas of the sector in the Agriculture Sector Wide Approach (ASWAp), which is the sector's medium term investment plan.

This clearly shows that agriculture is supporting the linkages that are at the centre of this conference. The sector has brought all these players to work together in order to achieve a Malawi that is free of malnutrition. However, as pointed out earlier, perhaps the involvement has not been concrete enough to enable the agriculture sector to respond to issues of nutrition and health adequately.

I am relieved that one of the expected outcome of this conference is to suggest best approaches of strengthening the linkages among agriculture, health, and nutrition. I therefore urge all participants to actively participate in this conference and bring forward your ideas in trying to unleash the potential of agriculture for improved nutrition and health in this country.

PLENARY SESSION 1:

Learning from Global, Regional, and National Perspectives

Learning from Global Perspectives

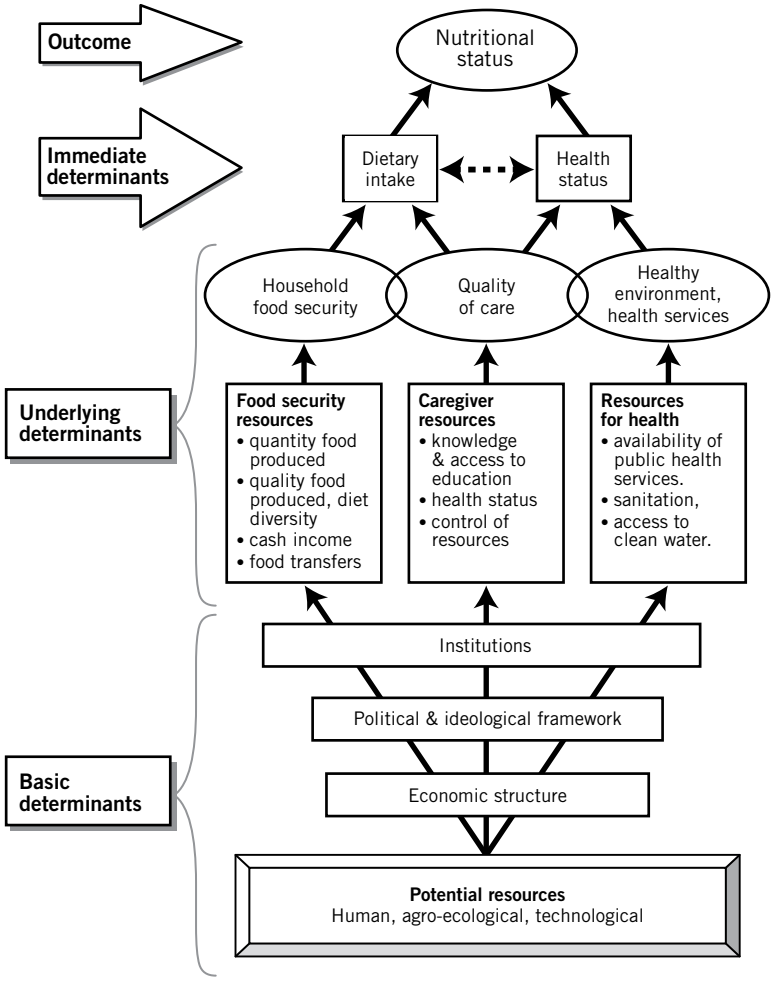
Todd Benson, Senior Research Fellow, Development Strategy and Governance Division, and Program Leader, Uganda Strategy Support Program, IFPRI

To inform a plan to address undernutrition in Malawi through agricultural means, we require an explicit model of:

- why food and nutrition are important development issues,
- how the two are related, and
- what must be done to sustainably enhance nutrition security in Malawi.

The UNICEF global model of the determinants of child nutritional status is used here. It identifies the cascade of factors from the most foundational and structural to the most immediate that determine whether or not a young child is malnourished. For our purposes, a key point to draw from this conceptual framework is that agriculture cannot do it alone.

For purposes of determining how best to address undernutrition, it is considerably more useful to talk of "food security" and "nutrition security." The key point is that food security is a component of nutrition security, but only one of three sets of underlying determinants. Equally important are proper nutritional care and a healthy environment, with access to appropriate health services. Food security is a necessary element in achieving nutrition security, but not sufficient in itself to assure that individuals and households will enjoy good nutritional status.



ABOVE: Adapted from UNICEF 1990; Jonsson 1993; and Smith & Haddad 2000.

However, in recent years food produced in Malawi has been sufficient to meet the caloric needs of the population. This reduces the power of claims of national food insecurity in Malawi and, what is closer to the purpose of our conference, the demands for principally agriculture-led strategies to reduce nutrition insecurity that are based simply on increased farm production. Moving from a focus on food

security to broader nutrition security introduces a range of issues for us in the agricultural sector to consider. The other elements of our conceptual framework allow us to do so. We need to focus on food distribution and food access issues, of course. Also key to our efforts within agriculture is attention to food quality and increasing dietary diversity. But we also need to be concerned with whether people know how to provide proper nutritional care to those in need in their households, and that the nutritionally vulnerable receive such good care. We also need to concern ourselves with whether people live in healthy environments, and whether they have access to appropriate health care, clean drinking water, good sanitation, and so on.

Moreover, we can extend our analysis to examine the broad basic determinants which establish the quality of the underlying determinants of nutrition security. Do Malawi's economic systems contribute to generally improved nutrition? Do government and its political leaders acknowledge that they have a duty to assist all Malawians to meet their nutritional needs? If so, are the mechanisms that govern the allocation and use of public resources supportive of these aims? On this point, it is useful to distinguish *pressing* and *chosen* policy problems. When a policy concern is pressing, substantive policy reform and action to address the issue is more likely to occur than when the concern is viewed as optional, or politics-as-usual, and policymakers can choose not to address it without incurring political risk. Most of the issues related to improved health and nutrition that involve agriculture are in the latter category, politics-as-usual. Malnutrition may be widely viewed as primarily a responsibility of the household and not of the government. In Malawi, as in most developing countries, the effectiveness and legitimacy of political leaders is rarely called into question because of, say, the continuing high prevalence of stunted children. Unfortunately, malnutrition is treated as a political issue of choice rather than urgency.

To achieve sustainable nutrition security requires cross-sectoral action. However, actually achieving effective cross-sectoral action is more the exception than the rule. The institutions and government of Malawi, like most national governments globally, are not set up to facilitate addressing cross-sectoral issues. Budgets follow sectoral lines. Sectoral objectives motivate staff in sectoral institutions. Sectors are more often found to be in competition for limited financial and human resources than to be working in a collaborative manner to attain an important societal goal, such as nutrition security. Similarly, sector-specific criteria form the basis for evaluating sector effectiveness and hence for the allocation of resources. No matter how important, the attainment of objectives requiring cross-sectoral, coordinated action will rarely be advanced by routine sector-planning mechanisms.

There are good reasons for the sectoral structure of government. The organization of government in Malawi is not perverse. However, it does have the unfortunate effect of not being sufficiently flexible to effectively address those issues that do not fit neatly into the structure. Nutrition security is one such issue. Given the awkward place of nutrition within the sectors, advocacy is a critical element of any effort to raise the policy profile of nutrition. People tend to be quite ignorant of the important human and economic development benefits of improved nutrition. Moreover, policymakers will not increase the resources allocated to activities that enhance nutrition security on an automatic basis. The motivation must come from elsewhere.

Consequently, advocacy is much more central to the role of nutritionists and nutrition planners than it is for most other professionals. How will they know unless someone tells them? Hence, the need for advocacy. As such, there is a real need for independent nutrition advocates to emerge, such as from nutrition-oriented civil society organizations. Does such an organization exist in Malawi? If so, how central is advocacy to its objectives? If it does not exist, how might it be formed to serve as an independent voice to seek action on behalf of the nutritionally vulnerable?

Finally, **improved nutrition ultimately concerns the individual**. Consequently, there is a need to translate the national level policies and programs developed in Lilongwe into action that will enable households and individuals far from here to enjoy nutrition security. As such, the decentralized system of local governments is an important feature of efforts to improve nutrition in Malawi. There are many constraints to local governments and communities effectively engaging in nutrition efforts:

1. In participatory systems of local government, physical infrastructure development is usually preferred to investing in social programs. In part, this is because it is far easier for a politician to point to a school building or road than to a nutrition program at the next election. Consequently,

education is a critical input to build knowledge of the importance of good nutrition and of the broad public goods that contribute to it. Only then can we expect political demand at local government levels for nutrition-oriented services.

2. Local governments are unlikely to have trained staff to comprehensively address malnutrition. Sectoral specialists may be present in communities—health workers, agricultural extension agents, and so on—but nutrition will not be the principal focus of their work, nor is their individual performance assessed on what contributions they might make to improved nutrition.
3. Finally, financing of local government is the key challenge in decentralization for Malawi. There are far more failures than successes to date.

All of these constraints need to be addressed if local action, whether agricultural or otherwise, is to be effective in reducing malnutrition here in Malawi.

Learning from Regional Perspectives

Brenda Shenute Namugumya, Public Nutrition Specialist, Makerere University, Uganda

In Sub-Saharan Africa, the agricultural sector is mandated to ensure food security of smallholder households while health has the responsibility of nutrition; yet, the link between the two is often ignored. Improving nutrition outcomes in developing countries requires a coordinated effort between agriculture and health, which currently operate in separate. Nutrition always emerges as an emergency response but is seldom considered an integral component in development programs, and no stakeholder alone can sustainably tackle it. Today at global, regional, and national levels there is increasing consensus that agriculture, health, and nutrition synergies require renewed impetus in harnessing the effort. Yet it is common knowledge and practice that policies, programming, and monitoring efforts are independently executed in these sectors. Robust coordination systems among them are often inadequate or nonexistent. These issues characterized the 11th and 12th Annual Economic Community of West African States (ECOWAS) Nutrition forum, and the 27th African Union Summit side event on food and nutrition.

Trends in Sub-Saharan Africa

Power struggle for sectoral benefits, limited engagement of the private sector, inadequate financial commitment, and lack of clear mechanisms for accountability from the government are some of the factors prominent in programming for agriculture, health and nutrition in Sub-Saharan Africa (SSA).

1. *Power struggle for individual sectoral benefits:* Approximately one-third of the population in Africa is chronically malnourished. Yet several policy decision processes indicate the insufficient appreciation of the role of nutrition in development. Inflexible governance structures hindered progress in the past and, unless confronted, they will continue to do so in the future. There is urgent need to continue to forge a structured and multisectoral coordination mechanism to implement programs. However, the mindset of political and sectoral heads in Africa is unsupportive of such mechanisms, more so where there is competition for available resources. Sectors struggle for individual benefits, resulting in a lack of coordination.
2. *Public versus private sector selection:* Programming, whether funded by development partners or government, prioritizes support to the public entities. With the exception of fortification interventions, usually small scale in the region (Smith *et al.,* 2010), the private sector has been minimally approached and supported to address nutrition challenges in the region. Whereas uncertainty encases issues of operation outside the usual chain of ministerial command and circumvention concerns may be speculated as compared to fostering sustainability through government structures, mechanisms for nurturing the private sector should be highly prioritized in sustainably unleashing the potential for agriculture in improving health and nutrition.

3. *Minimal sectoral investment:* The financial commitment by governments in SSA to improve agriculture, health, and nutrition is continuously inadequate. Despite ratifying various global and regional fora, most SSA governments rely on development partners' support. For example according to the 2010 Africa Health Financing scorecard, the average domestic budget allocation in Africa for agriculture, health, and nutrition was only 8.7 percent. Rwanda ranked highest (18.8 percent) and Somalia lowest (none). While a few governments have prioritized nutrition as a crosscutting issue in achieving goals of the Comprehensive African Agriculture Development Programme (CAADP), only half of the African Union member states have programs with supportive budget allocations for nutrition infrastructure development activities. The statement made by the agriculture minister of Rwanda at the recently concluded 2011 Common Markets for Eastern and Southern African cum Alliance for Commodity Trade in Eastern and Southern Africa (COMESA/ACTESA): "…. *any other African country that has smallholder farmers and farms to grow food and crops for value addition must never be ranked among the failed states always begging for food and dependant on support…"—highlights* the need to commit and action the decision.
4. *Accountability:* The increasing call to incorporate agriculture, health, and nutrition into policy has gained global and regional interest. There is need to maintain the issue high on the African governments' agenda as well as to raise their level of accountability on agreements made to enhance the synergy. Civil society organizations need to raise awareness and ensure that supportive pressure is built through actions by the public and other stakeholders at national and sub-national levels to effect policy and/or political change.

Strategies for Unleashing Agriculture's Potential for Improved Health and Nutrition in Sub-Saharan Africa

- Advocacy campaigns and capacity building—field visits, "champions" identification, dialogues—targeting political leaders is crucial for reinforcement of multisectoral coordination and strengthening individual sectoral leadership.
- Nurture monitoring and accountability platforms for African governments to action commitments.
- Capacity strengthening for harmonized nutrition communication to allow coordinated approaches among sectors and civil society. Schools are an effective, scalable, and sustainable channel for nutrition communication to all sectors, updating curriculum to suit emerging issues.
- Provide incentives—subsidies on inputs, enhanced market accessibility, legal framework change—for the adoption of promising practices by sectors and the private sector.

Learning from National and Local Perspectives: The MICAH Program

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Background

Owing to the high prevalence of iodine, iron, and vitamin A deficiencies in Malawi, a micronutrient and health (MICAH) program was conceived and implemented in Malawi (1996–2005), aimed at improving the nutrition and health status of women and children through cost-effective and sustainable interventions. The specific objectives of the program were to increase intake and bioavailability of vitamin A, iron, and iodine; decrease diseases that undermine micronutrient nutrition; and build capacity for delivery systems.

The MICAH program adopted a community-based approach that integrated agriculture, nutrition, and health interventions, including the following: micronutrient supplementation; food fortification; promotion of exclusive breastfeeding; dietary diversification and modification with special emphasis on animal-source foods; prevention, control, and treatment of common illnesses, particularly parasitic

infections (malaria, hookworm, and schistosomiasis); improved water quality and sanitation; training of communities and beneficiaries; and support of relevant national policies.

Impact of MICAH Program on Stunting and Anemia

Stunting

At the baseline (1996), the prevalence of stunting (60.2 percent) was very high. By 2000, the prevalence of stunting had declined to 50.6 and 56.0 percent in MICAH and comparison areas, further declining to 43.0 percent and 45.1 percent by 2004, respectively. Prevalence of severe stunting at the baseline (34.7 percent) declined to 15.8 percent and 17.1 percent in MICAH and comparison areas, respectively, by 2004.

Anemia in Children

Hemoglobin (Hb) concentration (mean ± standard error) was low (89.4±0.7 g/L) in 1996, with 87.6 percent of the children being anemic (Hb<110 g/L). By the end of the program in 2004, mean Hb had significantly increased in both MICAH (103.7±0.4 g/L) and comparison (99.2±0.6 g/L) children. A higher proportion of children from comparison areas (70.6 percent) than MICAH areas (58.6 percent) remained anemic at the end of the program.

Anemia in Women

In 2000, there was no significant difference in Hb concentration (mean± standard error) between MICAH and comparison areas (117.4±0.4 vs. 116.8±0.5 g/L), and the corresponding prevalence of anemia (53.5 percent vs. 52.9 percent). By 2004, however, Hb concentration had significantly increased in MICAH but not in comparison areas (121.0±0.4 vs. 115.7±0.6, $p<0.001$), with a significant reduction in the prevalence of anemia in MICAH areas (44.1 percent), but not in comparison areas (54 percent).

Conclusions

The Malawi MICAH program is a potential model for combating stunting and anemia in rural areas in resource-constrained settings in Malawi, as well as in countries with similar settings. The design and implementation of projects and programs that aim to reduce the high prevalence of various forms of undernutrition in resource-constrained settings should include three overarching elements:

1. Integration: a battery of proven interventions in agriculture, nutrition, and health enables most people to meet their critical socioeconomic needs.
2. Community-based: the MICAH program demonstrated that interventions that are implemented at the community and household levels have the best odds of significantly addressing the high prevalence of undernutrition.
3. Long-term projects/programs: the MICAH experience shows that projects/programs that aim to reduce nutrition problems that are slow to resolve should plan for a longer implementation period than is usually observed in many projects/programs.

bibliography

Kalimbira, A., C. MacDonald and J. Randall Simpson. 2011. Effective Community-Based Nutrition Programming in Malawi. Saarbrücken, Germany: Lambert Academic Publishing.

———. 2010a. "The Impact of An Integrated Community-Based Micronutrient and Health Programme on Stunting in Malawian Preschool Children." Public Health Nutrition, 13 (5): 720–29.

———. 2010b. "The Impact of An Integrated Community-Based Micronutrient and Health Programme on Anaemia in Non-Pregnant Malawian Women." Public Health Nutrition. 13 (9): 1445–52.

What Are the Key Lessons and Opportunities for Malawi to Strengthen Agriculture, Nutrition, and Health Linkages?

Summary Notes and Comments from the Table Discussions

General point—Our emphasis should be on **nutritional advocacy.**

1. **Political will is there! Translate will into action**. Advantages: The Department of Nutrition, HIV and AIDS (DNHA) is housed in the Office of the President and Cabinet (OPC), so Principal Secretary Mary Shawa has the ear of the president. Examples exist of other drivers, for example, Theresa Banda (MICAH). Involve decisionmakers in implementation (as happened in Rwanda).
2. **Build on previous best practices and scale up** (indigenous knowledge, successful programs, community initiatives), learn from them and build better. Documentation is essential, and a spirit of sharing. Analyze experiences where linkages worked well, and put in place mechanisms for sustainability beyond the project.
3. **Make a common framework to integrate nutrition across MoAIWD, MoH, and DNHA**. The decentralization program gives golden opportunities for integrating the sectors. MoH and DNHA are more actively engaged in integrating nutrition into the District Development Plan (DDP) than MoAIWD is. An integrated framework should be designed for national, district and community levels. Ensure program design (ASWAp) involves a realistic estimation of resources (especially HR); keep a strong focus on implementation.

   More comments emerged from the table discussions on institutional coordination, as follows:

   "Seek synergies within existing policies—there is a good link between agriculture and health."

   "There are good programs at the national level that are not translated into programming. As a result, programs fail to influence policies. The MoAIWD needs to ensure that civil society understands the ASWAp."

   "What is the role of other players in the ASWAp? It's government and donors only at the moment."

   "There are several platforms and policy frameworks in the country, e.g. ASWAp, DNHA/OPC, for nutrition advocacy relating to fortification, legumes, and roots and tubers. How should we strengthen these platforms for the effective harmonization of efforts?"

   "How should we coordinate the Sector Wide Approach (SWAp) from the different sectors (i.e. education, health and agriculture) to ensure nutrition-sensitive interventions?"

   "Do the sectors value the role of nutrition in meeting their sector goals in terms of implementation? In the health sector, nutrition is reflected in policies and programs. What is the representation of the health sector on nutrition at different fora at different levels? To whom are the sectors accountable? There should be proper coordination mechanisms at district and lower levels."

   "There should be decentralized nutrition services at the district level backed by budgets, joint analysis, and coordination between actors in A-N-H, with deliberate efforts for active community participation."
4. **Community-level advocacy for nutrition.** ADDs (agricultural development divisions) have nutrition experts—exploit them more for the sake of promoting nutritional food security. (e.g. when measuring agricultural production, calculate per capita nutrients). Do not neglect FISP [Farm Input Subsidy Program], because the small farmer will only diversify when he is secure that he has his staple. With integrated programs, the farmer should be regarded as a partner rather than a beneficiary. Bring back the Farm Home Assistants; use farmer to farmer extension, building in nutrition awareness.

Private sector involvement should be increased, particularly in food fortification, e.g. Ilovo. Think how to scale up many small initiatives.

PLENARY SESSION 2:

Evidence on Agriculture's Contribution To Nutrition and Health Outcomes: Lessons from Practice

National Research Efforts

Dr. Francis Maideni, Station Manager,
Department of Agricultural Research Services, MoAIWD

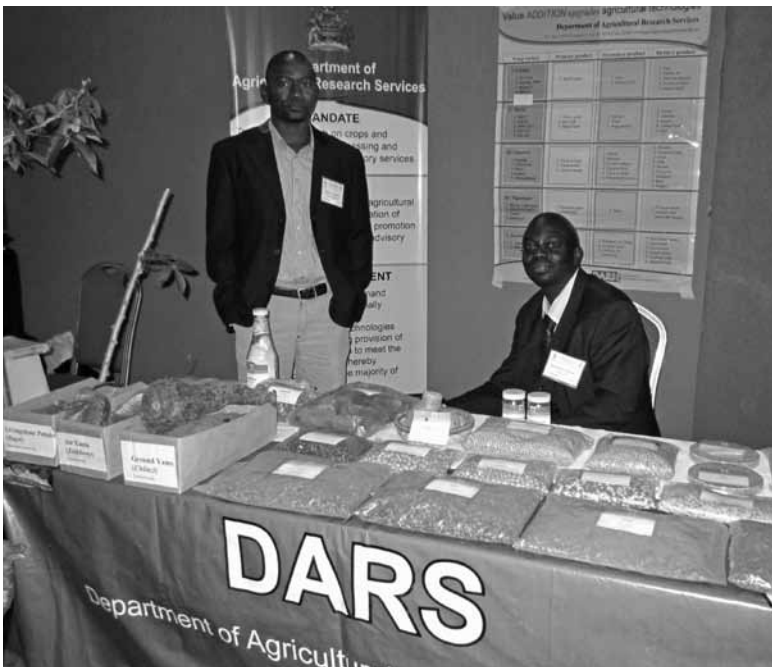
Nutritional Objectives

The nutritional objectives relate to access and intake in terms of quantity and quality. Objectives include issues of breast feeding, per capita intake of dietary fiber, and essential nutrients like folate, calcium, sodium, iodine and fluoride. The objectives also relate to total fat, total carbohydrate, cholesterol, and fruit and vegetable access and consumption and physical activity.

National Research Interventions

The national research efforts are addressing these objectives by:

1. Breeding crops for better nutrition. The quantity is addressed by producing crops with higher yields, and/or hybrids which produce increased food quantities per unit area, giving a better return on the investment. Plant breeding can improve the micronutrient content of staple foods like maize (quality protein maize) with higher lysine and tryptophan levels than conventional maize, orange-fleshed sweet potato, and cassava.
2. Biofortification, such as iron-enriched rice.
3. Scaling up integrated agricultural interventions with nutritional behavioral change, and supporting household food production to promote dietary diversity.
4. Supporting urban agriculture, which contributes significantly to the diet of millions of people (milk, beef, poultry, and eggs).



ABOVE: Improved crop varieties exhibited by the Department of Agricultural research Services (DARS) at the Knowledge Fair

Health Aspects

Health aspects/objectives relate to malnutrition, including "hidden" malnutrition, stuntedness, and prevalence of agriculture-associated diseases. The national research efforts can formulate rations that will promote growth in preschool children and create awareness about malnutrition and its causes. Research creates practical interventions to control and mitigate agriculture-associated diseases (including food safety, water-related diseases, zoonotic diseases, and occupational health) in order to enhance environmental sustainability, reduce poverty, increase food security, and contribute to the health of poor communities.

Integrating Policy and Decisionmaking in Agriculture, Health, and Nutrition Programs

There is need to accelerate progress in improving health and nutrition by exploiting the synergies among agriculture, health and nutrition in development programs implemented at the community, district, and national levels.

Research scientists, policymakers, and technical experts are expected to synthesize and prioritize knowledge, evidence, and approaches to support better cross-sectoral policy and decisionmaking and leverage synergies among agriculture, health, and nutrition. There is need therefore to comprehensively identify and fully exploit synergies and break intersectoral divides. This can be achieved in part by addressing institutional and governance issues that have prevented integration.

Zinc- and Iron-Enriched Beans: Biofortification

Rodah Morezio Zulu, Nutritional Facilitator for CIAT
at Chitedze Research Station (presentation delivered by Gift Ndengu)

Main Objective of the Research

Biofortification is a new public health intervention that seeks to improve the micronutrient content of staple foods consumed by most poor people by using conventional plant breeding techniques. The aim is to make a measurable impact on the magnitude of micronutrient malnutrition. Recently, plant breeders have developed biofortified varieties of beans that contain higher concentrations of iron and zinc. Biofortified beans are also referred to as micronutrient-rich beans or nutrient-dense beans.

Nutrition Objectives Addressed by the Research

Malnutrition is of public health concern in developing countries particularly in Sub-Saharan Africa. Forms of malnutrition include undernutrition, micronutrient malnutrition, and overnutrition.

Vitamin A, iron, and zinc are three micronutrients that are recognized by the World Health Organization as contributing to public health problems due to their widespread deficiency. Iron deficiency anemia (IDA) affects more than 2 billion people globally, and the prevalence in Sub-Saharan Africa still remains high, with pregnant women and young children being at greatest risk. In Malawi the national micronutrient survey of 2001 found the highest prevalence of IDA was in preschool children (80 percent), followed by women of childbearing age (27 percent) and then men (17 percent). Generally speaking, malnutrition is higher among the rural communities than in the urban areas.

If the introduction of nutrient-dense beans is successful, this could have a significant impact on the prevalence of iron deficiency in Malawi and elsewhere in Sub-Saharan Africa, where it is a major public health concern. The consequences of micronutrient malnutrition are massive and include more illness and disease, low cognitive ability, low capacity for physical labor, impaired growth, and poor reproductive health. All these consequences lead to a decline in productivity and in turn a low Gross Domestic Product (GDP).

How Does the Research Address Those Objectives?

A number of strategies exist for combating micronutrient malnutrition:

- Supplementation—Provision of tablets/capsules, for example, vitamin A capsules given to children and iron tablets given to pregnant women. This is a short-term strategy, expensive, and has limited coverage.
- Food fortification—Addition of vitamins and minerals to commercially produced food, e.g., vitamin A added to cooking oil and sugar. This is a medium- to long-term strategy.
- Dietary diversity—Promotes consumption of a variety of food groups. A long-term strategy.

Biofortification—A New Technology

This is a sustainable agricultural strategy for reducing micronutrient malnutrition. It is a low-cost, pro-poor and sustainable food-based approach to combating micronutrient deficiencies. Biofortification is a novel strategy for delivering micronutrients on a daily basis, complementing the existing nutrition interventions mentioned above. Biofortified foods form the daily diet.

The International Center for Tropical Agriculture (CIAT) has initially targeted six staple food crops for biofortification. The Pan Africa Bean Research Alliance (PABRA), which is facilitated by CIAT, focuses on beans.

Will Biofortification of Beans Work?

The following issues were of concern in the development of biofortified beans:

- Can breeding increase nutrient levels enough to improve human nutrition?
- Will the extra nutrients be bioavailable at sufficient levels to improve micronutrient status?
- Will farmers adopt crops and will consumers buy/eat in sufficient quantities?

To address the above issues the following actions were taken:

1. **Targets** were set to increase the iron content in beans threefold, as follows:

   Iron content in bean – Baseline = 50 micrograms/gram
   Target = 94 micrograms/gram
   Estimated biofortification target increment = 44 micrograms/gram

   Targets were also set for zinc enrichment, as follows:

   Zinc content in bean – Baseline = 30 micrograms/gram
   Target = 47 micrograms/gram
   Estimated biofortification target increment = 17 micrograms/gram

   CIAT screened a number of lines and selected promising varieties which were distributed to the partner, the Department of Agricultural Research Services (DARS) at Chitedze Agricultural Research Station. Promising lines with high nutrient density were fast tracked. Two varieties were released in 2009—NUA 45 and NUA 59. Currently DARS is multiplying basic seed through its partners to obtain enough quantities of certified seed that can be made available to communities for planting and consumption.

2. **Consumption**—How much beans should one consume to improve the iron status?
   - 200 grams/day—for women;
   - 100 grams/day—for children 4–6 years of age;
   - 50 grams/day—for 1–3-year-old children

   It is assumed that iron retention is 85 percent before the beans are consumed (the percentage of iron that remains after losses due to processing and cooking). It is also assumed that iron absorption is 5 percent (the percentage of iron consumed that is taken up by the body).

   We do not know how much beans Malawians consume each day. This is an area for future research.

3. **Will the intake of additional iron from beans improve micronutrient status?**
   Beans contain a number of anti-nutritional factors that make for low availability of iron and zinc content for human body utilization. A number of studies have been conducted in other countries to evaluate and remove/destroy these anti-nutritional factors. Results will be shared across countries. Additional studies have been done in other countries on different cooking and processing options for increasing the adequacy of iron intake, and these results will also be shared across countries.

   Methods for increasing iron intake from beans include recipes development; food baskets; development of bean-based food products that target nutrient deficiencies in children, such as composite complementary flours that are suitable for both households; and industrial-level processing.

How Could the A-N-H Linkages and Value Chain Be Enhanced through Similar Research?

To unleash agriculture's potential to improve nutrition and health, multidisciplinary teams/platforms involving players from all sectors will be required. For example, currently DARS has released two varieties of micronutrient rich beans (NUA 45 and NUA 59) and is working through partners like Catholic Relief Services and private seed companies, who are multiplying foundation seed to obtain enough quantities of certified seed that can be accessed by the community.

The biofortification strategy has already been recognized by the nutrition and health sectors as one of the strategies that would contribute to combating malnutrition. The nutrition sector will stimulate widespread adoption based on scientific evidence showing the nutritional benefit of nutrient-dense beans. The health sector will be called upon to promote micronutrient-rich dense beans as one strategy for improving iron and zinc status. Young children and other vulnerable groups are not able to consume whole beans, so value-adding should be pursued as a key strategy. The food industry will play an important role here in processing beans in a form that is accessible to those groups.

Rooting Out Hunger in Malawi with Nutritious Orange-Fleshed Sweet Potato

Putri E. Abidin, International Potato Center (CIP)

Malawi is challenged by being landlocked and densely populated. Based on the census of 2008, the population is 13.1 million, or 110 inhabitants per square kilometer compared to the average in Sub-Saharan Africa of 34 inhabitants per square kilometer.[21] The government is committed to poverty reduction and the percentage of persons falling below the poverty line has declined from 50 percent in 2005 to 39 percent in 2009.[22] However, the level of malnutrition remains high, with 47 percent of under-five children stunted, 59 percent at risk of vitamin A deficiency (VAD), and 13 percent underweight. VAD can limit growth, weaken immunity and eyesight and lead to increased mortality. Furthermore, there is still a significant prevalence of HIV/AIDS, currently estimated at 12 percent.[23]

Maize is the most important food crop, followed by cassava, sweet potato, Irish potato, and sorghum. However, sweet potato is currently one of the most widely grown crops. It is becoming a major food source and increasingly contributing to the food basket in Malawi. This crop is also a source of cash and employment to many farmers.

The development, promotion, and dissemination of pro-vitamin A rich orange-fleshed sweet potato (OFSP) varieties align perfectly with the food security and nutrition objectives of the country because of four key strengths:

1. Just 100 g (1/2 cup) supplies the daily vitamin A needs of young children, the group most at risk of VAD. All sweet potato varieties are good sources of vitamins C, E, K, and several B vitamins but

21 National Statistics Office., (Lilongwe, 2008, www.nso.malawi.net).
22 National Statistics Office. (Lilongwe, 2010).
23 National Statistics Office and ICF Macro, , Preliminary report (Lilongwe: 2011).

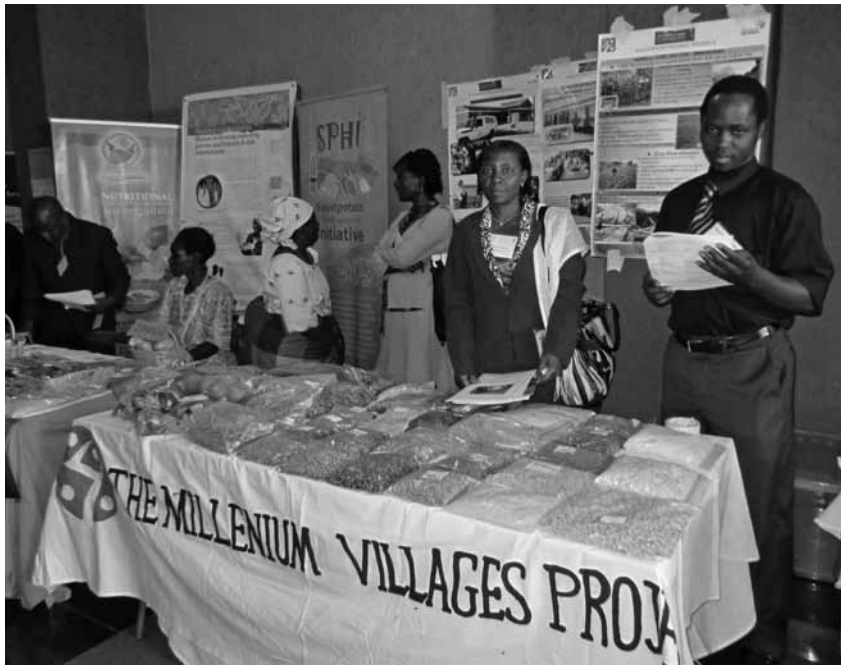
only OFSP has pro-vitamin A. Research in South Africa has demonstrated the efficacy of OFSP as a bioavailable source of vitamin A.[24] Community-level research in Mozambique has shown that an integrated approach using OFSP can reduce VAD within a resource-poor population.[25]

2. Compared to many other crops, sweet potato requires few inputs and relatively less labor, making it particularly suitable for households threatened by migration, civil disorder, or diseases such as HIV.[26]
3. Its ability to produce relatively good yields under marginal conditions, its flexible planting and harvesting times that provide roots *and* leaves during hunger season, and its good yield response to better management are factors driving its expansion in Sub-Saharan Africa (SSA).[27]
4. Like in the majority of SSA, it's a woman's crop in Malawi. Since women are responsible for the preparing food for themselves and their families, and are the dominant caregivers for young children, the likelihood of OFSP having the desired uptake by the two groups most susceptible to vitamin A deficiency, young children and women of reproductive age, is vastly enhanced.

Rooting Out Hunger in Malawi with OFSP

The objectives of the Rooting out Hunger in Malawi with Nutritious Orange-fleshed Sweet Potato project align well with the ASWAp of the Government of Malawi and priority areas for action announced by the Ireland's Hunger Task force in 2008.[28] The International Potato Center (CIP) co-leads the project with the national sweet potato program, with public sector extension personnel and three nongovernmental organizations (Concern Universal, Millennium Villages Project (MVP) and CADECOM) participating in dissemination and training efforts.

In the first year, the project began by building up the supply of the Zondeni, a high dry matter OFSP. It developed a 1 ("primary"), 2 ("secondary"), 3 ("tertiary") seed multiplication system. The primary multiplication site provides disease-free ("clean") planting material and is managed by researchers at the Bvumbwe research station. Department of Agricultural Research Services in Bvumbwe would release seven sweet potato varieties after recently being accepted by the Committee to Release Varieties. Five out of seven of these are OFSP. The advantage of having several OFSP varieties



ABOVE: Nutritious foods exhibited by the Millennium Villages Project at the Knowledge Fair

24 P. Jaarsveld, M. Faber, S. A. Tanumihardjo, P. Nestel, C. J. Lombard, A. J. Benade, "Beta-Carotene-Rich Orange-Fleshed Sweet Potato Improves the Vitamin A Status of Primary School Children Assessed with the Modified-Relative-Dose-Response Test," *American Journal of Clinical Nutrition* 81 (2005).

25 J. W. Low, M. Arimond, N. Osman, B. Cunguara, F. Zano, and D. Tschirley. "A Food-Based Approach Introducing Orange-Fleshed Sweet Potatoes Increased Vitamin A Intake and Serum Retinol Concentrations in Young Children in Rural Mozambique," *J Nutr* 137 (2007).

26 T. Jayne, M. Villareal, M. Pingali, and G. Hemrich, Interactions between the Agricultural Sector and the HIV/AIDS Pandemic: Implications for Agricultural Policy, an *International Development Working Paper* (East Lansing, Michigan: University of Michigan, 2004), www.aec.msu.edu/agecon/fs2/index.htm.

27 J. W. Low, J. Lynam, B. Lemaga, C. Crissman, I. Barker, G. Thiele, S. Namanda, C. Wheatley, and M. Andrade. "Sweetpotato in Sub-Saharan Africa," In *The Sweetpotato,* edited by G. Loebenstein and G. Thottappilly. Dordrecht (Germany: Springer Science+Business Media B. V.; 2009, 359–90).

28 Government of Malawi, The Agriculture Sector-wide Approach (ASWAp): Malawi's Prioritized and Harmonized Agricultural Development Agenda 2010–2014, (Lilongwe: Ministry of Agriculture and Food Security, Republic of Malawi, 2010).

SUCCESS STORIES

A number of success stories have been recorded from DVM sites and beneficiaries in Dedza, Zomba, Phalombe and Chikhwawa Districts.

- Mr. Chimpikizo, a multiplier in Dedza, received US $407 (Mk 61,000) from this sale. With the earned money, he plans to construct a new diffused light store for Irish potato seeds.

- Mr. Chimpikizo is also an Irish potato seed producer and participates in the CIP program of Irish potato seed production. He also practises crop diversification.

- Upile Farmer Club, one of the clubs under MVP in Zomba, received 797 vouchers and earned $823 (Mk 123,535). Additionally, the club also sold 189 bags of 50-kg volume at Mk 250/bag. From this sale, they earned as much as $315 (Mk 47,250). These bags were sold to the MoAIWD's Machinga Agriculture Development Division. The club has extended the multiplication of sweetpotato vines to 0.1 ha in this 2010/2011 season using existing irrigation equipment.

- Mr. Oxford Dimo, a tertiary multiplier in Chikhwawa, obtained vine cuttings from Mr. Oris Tembo, the secondary multiplier from the Madalitso Club. He expanded the area of planting OFSP to 0.7 ha. and he uses a motorized pump to irrigate the vines. He has sold the vine cuttings in three lots—the first lot of 700 bundles of 5 kg each he sold to the Evangelical Lutheran Development Services, earning him $700 (Mk 105,000); the second lot of 250 bundles of 5 kg each earned him $250 (Mk 37,500), and the third lot of 60 bundles of 5 kg each he sold for$60 (Mk 9,000). With these earnings, he was able to buy two additional diesel pumps for irrigation. He is also implementing crop diversification in his garden. He plans to extend the area for OSFP vine multiplication and production in the future.

- Mr. and Mrs. Tambala from Phalombe District said that OFSP Zondeni sweetpotato leaves made a very good relish and unlike the ordinary sweetpotato vines that they normally grew, Zondeni leaves are very delicious. Their three-year-old son liked it quite a lot, asking for Zondeni cooked leaves at least three times a week.

- In Chikhwawa District, Mr. Adikleki Biliati planted 0.2 ha of sorghum but the crop failed due to drought. At the same time, he received 4 kg of OFSP Zondeni planting material from CADECOM. He planted the crop using the information written on the vouchers issued by CIP: 18 ridges of each 5 m long. He watered his garden with water from a borehole, using a drum to carry the water on a bicycle. Now the sweetpotato field is doing better than sorghum. In this village, farmers have agreed to do a pass-on-program—in other words passing on 4 kg of OFSP planting material to other beneficiaries in order to sustain and accelerate the distribution of vines for food security.

is that there will be more opportunities to scale up planting in Malawi based on the planting material's performance in each agro-ecological zone. To be able to best serve farmers, the secondary and tertiary multiplication sites are decentralized to farms located near the beneficiary populations. This makes sense because sweet potato vines are perishable. Secondary sites are larger than tertiary sites, but both are managed by trained farmer multipliers. To date, 133 Decentralized Vine Multiplication (DVM) sites have been established. Through March 2011, in the second year of the project, the dissemination of OFSP with subsidized vouchers has reached 10,869 farming households: 5,496 women and 5,373 men. They have already grown the OFSP in the 2010–2011 rainy season in Malawi. This successful effort used an implementation strategy that includes six integrated components: (1) strengthening the partnership with government, NGOs and private sector, (2) seed systems, (3) training, visits and field days, (4) a campaign to create demand through behavior change communication (theater, dance, poetry, songs, and banners) (5) voucher systems, and (6) post-harvest and marketing on a small scale.

Training activities took place in each district using a "training of trainers" approach, where each person trained is expected to train others. For example, in Chikhwawa, Phalombe, and Dedza, one trained secondary multiplier is expected to train five tertiary multipliers. In Zomba, one woman/household trained in utilization of storage roots is expected to subsequently train ten additional women. We use vouchers to reduce the risk to DVMs by guaranteeing that they will be reimbursed for a certain number of vines distributed using vouchers. This method also provides an excellent tracking system to capture the names and locations of the vine recipients who redeem their vouchers. Through March 2011, US$11,231.30 (MK1,685,695) has been spent on covering voucher redemption. DVMs generated additional income from selling OFSP vine cuttings on the free market. A total of US$1,732 (MK 259,800) was received from these additional sales.

In year 3 we expect to reach at least 24,000 households. We will start scaling up our strategic implementation. By the end of the 4.5 year program, we have planned to reach 115,000 households who will be growing the OFSP in their gardens, and many more Malawians will be consuming the OFSP products.

When surplus root production has been built up (year 2, November 2011), this is the right time to invest more in nutrition education at the community level, and in product and market development. For instance there will be major efforts to raise nutrition awareness through a radio program, and to develop markets for both fresh and processed OFSP products. Also the capacity of the private sector and communities will be developed with the aim of improving production and post-harvest practices and ensuring adequate monitoring and evaluation of the program. Recently, Irish Aid, in cooperation with CIP and implementing partners, has compiled a series of nine radio programs in Chichewa that highlight the benefits of nutritious orange-fleshed sweet potato recipes. The series is broadcast each Wednesday for nine weeks on MBC Radio One, starting on September 14. MB BC One was chosen as it reaches rural women best, and a late afternoon slot was selected, when women would be in from the field. These programs have been edited and produced by NSAFAM, a partner of Irish Aid. A monitoring exercise will be done in a few months to gauge audience reaction.

We will be focused on improving fresh root markets and informal chip processing. We are also collaborating with a private sector partner, Universal Industries, to develop a commercial value chain. Universal Industries has been developing biscuits from the OFSP flour and fried crisps from fresh OFSP. For crisps, they have purchased new equipment to enable them to make high quality sweet potato, cassava and banana crisps which will come on line in 2012. In collaboration with Bvumbwe, three orange-fleshed varieties (Zondeni, LU06/2525, BV07/026) have been found to be suitable for crisps. For making biscuits, a number of trials have been conducted. They are now considering launching one inexpensive "budget cream biscuit" and a new nutritional biscuit during the coming year.

Assessment of the Contribution of Agriculture to Nutrition and Health Outcomes: World Vision Malawi's Experiences

Willie Kalumula, Operations Director, World Vision Malawi, Lilongwe

World Vision Malawi's (WVM) programs are designed to have four major outcomes: good health, proper education, child protection and good relationships. The outcome on good health for children is inevitably linked to agriculture and food production, beside the other integrated factors of water, sanitation and hygiene, and maternal and child health (MCH). Agriculture and food production are considered the primary tools for nutritional well-being and good health. WVM approaches nutritional improvement through four pillars: food security (which includes food production or availability), access to food, food processing and utilization, and asset/wealth creation.

WVM's Evaluations of Programs

WVM carried out empirical studies of its programs and projects to assess the contribution of various agricultural interventions and projects toward nutrition and health outcomes, in order to inform health and nutritional policy reform.

WVM's programs include the following specific objectives:

1. To stimulate public debate through productive engagement on the agriculture-health-nutrition nexus so that a national action plan can be designed that is based on available evidence through research.
2. To synthesize direct and indirect factors influencing nutritional well-being, by making linkages with agriculture, so that desired health outcomes can be achieved.

WVM uses the Area Development Program (ADP) model of delivery, facilitating the implementation of development interventions in an integrated manner, and allowing community members to articulate development outcomes based on their own needs and opportunities. The key focus areas for WVM are food and nutritional security and education, health, and HIV/AIDS, with gender, environmental management, and disability as some of the cross-cutting issues. Using the ADP model WVM can negotiate a fair share of the critical mass through which most development interventions are advanced. The experiences and practices enumerated in this write-up have been distilled from information on a number of ADPs and projects, in the form of generic assessments, mid-term evaluation reports as well as end-of-program evaluations.

Summary of Findings on Food Availability and Utilization in Relation to Malnutrition

Analysis of mid-term and end-of-program evaluations in a number of WV programs shows that agricultural diversification, promoting various food crops, and integrating livestock with them has an influence on aggregate food production at household level. For example, crop diversification (mixed cropping of maize and legumes like beans and pigeon peas) and the scaling up of small scale irrigation initiatives in Mphuka ADP contributed to a reduction in food-deficit months from 9 months at baseline to 3.5 months between 1998 and 2010. As a result, underweight among under-five children dropped from 28.2 percent to 13 percent.[29] This is still higher than the 10 percent WHO standard, and stunting in Mphuka remains a major concern. It could be that the reason is limited access and availability of WASH and MCH amenities and services which are key drivers for good nutrition.

Chikwina-Mpamba ADP in Nkhata-bay offers a good example of a promising program as far as malnutrition is concerned. Between 2007 and 2011 the ADP registered remarkable milestones on key nutritional indicators. For instance, wasting among children from households involved in fish farming and dairy farming moved in a positive direction from 8.9 percent to 2.7 percent, while underweight

29 F. Teleka , G. Banda, and N. Kakusa, End of Programme Evaluation for Mphuka Area Development Programme in Thyolo district (Lilongwe: World Vision Malawi, 2011).

dropped from 27.7 percent to 3.2 percent and stunting was at 29 percent[30]. Of course this trend can also be attributed to other interventions like prevention and management of malaria and diarrhea, and immunization, but the role of food as a primary tool for fighting malnutrition is indispensable. In essence, agricultural diversification increased the range of sources of affordable protein and energy foods, while MCH and WASH interventions made an equally significant contribution to nutrition improvement.

World Vision implements projects with a strong orientation on nutritional well-being. A shining example was the Micronutrient and Health (MICAH) project (1997-2004). MICAH leveraged the ADP with a primary focus to accelerate the uptake of micronutrients like iron, zinc and iodine as well as vitamins. Major components of the MICAH project were production of fruits, vegetables and livestock production, and food fortification. Food fortification involved the private sector, particularly millers, to empower them economically as key players in the value chain. The impact of food fortification was seen in the total goiter rate among school age children, which significantly decreased from a baseline level of 18.9 percent in 1997, down to 5.5 percent in 2000 and then 3.5 percent in MICAH areas in 2004[31].

Economic empowerment through agro-enterprise development (e.g. dairy farming, seed multiplication) has shown tremendous potential to contribute positively to access to food at household level. However, social barriers play an important role, notably household-level power relations that affect decisionmaking about food and access to and control of food. Despite these social barriers, a seed multiplication project in Chingale ADP registered a 43 percent increase in household income, which partly contributed to a reduction in severe acute malnutrition to 0.67 percent minus 3 (using weight for height) and in oedema to 0.44 percent in 2005.

The socio-economic context poses a number of challenges to the attainment of nutritional and health outcomes. Key nutritional drivers like the management of common diseases among children through MCH and WASH interventions are known to affect nutritional well-being. The Southern Africa Food and Nutrition Security (SAFANS) project in Nsanje district improved food production, but failed to reduce stunting levels because of the prevalence of malaria and common diarrheal diseases[32].

Even if wide access to various food types can be improved at the community level, the intra-household distribution of food tends to disadvantage children and women. Additionally it has been established that food production hazards such as HIV and AIDS, floods, and droughts recur with enough severity to have a significant negative impact on progress toward nutritional well-being.

Way Forward

WVM has a strong buy-in to long-term integrated programs with multiplier effects like Water Sanitation and Hygiene (WASH) and MCH, besides the discrete programs for food and nutritional security. By linking long-term food security projects with initiatives like Malawi WASH and the 7-11 Initiative, WVM is proving that collaboration with public and private sector players contributes to achieving nutritional and health goals in a sustainable manner.

What Are the Challenges and Opportunities for Generating and Using Evidence to Develop Appropriate Policies for Malawi?

Summary notes and comments from the table discussions

General point—Our emphasis should be on **making linkages.**

1. **Behavior change in nutrition** will involve changing long-held eating practices, giving knowledge about bio-fortification, combating resistance, and analyzing the gender framework.

30 J. Chima, Mid-Term Evaluation Report for Chikwina-Mpamba Area Development Programme, Nkhata-bay District, (Lilongwe: World Vision Malawi: 2007).

31 A. K. Edris D. and Chilima, End of Project Evaluation Report for the MICAH Project (Lilongwe: World Vision Malawi: 2005).

32 N. Geresomo, S. Gondwe, and A. Mwangwela, End of Project Evaluation Report for the Southern Africa Food and Nutrition Security, Nsanje, Machinga, Dowa and Salima Districts (Lilongwe: World Vision Malawi, 2008).

Table discussions gave rise to individual comments on this topic:

- "*Challenge related to Vitamin A fortification and eating habits (beliefs associated with heartburn). Production levels still low. Opportunity to integrate with other stakeholders to boost production; CIP has already started to do this."*
- *"Lack of proper knowledge of biofortification—need for proper labeling (logo)."*
- *"Lack of coordination makes it difficult to contribute to policy; the biofortification policy shows a disconnect between the scientists and the policy."*

2. **Who drives research into new varieties?** Government? Development partners? Households? In developing new varieties, account should be taken of absorption of nutrients, sweetness, yield, cooking time, eating preferences. It should be clear how to distinguish the nutrition-enhanced varieties. Find ways of getting community feedback on use of technologies for storage, processing.

   Table discussions took the topic further, as follows:

   - "*The challenge is more in using the research rather than generating it."*
   - *"Are these new bean varieties released? What are the common names? Are they in good quantities? Seed availability? Where are they found?"*
   - *"Who generates the demand for research (people, supply, researchers?) and how is the demand articulated? There is good research being done, but the price per unit is prohibitive for the farmer—lack of competitiveness. The National Research Council offers an opportunity to coordinate multidisciplinary research for integrated approaches."*
   - *"How effective is the feedback mechanism between the research and the end user (adoption and consumption) for the fortified varieties?"*
   - *"There is need for a common platform to drive the interventions."*

3. **Strengthen extension services** to better link research to farmers and communities.

   In table discussions, the following points were made:

   - "*Lessons learned: community-based approaches; short-term and long-term timeframes. Opportunities lie in research and integration with stakeholders."*
   - *"How will the panelists ensure that their technology will be rolled out and how will they build partnerships with NGOs to ensure their technology is used by smallholder farmers?"*
   - *"How did the Ekwendeni project manage to facilitate collaboration of various actors in improving production and consumption of diversified, quality food?"*
   - *"What role did the targeted communities play in the research and development of the zinc-rich beans and the orange-flesh sweet potatoes? For the zinc-rich beans—are they completely new varieties, or is the breeding work being done on existing and loved breeds that communities already use? Think of palatability, processing, cooking time. There are good opportunities with zinc-rich beans and orange-flesh sweet potatoes, because the technologies are already available."*
   - *"Planting materials for both zinc-rich beans and orange-flesh sweet potatoes can be effectively distributed through pass-on programs."*

4. **Scaling up distribution** Use social marketing and public–private partnerships.

The table discussions generated a range of searching questions and comments:

» "*There is a lack of a feedback mechanism between the sectors, so that production is not targeting areas with particular nutritional needs. If sectors provide feedback to inform policy, then the FISP could include beans, based on their prevalence.*"

» "*Scale up distribution of new varieties. Establish linkages with extension and the private sector. Open up to other players.*"

» *"Beans are widely consumed and can be utilized in school feeding programs."*

» *"What are the trade-offs between breeding for vitamin A and other crop characteristics, such as leaf production, since leaves are an important hungry season food?"*

» *"We need to find out how these zinc-rich beans and orange-flesh sweet potatoes are used within the home and what the barriers are to scaling up."*

» *"How competitive are the zinc- and iron-enriched beans compared with other varieties in terms of traits (yield, taste, cooking time/environmental concerns)?"*

PLENARY SESSION 3:

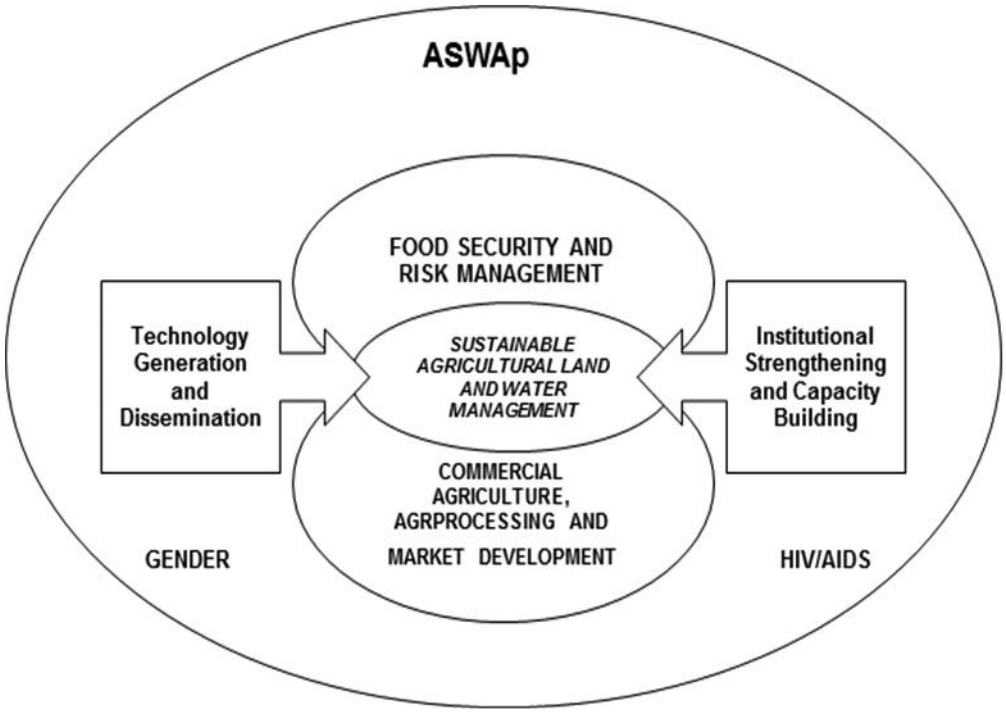
Strengthening the Linkages: Policy Frameworks and Programs

The Malawi Agriculture Sector Wide Approach (ASWAp)

Wilfred Lipita, ASWAp Coordinator Services, MoAIWD

ASWAp is a short term for the Agriculture Sector Wide Approach. The goal of the strategy is a harmonized agricultural sector, adopting a wide sectoral approach involving as many stakeholders as possible, in order to enhance increased and sustainable agricultural production and growth. The process entails planning, coordination, implementation, and monitoring of the agricultural activities in the pursuit of accelerated growth. This also includes financing the agricultural sector. The ASWAp is a multidisciplinary participatory approach with all stakeholders, including farmers, and a lot of participation by the private sector and nongovernmental organizations.

ASWAp Focus Areas and Support Services



ASWAp has three main pillars to achieve growth. These are: (1) technical support to achieve increased growth through nutrient management and productivity; (2) capacity-building and human resources development; and (3) planning and monitoring the agricultural programs. Designated teams are responsible for planning, coordinating, implementing, and monitoring the three pillars. Currently ASWAp is concentrating on increased food production with its main emphasis on crops—specifically maize and some grain legumes. ASWAp advocates the wise utilization of natural resources (especially soil), sound land management, and sustainable environmental management. Research and extension have a crucial role in achieving agricultural growth and productivity, as there is need to develop new technologies and disseminate key messages. ASWAp also looks into income generation and the diversification of crops, livestock, fisheries, and other commodities that will increase the income base of the farmers so that they are secure in terms of both food and income. This also involves value addition, agro-processing, marketing and storage (to minimize post-harvest and processing losses).

It goes without saying that ASWAp is contributing to improved nutrition and income in Malawi's communities. Diversification of agricultural production and marketing increases the food and income base. This in turn will lead to improvements in the welfare, nutrition, and income of the communities. Food security and nutrition will lead to a healthy population and improved agricultural production and marketing will lead to a healthy nation and general economic growth. ASWAp is therefore an approach which can lead to the improved well-being of the Malawi nation.

The Role of Agriculture in the Scaling Up Nutrition (SUN) Initiative

Margaret Lwanda, Deputy Director for Nutrition, HIV and AIDS, MoAIWD

What Is SUN?

The Scaling Up Nutrition (SUN) framework was designed at the United Nations to help nations whose people are at risk of undernutrition. It was endorsed by more than 100 government, civil society, academic, and business organizations in April 2010. These stakeholders helped to develop a road map for advancing the framework. The interventions to be scaled up are those that have shown a positive impact in the prevention of malnutrition, especially on stunting and on undernutrition. The focus is on pregnancy (270 days) plus the 730 days up to the time the child reaches two years. These 1,000 days are the most critical for the child's optimal physical growth, mental development and intellectual capacity. The evidence-based interventions include exclusive breastfeeding from birth to 6 months, complementary feeding from 6-24 months, improved hygiene, and prevention of micronutrient malnutrition.

ABOVE: Exhibitors at the Knowledge Fair with essential nutritious foods and educational materials

The SUN framework is built on action to address undernutrition through partnerships for collective action among key stakeholders from the policy level to the household level. At country level, nutrition strategies and programs draw on international evidence of good practice to respond to country-specific needs and capacities. To help scale up evidence-based, cost-effective interventions for preventing and treating undernutrition, the priority is given to pregnancy and first two years of a child's life. Seizing this window of opportunity will

give a high return on investments. A multisectoral approach is used to integrate nutrition into related sectors, introducing indicators on undernutrition as one of the key measures of overall progress in these other sectors.

The SUN road map gives details of how a country, region, and international stakeholders will work together to establish and then pursue an effort to Scale Up Nutrition under three broad areas: (1) food and nutrition security for all; (2) nutrition-focused development; and (3) nutrition-specific interventions.

The Role of Agriculture in Scaling Up Nutrition—No Food, No SUN

Agriculture is the foundation of our economy and it is also key in addressing SUN objectives. The majority of our people are farmers who produce food for home consumption and for income. The agriculture sector needs to make deliberate efforts to respond to nutritional needs, taking gender and vulnerable groups into account all along the value chain—from research to the table.

Preventing stunting in Malawi depends on the performance of the agriculture sector and the priority that nutrition will be given in the agriculture sector. One of the reasons why SUN has been introduced is that national development policy, hence investment, has given nutrition a low priority, and this has been particularly true in the agriculture sector. The attainment of SUN objectives in agriculture-based economies like Malawi largely depends on bringing the agriculture sector on board and investing in nutrition sensitive agriculture.

What Are the Opportunities for Increasing the Role of Agriculture in SUN?

Nutrition should be integral in agriculture policy as an intended outcome with measurable indicators. By applying the value chain approach, opportunities for an impact on nutrition can be maximized, so that nutrition objectives and strategies are incorporated at every stage—from policy to the mouth.

TABLE 1: THE SCOPE OF SUN INTERVENTIONS NEEDED

AREA	FOCUS	ISSUES BEING ADDRESSED
Policy	Incorporate other sectors, e.g. Micronutrient and Health Project (MICAH) was implemented by Min. of Health in partnership with Min. of Agriculture and Min. of Water.	Food alone is not adequate to achieve optimal nutrition. There's need for integrated programs.
		Safe water, hygiene, and sanitation are prerequisites for normal biological utilization of food.
Research	Breeding to address nutrients of public health significance. Biofortification with vitamin A, iron and zinc can contribute to eliminate deficiencies in these, e.g. vitamin A-rich orange-fleshed sweet potatoes, orange tomatoes, and iron and zinc-enriched beans.	Micronutrient deficiency prevention and control
		Support seed production, multiplication, distribution to farmers, and action-oriented nutrition education
Production and access	Diversification	Diversity not to be limited to crops
	Crops; staple food diversity; other crops with emphasis on indigenous varieties of fruits and vegetables; small livestock and fish farming	There is evidence that animal food sources promote growth, hence, they are of direct relevance in the prevention of stunting.
	ASWAp is an opportunity	Nutrition education is vital to guide the selection of what crops and livestock to produce, and to promote appropriate and nutritionally sound eating habits (including appropriate complementary feeding).
Post-harvest handling	Processing, preservation, and storage, ensuring food safety and sustainable food supplies	Technologies for nutrient retention and improvement, e.g. use of solar driers for vegetables and machines for processing fruit juice and soya beans
Food utilization	Diversified and nutritious complementary foods	All gender categories, focusing on the 1,000 days and beyond
Gender consideration	Analyze women's key role in infant and young child feeding and in nutritional care.	Engage men as partners in child feeding and caring

Conclusion

Policy should focus on enhancing complementarities and synergies through multisectoral collaboration. Continuity should be ensured by using participatory approaches and cost-effective interventions. The sectors of agriculture, nutrition, and health have to work together with other sectors, making public–private partnerships. Therefore interventions that integrate the three sectors, such as the **Micronutrient and health project (MICAH)** and **Improving food security and nutrition policies and program outreach project,** need to be emulated.

bibliography

Kalimbira, Alexander A. 2011. Analytical Study in Support of SUN in Malawi, unpublished material.

O'Neil, David. 2011. Scaling up Nutrition & 1,000 Days. Implementation Progress in Malawi.

United Nations. 2011. Progress Report from countries from high-level meeting on Scaling up Nutrition.

Farmer-Led Approaches to Improving Food Security and Nutrition through Sustainable Agriculture and Social Change

Dr. Rachel Bezner Kerr, Assistant Professor, Department of Geography, University of Western Ontario, Canada, and the Soils, Food and Healthy Communities (SFHC) Project, Ekwendeni Hospital

Background and Justification

Food-based agricultural interventions using agro-ecological and participatory approaches specifically aimed to improve human health and nutrition have had minimal attention nationally and internationally. Agro-ecological methods proposed here use ecological principles to design resilient, sustainable, low-input farming systems. Recent scientific assessments of agriculture have called for greater investment into the needs of the rural poor, including addressing crop diversity, agro-ecological methods, climate change adaptation and farmer knowledge. Agro-biodiversity is considered to be a critical component of enhancing food security for resource-poor farmers, and is linked to dietary diversity, which is associated with positive nutritional outcomes.

Farmer participatory research builds on local adaptations in order to build social resilience and develop appropriate solutions. While much work on farmer participatory research has been done, there are few examples of small-scale projects scaling up and few studies with evidence of improved nutritional outcomes from agricultural interventions. Increasing ways for people to share knowledge is considered crucial for increasing positive outcomes for the poor. Farmer participatory methods, involving farmer research groups, farmer experimentation, and exchanges can stimulate innovation and agricultural improvements.

Within communities and households, different social categories and roles (for example, gender) can determine who has greater access to food. Both gender and age are important concepts, in relation to the specific vulnerability of women in Malawi. Selection of farmers to participate in research and interventions should include explicit selection of women from different household types, ages, and food security levels to ensure their perspectives are understood.

Case Study: Soils, Food and Healthy Communities (SFHC) Project, Ekwendeni Hospital

The SFHC project was initiated in 2000 by Ekwendeni Hospital staff and Malawian and Canadian scientists. It used interdisciplinary and participatory methods to assess whether legume intercrops could improve soil fertility, food security, and child nutrition. Villagers selected a Farmer Research Team (FRT) to learn more about legume intercrops, which had been previously tested in central Malawi. An iterative research design led to innovative educational approaches and research activities including crop residue promotion days and intergenerational discussion groups. In our work we use a transformative model of adult education, which emphasizes dialogue, problem-solving and shared knowledge rather than information transmission from "experts" to learners.

Agro-ecological Approaches and Educational Strategies Used:

- "Doubled-up" legume intercrops, for example, pigeonpea and groundnut; pigeonpea and soya
- Legume residue incorporated into soil after harvest, rotated with maize
- Farmer Research Team, farmer-to-farmer teaching and exchanges
- Intergenerational and inter-gender discussion groups to address key barriers
- Participatory workshops to exchange ideas, analyze results.

Results

Since the start, more than 6,000 farmers have joined the project and a Farmer Association and Community Legume Seed Bank were started. Legume intercrops were expanded, as were crop residue management practices to improve soil fertility. Significant improvements in child growth were evident in participating villages; longer time with and more active involvement in the project led to more significant impact. Farmers reported improved food security, crop diversification, soil fertility, and reduced fertilizer

costs. Gender relations, such as household decision-making about legume use, were important to address household food security. The research team found significant positive effects on child nutrition, food security, gender, and community relations. SFHC has contributed to national-level research on biodiversity that demonstrates how legume intercrops increase crop yields, incomes, soil cover and nutritional outcomes.

Key Players to Implement These Strategies

- Farmer organizations, women farmers and youth: It is crucial that this strategy is led by farmers, while recognizing inequalities within households and communities (e.g. women, HIV-affected households, youth)
- Research organizations examining agro-ecological methods and food-based interventions to improve nutrition
- NGOs willing to use a participatory, integrated approach that can use transformative, dialogue-based educational methods
- Ministries of Agriculture and Food Security, Health, and Gender

Key Suggestions

- Use participatory methods using problem-solving and dialogue-based educational approaches such as small group discussions and participatory experiments
- Agricultural methods should use agro-ecological approach to improving food security, health and nutrition, with emphasis on agro-biodiversity, intercropping, use of locally available sources of organic matter to improve soil quality, and drawing on farmer knowledge
- Nutritional approach should be holistic and consider local food practices and appropriate foods for cultural, social, and environmental context
- Examine and address social inequalities which affect peoples' ability to use agricultural methods or improve nutrition, including gender, HIV status, and age
- Understand key child care practices in social context and address barriers to improving child nutrition, such as limited time for frequent feeding
- Consider how climate change may impact a given agricultural strategy or health outcome and integrate these impacts into approach

bibliography

Bezner Kerr, R., Berti, P. R. and Shumba, L. 2010. "Effects of Participatory Agriculture and Nutrition project on Child Growth in Northern Malawi." *Public Health Nutrition 14 (8): 1466–72.* doi: 10.1017/S1368980010002545

Bezner Kerr, R., L. Dakishoni and L. Shumba. 2008. "We Grandmothers Know Plenty: Breastfeeding, Complementary Feeding and the Multifaceted Role of Grandmothers in Malawi." *Social Science and Medicine* 66 (5): 1095–1105.

Bezner Kerr, R., P. Berti and M. Chirwa. 2007. "Breastfeeding and Mixed Feeding Practices in Malawi: Timing, Reasons, Decision Makers, and Child Health Consequences." *Food and Nutrition Bulletin* 28 (1): 90–99.

Bezner Kerr, R., S. Snapp, M. Chirwa, L. Shumba and R. Msachi. "Participatory Research on Legume Diversification with Malawian Smallholder Farmers for Improved Human Nutrition and Soil Fertility." *Experimental Agriculture* 43 (4): 1–17.

Satzinger, F, R. Bezner Kerr and L. Shumba. 2009. "Farmers integrate nutrition, social issues and agriculture through knowledge exchange in northern Malawi." *Ecology of Food and Nutrition* 48 (5): 369–82.

Snapp, S. S., M.J. Blackie, R.A. Gilbert, R. Bezner Kerr, G.Y. Kanyama-Phiri. 2010 "Biodiversity can support a greener revolution in Africa" *Proceedings of the National Academy of Sciences*. 107(48): 20840–45. doi: 10.1073/pnas.1007199107

Role of the Private Sector in Strengthening Agriculture, Nutrition, and Health

Theresa Banda, Malawi and Africa Program Manager, Valid International

Agriculture is the backbone of most developing nations, including Malawi; it delivers income, growth, food, fuel, and medicine. It affects health and nutrition and health and nutrition in turn affect agricultural production and productivity. This is a clear indication that agriculture, health and nutrition are interlinked, and the three sectors need to take into account the relationships, from policymaking through implementation.

The Role of the Private Sector in Agriculture

The private sector plays different roles—in production, processing, marketing, and consumption:

- Production—research and development of different inputs required for production, such as seed, fertilizers, farming technologies, contract farming, extension services, information and communication technologies (ICT), and transportation
- Processing—value addition to the products
- Marketing and post-harvest management—marketing based on research, distribution based on need and demand
- Consumption—processing and packaging products based on consumers' preferences and needs, following global and national food standards and resolutions such as on infant feeding (affecting milks and complementary foods), ICT on availability of agricultural products and services that support agriculture, healthier diets and lifestyles

The private sector is also strong in capacity building in all areas of agriculture, linking farmers (producers) to retailers or processors to consumers and vice versa.

Private Sector's Support for Agriculture, Nutrition, and Health

The private sector translates global and national policies into action for marketing purposes and will deliberately move in to deal with a health and nutrition problem, e.g. biotechnology, biofortification, food fortification, and general food processing for different target groups.

The sector is contributing to solutions for availability of and access to diversified food products that address macro and micronutrient deficiencies. It also eases access to medicines for the prevention and treatment of health problems. The sector is committed to implementing global, regional and national policies and strategies, such as the code of marketing on breastmilk substitutes and subsequent resolutions, the WHO global strategy on diet, physical activity, and health, Codex alimentarius, and agriculture, nutrition, and health policies and regulations. In the processing industry, occupational health regulations and procedures are followed to protect the health of production staff and prevent contamination of the product.

It is important that the private sector be kept up to date on all relevant regulations and provisions.

The sector has the capacity to inform and educate the public on the A-N-H linkage. However the effective promotion and implementation of interventions toward this linkage depends on policies and standards in each country and on the national monitoring mechanisms. However, in Malawi there are certain challenges in monitoring and reinforcing these policies and programs.

The Nutrition and Health Objectives of the Private Sector

Usually the private sector has a nutrition and/or a health objective to be achieved although in some cases it may be secondary. The primary objective might be value addition to increase demand for the product.

TAKING THE CASE OF VALID NUTRITION (VN):

Objectives

- To make highly nutritious "ready-to-use food" products for the prevention and treatment of malnutrition more accessible and affordable for those that need them most.
- To prevent contagious diseases from agricultural products and people visiting and working within the factory.

Strategies

- Proceed from current nutritional needs and requirements. VN began by addressing the greatest need—severe acute malnutrition (SAM).
- Currently working on moderate acute and chronic malnutrition, following global and national policies and standards.
- Research and development on use of locally available and acceptable foods (development of recipes, acceptability trials and efficacy trials) before release of the formulation.
- Ingredients for Ready to Use Therapeutic Food (RUTF) are peanut paste or chick pea/ sesame (and soon Malawi will start using a combination of soybean, maize and sorghum), milk, sugar, cooking oil, vitamins and minerals. Sourcing these ingredients can be a challenge in terms of availability and quality. VN works directly with organized farmers groups such as NASFAM and Exagris to ensure the right paste and quality is procured. At the same producers get information and surety on markets and prices for their products.
- VN partners with the public sector to ensure that distribution, access and utilization are based on needs.
- VN's collaboration with NASFAM and Exagris and processors of peanut paste is helping to ensure that peanuts and paste have acceptable levels of aflatoxin. There is testing of paste before and after production for aflatoxin, and strict routine biochemical and microbial testing, implementation of personal hygiene and occupational health regulations to prevent contamination and transfer of infections.

Policies and Programs

Overall the private sector complies with policies and regulations of the country. However, sometimes they have their own which they market to the public sector, if appropriate. Policies and programs linked to A-N-H need to be participatory, involving all concerned stakeholders and based on evidence. In this business, it is better to have a "carrot and stick" for the private sector. There have to be incentives for the private sector to strengthen this linkage, favorable policies in production, marketing, processing, and education/creation of awareness through appropriate extension services that are market focused.

Recommendations for Discussion

The private sector has a role in strengthening the A-N-H linkages at each stage from production through marketing to consumption and there is need for appropriate policies and programs, based on evidence.

- What about policies and programs conducive for development of local production and markets? Can taxes be a carrot for this link? Licensing, import regulations, bureaucracy in export process, etc. are cumbersome and expensive. Is there something that can be done to improve these areas?
- Sectors working in these areas need to be linked to share visions as well as problems/ challenges. There is also a need to build accredited laboratories and strengthen their capacity for monitoring.

How Nongovernmental and Civil Society Organizations Foster Nutrition- and Health-Friendly Growth

Edson Musopole, Civil Society Agriculture Network (CISANET)

The Importance of Linkages between the Actors

Linkages in policy and programs made by nongovernmental organizations (NGOs) and international governmental agencies complement community and local government efforts for development. Without such linkages there are duplications of efforts, resources are used inefficiently, and confusion reigns among development agencies, targeted beneficiaries, and the government. Strong linkages enhance synergies, effectiveness of resource use and coordination in fostering nutrition and health-friendly growth, which is of prime importance in Malawi.

The Policy and Program Linkages

The United Nations (UN) linkages with the Africa Union (AU) strengthen policy and program synergies through representation in member states. Bilateral and multilateral agencies foster policy linkages for nutrition and health-friendly growth through such development frameworks as the Millennium Development Goals and the New Partnership for African Development (NEPAD).

Stakeholder Partnerships and Roles

The government recognizes the NGO/CSO contributions to development and has forged partnership programs in agriculture and health in order to foster national nutrition and health-friendly growth. Development agencies encourage the government to restrict its role to the coordination of regulatory services in its courtship of development partnerships. The Core Function Analysis process meant to delineate partnership roles has stalled and is yet to be completed. When stakeholder groups have mutually agreed and clearly outlined their roles, this will strengthen accountability and stakeholder participation.

Strengthened linkages between the agriculture extension service and nutrition specialists will enhance the capacity for outreach, involving community leaders in activities that foster national nutrition and health-friendly growth. Strengthening linkages with rural education institutions, church establishments, and community-based institutions will assist programs. Strengthening of radio/TV and print/media group linkages with nutrition/health education institutions will facilitate message development, dissemination, and listening.

NGO linkages with stakeholders will also be strengthened if they all share their best practices and experience of working with the poor in order to influence communities to consider alternative visions of development. This linkage process facilitates learning about the new skills, new tasks, new priorities for planning and management, and new partnerships that are called for.

NGO Policies and Programs Are Linked with National and International Agendas

NGO policies and programs are informed by community needs, and are in alignment with international and national policies, notably the Millennium Development Goals (MDGs) and the national development agenda as laid out in the Malawi Growth and Development Strategy (MGDS).

A-N-H Linkages in Humanitarian Response

Drought, flood situations, and disease outbreaks such as cholera and HIV/AIDS prompt vulnerability interventions by NGOs. The interventions include vulnerability assessment, distribution of relief seed, household utensils including mosquito nets and blankets, food supplements to expectant mothers and children, growth and nutrition monitoring, and health education. Child growth monitoring standards and instruments are followed by NGOs. NGOs are coordinated through the Civil Society Agriculture Network (CISANET) and Malawi Health Equity Network (MHEN) to facilitate their policy and program work with government ministries, UN agencies (notably WFP, FAO, and UNICEF), multilateral and bilateral agencies, and academic institutions.

HOW ARE AGRICULTURE, NUTRITION AND HEALTH LINKED?

The linkage of agriculture to nutrition and health originates from the understanding that agriculture is the source of nutrition which enhances health. Agriculture produces food variety in abundance in accordance with the Right to food for a healthy life. Life is dependent on food consumed in balanced combinations for a healthy life. Hunger results in the deprivation of the intake of food nutrients, leading to malnutrition and ill health.

The food variety for combined consumption has to be made available and accessible to all levels of consumers. The practice of agriculture requires a healthy farmer to produce food variety. Consumption of a variety of foods is required to realize the range of food nutrients for a healthy life.

ABOVE: In Malawi a good maize crop is perceived as achieving food security, however, a healthy diet requires more than that

The Role of NGO/CSOs in Agriculture

The role of CISANET in agriculture is to alleviate and eradicate poverty and hunger at the household level through increased crop and livestock production, productivity, and income. CISANET aims to achieve the objectives through advocacy to influence change in policies, practices and attitudes among government and development partners. Through the promotion of livelihoods, (diversification of crops, livestock and food types), NGOs have promoted risk mitigation from drought, floods, pests, and diseases, and they have enhanced nutrition. They have supported micro-irrigation through facilitation the construction of canal irrigation, and provision of treadle pumps and drip kits for winter crop production. (Winter crop production gives all-season availability of vegetables, income and household nutrition.) Crop productivity and production have been enhanced by community-based improved seed multiplication for smallholder farmers. NGOs promote livestock management and ownership, and manure-making and its use for crop production. NGOs have improved practices in soil management, and have made crop production and household food security affordable to poor smallholder farmers.

Through farmer organizations NGOs have empowered community leadership, facilitated contract farming, and enhanced community bargaining power through the joint supply of commodities at more competitive prices. Agriculture extension services have been provided to give smallholder farmers access to technical information related to production. Farmer to farmer extension services have reduced the ratio of farmer to extension agent, which in some areas stands at 1 to 3,500. NGOs have facilitated research and advocacy to influence government and development partners' policies in favor of poor smallholder farmers, particularly women farmers. Campaigns have been conducted to raise awareness of the right to food, and a bill has been drafted giving protection to the vulnerable through the right to food. NGOs provide loans to smallholder farmers so they can increase agricultural production; the funds go through community-managed microcredit village revolving funds.

What Are the Key Entry Points—Projects, Challenges, and Opportunities for Generating and Using Evidence to Develop Appropriate Policies for Malawi?

Summary notes and comments from the table discussions

What are the key entry points—projects, programs, policies, market activities—that can break down the silos and effectively link the sectors?

General point: Make nutrition more visible in **ASWAp.** Some of the points raised in this plenary discussion reverberated from the two previous ones, taking the arguments further. The main points are summarized here, with individual comments quoted from the various table discussions.

1. **How do we "break down the silos" and find the key entry points for nutrition?** Let us move from the national to the district level, e.g. the role of CISANET—it would be good if CISANET worked more closely with MHEN (Malawi Health and Equity Network).

   In searching for cross-sector linkages, let's not neglect the possibilities for integrating nutrition **within** various parts of MoAIWD.
   - » "*How can we create strong linkages between government policies, donor interest, researchers and households? The opportunity lies in what we already have."*
   - » *"The role of NGOs in the agriculture sector (who are under CISANET) in the SUN-1,000 Special Days movement is not clear."*
   - » *"Let us build partnerships with non-state actors in all areas."*

2. **The ASWAp emphasizes increased production in line with MGDS,** but let's not confuse national food security with household food and nutrition security. The Green-belt initiative has demonstrated that export-led growth has no positive effect on nutrition, especially if a large-scale displacement of people is involved.
   - » The nutrition component has diminished with each revision of the ASWAp, with livestock experts and economists increasingly dominating, leaving out nutritionists. Non-state actors (NSAs) have not yet grasped what the ASWAp is—ownership remains within the ministry rather than being more widespread.
   - » *"What is the evidence of the ASWAp's commitment to nutrition? A 'business as usual' approach has been shown to be ineffective. How can ASWAp make nutrition more visible, more explicit, and ensure there is 'business unusual' in order to impact on nutrition?"*

3. **Nutrition must be streamlined and integrated at the district level** through the District Nutrition Coordinators (MoH). DNHA/OPC intends to place Nutrition Coordinators in every district which could lead to sectors making a joint analysis of issues. It is not enough to create posts and fill them—the position needs a budget.
4. **Community-based approaches are key**, allowing long periods of time for implementation. Learn from experiences of mainstreaming gender. The feeling from the panel was that mainstreaming is an overused term, and it is more powerful to talk of **integrating nutrition,** especially in terms of integrating nutrition into budgets.
5. **Accountability:** Who are the sectors accountable to? The health sector is not well represented at this conference—it has large amounts of funds at district level, although it is often earmarked, e.g. CMAM. We'd like to see more sector accountability at district level.

PARALLEL SESSIONS:

Strengthening Agriculture's Responsiveness to Nutrition and Health

Policies

Discussion led by Julia Tagwireyi, Senior Nutrition Adviser, UN World Food Programme, Uganda

Agriculture is the main driver of Malawi's economy and of most economies in Sub-Saharan Africa. The high burden of nutritional problems and disease in Malawi affects productivity and contributes to significant losses in GDP. Estimates using PROFILES in some countries in Sub-Saharan Africa have revealed losses of up to 3 percent attributable to iron deficiency anemia and stunting. Studies conducted in Malawi have provided evidence of a significance decrease in productivity attributable to HIV and AIDS. The agriculture sector cannot afford to ignore this. The agriculture sector should have a vested interest in being responsive to nutrition and health. Agriculture can be more engaged in strategies that contribute to improved health and nutrition in Malawi.

The focus of the discussion will be as follows:

1. How can policies strengthen agriculture's responsiveness to nutrition and health?
2. Identify some policies that are key to unleashing agriculture's potential for improved nutrition and health
3. What strategies can enhance agriculture's potential to be responsive to health and nutrition?

1. **How can policies strengthen agriculture's responsiveness to nutrition and health?**
   Given the rather independent way in which agriculture sectors tend to operate, appropriate policies can be useful in enforcing and guiding the required responsiveness to nutrition and health. A policy will work better when the people it is intended for have a buy-in to it, appreciate why the policy is there and, more importantly perhaps, how they can benefit from it.

   Policies that promote and support multisectoral planning, implementation, and monitoring and that allocate resources to each sector to implement its nutrition-relevant actions are conspicuously absent in most countries. Policies that facilitate mutual accountability for health and nutrition issues by agriculture are also not in place.

2. **Identify some policies that are key to unleashing agriculture's potential for improved nutrition and health**
   - » Food and nutrition policy that defines the roles and responsibilities of key sectors in agriculture, health, and nutrition outcomes is key to success of agriculture interventions.
   - » There is need for nutrition- and health-friendly agricultural policies that acknowledge the prevailing disease burden and how it affects agriculture, and that define strategies to address these within the context of the agricultural sector. Identifying agricultural practices that increase the disease and nutrition burden is also vital.

» There is need for agricultural policies that include food security as an objective, and not national food security only. Systems and strategies should be devised that take into account the nutrition burden and promote production processes that are responsive to the prevailing nutritional disorders and promote more diversified food production systems.

» Land use policy should ensure that land is appropriately allocated to meet national needs for specific food crops in response to national nutritional requirements as well as household food security.

» Health policies should protect and enhance the health of the population, and take into account the disease burden of the agricultural workforce, which is composed mostly of women.

» Professional education and other capacity development policies should develop a culture of interdependency among agriculture, health, and nutrition, and produce experts who can work multisectorally after graduation.

» Gender policies should acknowledge women as the nexus of these three sectors and address their specific needs appropriately. Gender policies should address the workload imbalances inherent in agricultural production, where women carry the burden, at times at the expense of their health and nutrition.

3. **What strategies can enhance agriculture's potential to be responsive to health and nutrition?**

» An appropriate policy framework with institutional arrangements that acknowledge the need for multisectoral action can enhance this potential. Malawi's current policy and institutional arrangements for nutrition and health can help unleash this potential since they are under high level coordination in the Office of the President and Cabinet.

» Plans for agriculture, health, and nutrition need to be based on a national food and nutrition policy, and integrated, but with sectoral roles clearly defined, and resources allocated to each sector to ensure implementation. Each sector is then held accountable for the outcome of specific nutrition related objectives. For example, dietary diversity is an important predictor of potential nutrition and health problems. A national campaign to promote improved dietary practices that does not fully engage the agricultural sector to play its part is likely to fail.

» Need to develop a culture of collaboration in the agriculture sector. Tertiary institutions in this sector need to produce graduates who already appreciate the value of working together with other sectors.

» Increase food consumers' health and nutrition literacy/awareness so that they make informed demands on the market for foods that are more responsive to improved dietary practices.

» Need for continued advocacy to sustain agriculture's potential for improved nutrition and health. This can be continuously fuelled by an ongoing research into the impact of current agricultural practices on health and nutrition, and provides evidence to enhance agriculture's potential.

Malawi's Human Capital

- The quality of the human capital in Malawi is compromised by the high disease burden (HIV/AIDS, malaria, TB etc.) as well nutritional disorders. Any plans to scale up agricultural productivity, reduce poverty, and improve the largely agro-based economy of Malawi has to take health and nutrition issues into account.
- The majority of agricultural production is performed by women, and they are most vulnerable to the burden of disease and malnutrition in Malawi.
- The multiple roles women have, and the resultant heavy workload, compromises their efficiency in agriculture. This requires the agriculture sector to be concerned about making women more productive, in spite of their many roles and the challenges they face

Questions to Steer Discussion:

- Have the health and nutrition sectors provided enough stimulus for agriculture to respond appropriately?
- Does the agriculture sector clearly see its role in health and nutrition? If not, can policy play a role in stimulating responsiveness?
- Are there any gaps in current policies where the chance to strengthen the agriculture sector's responsiveness to nutrition and health in Malawi has been missed?
- What is the agriculture sector accountable for, with respect to nutrition outcomes?

Summary of Discussion:

- Malawi now has separate nutrition and food security policies, but at one time these were combined. Their separation seems to have resulted in some confusion on who takes the leads in the two policies. The rationale for the separation of the policy was not well understood by the agriculture sector and may be limiting the sector's responsiveness to nutrition.
- When the nutrition unit was established under the Office of the President and Cabinet (OPC), the nutrition component of the Food and Nutrition Security policy was brought under this new unit in OPC. It was not clear to the agriculture sector what its role in nutrition would be. While these roles and responsibilities appear to be clearly defined, the issue of who takes the lead and who is accountable did not seem to be clear. The discussion pointed to limited understanding on how the roles were to be operationalized, especially by the agriculture sector. This lack of clarity has led to the lack of coherence in food and nutrition policy implementation among key sectors, especially health, agriculture, finance, and the Department of Development Planning & Cooperation.
- The group identified the following priorities for action:
  - » **Priority action 1:** Clarify institutional arrangements and policy implementation modalities to facilitate policy coherence. This strategic action could strengthen the agriculture sector's responsiveness to nutrition and health. The group encouraged the DNHA in the OPC to have an advocacy and communication strategy that clarifies roles and responsibilities of the different sectors for nutrition outcomes.
  - » **Priority action 2:** Clearly define implementation modalities for the existing nutrition policy. The group recommended the establishment of a joint planning, implementation, and budgeting framework that clearly defines each sector's nutrition objectives and action plans that are budgeted for. The current joint planning process that the DNHA coordinates is unfortunately out of step with the national budgetary process. The DNHA would then have the crucial role of advocating for appropriate budgetary allocation to the various sectors and also for resource mobilization to meet any shortfall.

Note: *Unfortunately the health policy aspects could not be addressed as the health sector was not represented.*

Capacity Development and Program Delivery

Discussion led by Stella Kankwambwa,
Director of Agricultural Extension Services, MoAIWD

Background

The Department of Agricultural Extension Services (DAES) has five branches: Food and Nutrition Branch, Extension Methodologies, Agricultural Communication, Agribusiness, and Agri-Gender Roles and Extension.

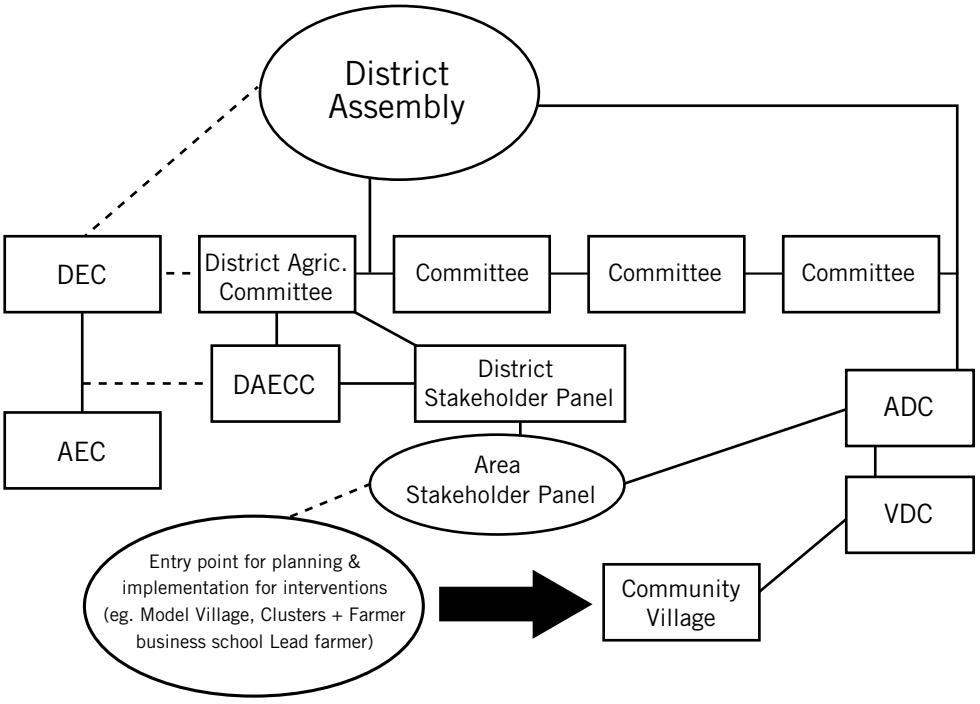
The Food and Nutrition Branch aims to increase agricultural diversification, productivity, and consumption of high nutritive value crops, fish, and livestock, through promotion of diversification of food production and dietary diversification for improved household-level nutrition. The Food and Nutrition Branch has played a major role in increasing the adoption of improved technologies for production and consumption for all gender categories and vulnerable groups. This has greatly contributed to improved food, nutrition, and income security at household and national levels. The performance of the branch heavily relies on strong stakeholder collaboration and coordination at all levels.

Strategies and Approaches in the Delivery of Food and Nutrition Programs

The Food and Nutrition Branch, like all branches in the Department of Agricultural Extension Services, uses the Model Village Approach for program delivery.

The DAES comprises structures such as District Agricultural Extension Coordinating Committee (DAECC), District Stakeholder Panel (DSP), and Area Stakeholder Panel (ASP), and may shortly include Agricultural Committees at the Village Development Committee (VDC). Recently a National Stakeholder Panel (NSP) has been created to coordinate national level activities. (See the diagram below.)

Structures of the DAES



The Model Village is the most stable organized unit for program delivery under the decentralization program. The Model Village Approach uses participatory extension methods to develop integrated interventions from various sectors that link food production, processing, and utilization, thereby building partnerships. This is done through three phases:

- Livelihood Phase, where basic needs are met in terms of diversified, adequate, and safe food and clean drinking water;
- Empowerment Phase, where communities are helped to maximize returns from their enterprises beyond subsistence needs; and
- Specialization Phase, where communities are able to form cooperatives and earn large incomes from their sellable products.

The branch is employing the following actions in order to achieve the goal of expanding food diversification, productivity, and consumption of high nutritive value crops, fish and livestock:

Crop Production

- Promote quality legumes production (soya beans, zinc and iron rich beans)
- Advocate for staple diversification including improved sweet potato varieties, e.g. orange fleshed sweet potatoes
- Promote horticultural crops: fruits, indigenous vegetables
- Tree planting day-diversification to fruit tree production.

Livestock and Fish

- Promotion of small stock production
- Goat breeds for meat and milk, rabbits, pigs, guinea fowls
- Pass-on programs for small stocks
- Village fish farming

Dietary Diversification

Promote consumption with emphasis on alternative staple foods and variety from all food groups.

- Promote the Malawi six food groups
- Develop and disseminate local recipes with emphasis on the multi-mix principle
- Conduct demonstrations on food processing and utilization for diversified diets

Dietary Quality for Vulnerable Groups

- Promote consumption of enriched foods in complementary feeding, for maternal nutrition, and for people living with HIV using legumes such as soy beans, pigeon peas, and groundnuts as key ingredients
- Conduct demonstrations on food preparation in communities with emphasis on use of locally available foods
- Promote community feeding programs for infants

Nutrition Education

- Develop and distribute information, education, and communication materials on consumption, processing, preparation and utilization of enriched foods
- Train extension workers on prevention of micronutrient deficiencies
- Conduct multimedia campaigns
- Train extension staff and households in food processing, preservation, storage and utilization
- Conduct joint staff and farmer trainings with other relevant stakeholders to promote coordinated approaches in the delivery of food and nutrition programs
- Establish cottage industries to improve and diversify food products and increase incomes

Food and Nutrition Officers

In order to achieve these activities there is need for nutrition officers of higher academic and professional levels. At the moment there is at least one food and nutrition officer at each district agricultural office.

Needs for Capacity Building

- There is a great need to undertake the following:
- Conduct short courses for food and nutrition staff and farming families
- Conduct orientation courses for newly recruited staff
- Procure necessary equipment and facilities for both district and frontline staff;
- Establish and strengthen public–private partnerships (PPP) for nutrition programs
- Develop effective lobbying and advocacy strategies
- Strengthen nutrition surveillance system in the agricultural sector

Main Challenges

- Lack of frontline staff specifically for nutrition at the Extension Planning Area (EPA) level limits the achievement of nutrition activities in the rural communities. There is no established food and nutrition position at the EPA level.
- Limited mobility at district level
- Lack of improved technologies for improved program delivery, e.g. solar dryers and processing facilities for soya milk and fruit juices
- The branch has not yet developed a focused strategic plan.

Summary of Discussion on Capacity Development and Program Delivery

General point on collaboration with other sectors: It is most important that agriculture collaborate with health because of the particular role in preventative health can play on nutrition. It is unfortunate that the health sector is only thinly represented at this conference.

EPA-level Extension

There is a gap at the EPA level in terms of nutrition specialists. There is an assumption that EPA-level staff need to be generalists and not experts. However, they need capacity strengthening to ensure they can accurately convey information on nutrition (pre-service and in-service training, with refresher courses).

It was suggested that we re-introduce the cadre of Farm Home Assistants as part of the agricultural extension service. (Note: we should ask why they were withdrawn). The FHAs were trained in nutrition and home economics. The Natural Resources College (NRC) is now providing coursework on nutrition, so they could take on this capacity building.

There is a strong gender element to extension on nutrition. Women trainees are the most likely to pick up on the nutrition training while men tend to concentrate on production issues. But some think that we should not perpetuate these gender roles, in whichh case it doesn't matter whether men or women conduct extension.

There is a general concern that we are loading too much on to the frontline extension staff who are already overwhelmed. Their priorities are the Farm Input Subsidy Program (FISP) and production estimates. Supervisors control their workflow, so nutrition needs to be placed in program design so they are aware of the importance of nutrition extension.

Nutrition as an element of extension at district and EPA levels needs dedicated funding within district plans. Integrate nutrition into all of the messages that extension staff provide farmers;, fit nutrition messages into extension on production.

Nutrition Specialists

There is concern that the specialist nutrition education given at NRC is not being well used in the agricultural extension system. NRC produces 20 graduates each year, but their expertise is not taken advantage of and they take up posts as generalists.

Should specialists in nutrition be placed in the agricultural extension system—located at the EPA level, as nutrition desk officer (new post)?

Food and nutrition officer for districts—posts unfilled and this is a frustrated group because they lack resources to do anything in nutrition.

Priority Action:

There is need to develop strong district plans for agriculture that clearly define nutrition objectives, with sufficient ring-fenced financial and human resources, and accountability for achievements at EPA, district, ADD, and national levels. They should be well supervised for accountability, and receive action-based in-service training.

SUN proposes a food and nutrition officer post at the district level whose function would be to achieve the objectives in a cross-sectoral manner, coordinating nutrition actors at district level—health, agricultural, community development, and other agencies.

Curricula on Nutrition

There needs to be more nutrition content in agriculture and health curricula at primary, secondary, NRC and university levels. All agriculturalists need training in the "whole food" cycle (production to consumption).

Advocacy and Communication

Discussion led by Prince Kapondamgaga, Executive Director, Farmers Union of Malawi

Introduction

Agriculture is the most important sector of Malawi's economy, contributing to more than 90 percent of foreign exchange and employing over 80 percent of the population. The sector is largely driven by rural smallholder farmers whose nutritional status is appalling. The role of agriculture in addressing malnutrition cannot be overemphasized—agriculture is the source of all the six food groups. **Achieving food security is necessary but it does not automatically translate into nutrition security**. With appropriate advocacy messages and proper communication strategies, agriculture–nutrition–health linkages can be understood by people in all circles of life.

Nutritional Status of Malawi's Population

According to the 2010 Malawi Demographic and Health Survey (MDHS), 47 percent of under-five children have chronic malnutrition with higher prevalence (48 percent) in the rural areas, 4 percent of under-five children are wasted and 17.4 percent are underweight. Micronutrient deficiency of vitamin A, iron, iodine and zinc is also a big challenge. According to National Micronutrient Survey 2001, it is estimated that more than 38 percent of the population, with more than half of whom are under-five children and expectant women, have vitamin A deficiency (MOH, 2003). It is also estimated that 80 percent, 47 percent, and 44 percent of under-five children, pregnant, and non-pregnant women, respectively, are anemic (MICS, 2006).

Agriculture's Potential for Improving Nutrition and Health Status

Integrated and harmonized efforts in promoting self-sufficiency among farmers to raise crops, livestock, and fish will greatly unveil the potential agriculture has. While Malawi has done very well in encouraging the community to be food self-sufficient, efforts have concentrated on staples only; there is need to scale up the country's efforts to include other commodities. Production and consumption of animal food, including dairy and fish, is lower than for crops. In 2005, the UN Food and Agriculture Organization (FAO) listed Malawi's annual per capita meat consumption around 5 kg versus the world average of 46 kg. Per capita consumption of dairy products stands at 4.7 liters per year. Many people raise livestock in their households, but most do not utilize them to improve their nutrition status. Rather, they keep them for prestige or other purposes.

Advocacy for Nutrition Should Fill the Communication Gaps

Appropriate messages should be delivered to the right target audience, using appropriate media. Most of the times it is only women who have access to nutrition messages, through antenatal care and growth monitoring centers. Since men and the youth are left out, there is only limited impact in communities. Often it is assumed that policymakers and politicians have information at their fingertips and therefore, politicians are often also not targeted. They then make misguided decisions based on insufficient knowledge. For instance, the National Nutrition Policy & Strategic Plan (NNP&SP) has sound agriculture interventions which can transform the nation's nutrition status, i.e. promotion of dietary diversification, nutrition education, and promotion of backyard gardens. However, decisionmakers lack knowledge of the economic losses malnutrition brings to the nation, and are not committed to put sufficient funds and efforts to implement the interventions.

The choice of communication channels is crucial. The selected channel must be accessible to and respected by everyone, including the rural communities. The message must always be clear without a lot of technical terms or jargon, simple and easy to understand. It is vital to harmonize the message and standardize its delivery. Those responsible for delivering messages should be trained to deliver the message with confidence.

Incorporating nutrition education in the primary education curriculum will help to educate all people, immediately and over time.

Government has to take a multisectoral approach to nutrition. There are various ministries and departments that may have a totally different goal from the Department of Nutrition and HIV/AIDS. However, their presence in nutrition programs would be invaluable. For instance, the Fisheries Department, and the Ministries of Natural Resources, Energy & Environment, and Tourism, Wildlife & Culture all have a stake in nutrition. Therefore, it is high time the country enacts the multisectoral approach that has long been advocated.

The Value of Taking a Multisectoral Approach—Bee-keeping

Many farmers are being trained in apiary (bee-keeping). They keep the bees for honey which they normally struggle to sell. Most farmers however are oblivious to the nutritional value of this product, though elderly people probably know its sentimental and cultural value.

The target audience for advocacy on nutrition cuts across all society. Farmers, community leaders, opinion leaders, politicians, technical specialists, and policymakers at various levels all can benefit. With appropriate communication and advocacy strategies, agriculture's potential toward improving the nutrition status of all people in the country can be unleashed.

Communication at the National Policy Level

The Nutrition Education and Communication Strategy (NECS) is being disseminated, and it reflects the SUN-1000 Special days movement. This needs to be reviewed to ensure it makes sufficient linkages among agriculture, nutrition, and health.

Communication of Nutrition Information and New Integrated A-N-H Policies to All Levels, Particularly the Farmer Level.

1. **Involvement of communities** is necessary in designing advocacy messages, considering that most needy households are targeted. Currently there are far more messages about food security than about nutrition. A bottom to top approach should be used, and indigenous knowledge, if proven and documented, should not be overlooked in advocacy messaging.
2. **Champions for nutrition**. There is need to identify champions to spearhead the advocacy campaigns at national and local levels. These can be in any sector, agency, and community as long as they have the passion for the subject matter.
3. **Advocacy activities need to be monitored** to assess their influence. Also, follow-on activities should be planned for effective advocacy; re-branding may be needed.
4. **Invite other partners or form advocacy coalitions** for support to create a strong advocacy campaign. For example, the Farmers' Union of Malawi is the umbrella for various smallholder farmers and has potential for pushing the advocacy agenda at both high but low levels. The association is well-positioned to develop similar advocacy message in both arenas.
5. **Use many communication channels for effective targeting of messages**

Research/Extension and Technology

Discussion led by Dr. Rachel Bezner Kerr, Assistant Professor, Department of Geography, University of Western Ontario, Canada, and the Soils, Food and Healthy Communities (SFHC) Project, Ekwendeni Hospital

The discussion needed no introduction since the participants had heard and seen Ms Bezner-Kerr's presentation, "Farmer-led approaches to improving food security and nutrition through sustainable agriculture and social change," in the third plenary session. Dr. Bezner-Kerr's multi-funded project is the Soils, Food and Healthy Communities (SFHC) project, Ekwendeni Hospital, in northern Malawi.

The discussion generated the following recommendations:

1. **Leverage other ministries to support implementation of ASWAp.** MoAIWD has to work hand-in-hand with other ministries (notably health and education) to disseminate the best information and technologies for improved nutrition to the farm level, e.g. school gardens and nutrition IEC.
2. **Follow proven, best practices**. Do research and extension with an integrated, interdisciplinary, and multistakeholder (government, researchers, NSAs, community members) approach using participatory and experimental methods. Several examples exist in Malawi, e.g. Farmer field schools, ARDEP, innovation platforms, farmer-to-farmer, and family nutrition groups (using dialogue-based teaching that responds to the needs of households and communities).
3. **Support and train community nutrition workers for extension.** They should primarily be trained in nutrition also have knowledge from other areas, e.g. nutrition education specialist. Ensure ongoing support and monitoring.
4. **Conduct M&E** to ensure that strategies that are adopted use methodologies that are scientifically sound and efficiently improve nutritional outcomes.

Communities Have to Be Part of the Solution and Actively Involved in Experimenting with Practices and Technologies.

PLENARY SESSION 4:

The Way Forward and Closing Remarks

The review of important comments from each of the three plenary sessions and the four parallel sessions gave participants an overview of the conference thinking. These points were later refined and organized into a Policy Action Note that has been disseminated as an outcome of the conference. It is to be found as Appendix 1 of this report.

The discussion was led by Rajul Pandya-Lorch (IFPRI Washington), Felix Phiri (Nutrition Unit of MoH), and Jeff Luhanga (PS 2 MoAIWD).

- There was a strong feeling that the focus of the A-N-H approach should be directed toward the districts and communities. Nutrition needs to be more firmly integrated into district-level policies for agriculture. Capacities and coordination need to be strengthened at these levels. There is a desperate shortage of HR capacity.
- Tough questions need to be asked—Why did we fail? We can learn from mistakes, and make our monitoring and evaluation activities effective.
- The ASWAp can be utilized as a national forum for pushing the A-N-H approach. There is call for **drivers**—a critical mass of individuals—at a high level within MoAIWD.
- Internal structural changes may be called for within MoAIWD. Analysis of policies related to nutrition and health should inform institutional change within the agriculture sector. For example, the newly developed Nutrition Education and Communication Strategy (NECS) should be analyzed.
- Let's not be suspicious of the private sector. Linkages with them can be mutually beneficial, if closely managed.
- Let's not hurry! Let's continue to conduct careful consultations with communities. Build our house brick by brick. But on the other hand, let's not delay in making a start. There's a strong advantage in just getting on with it!

Closing Remarks

Dr Jeff Luhanga, PS II, Ministry of Agriculture, Irrigation and Water Development

As we are all aware, Ladies and Gentlemen, the main objective of the conference was to inform, influence, and catalyze action by key stakeholders to better use investments in agriculture in order to sustainably reduce malnutrition and ill health for vulnerable people in the country. I am sure a lot of ideas have come up from the audience on how the sectors of agriculture, nutrition, and health should work together to make sure that agriculture is responsive to issues of nutrition and health in Malawi, and let me take this opportunity to commend all of you for the good work done.

On our program, we had a knowledge fair which showcased a number of initiatives that various players in the sector are championing, and this was done based on the value chain analysis. It was really impressive to see different outcomes of the agriculture, nutrition and health linkages throughout the themes.

Secondly, there were a number of panel discussions that guided our deliberations during the two days. These included global, regional, and national perspectives; evidence on agriculture's contribution to nutrition and health outcomes; policy frameworks and programs; and strengthening agriculture's

responsiveness to nutrition and health. There were also parallel sessions where issues of policies, capacity development and program delivery, advocacy and communication, and research/extension and technology were discussed. A lot of brainstorming was done in these parallel discussions and a lot of issues on strengthening agriculture in responding to nutrition and health have been suggested and recommended. In addition, there was a panel discussion at the end of the program by the three sectors whereby issues that have been recommended from the conference were discussed in detail.

Let me share with you some of the major issues that have been suggested and recommended from this gathering:

- There is need for a common framework to integrate nutrition across the agriculture, nutrition, and health sectors with national, district, and community-level advocacy, including private sector involvement.
- We need to develop clear sectoral nutrition objectives and budgetary commitments to catalyze action.
- There is need for decisionmakers' active participation in planning, implementation, and review of nutrition policies and rograms to enhance their buy-in.
- There is evidence of research and outreach models of agriculture interventions that respond to nutrition and health needs. However, the research agenda needs to more responsive to farmer and consumer needs.
- While the ASWAp is a key instrument for achieving food security, there is need to clearly spell out nutrition implementation arrangements in coordination with other sectors to achieve the broader goal of **NUTRITION SECURITY.**
- Deliberate sectoral coordination is of prime importance for unleashing agriculture's potential for improved nutrition and health in Malawi.

These are the issues that have been suggested within the two days of our deliberations. The issues were so many and I believe more can still be suggested if more of such meetings are organized. There is need for more collaboration among stakeholders in the agriculture, nutrition, and health sectors to ensure that agriculture indeed responds sustainably to issues of nutrition and health, hence food and nutrition security in this country. It is my hope that the **Action Note** to be drawn from this conference will be shared and harnessed by all stakeholders for further development into an Action Plan.

Let me take this opportunity to thank again the organizers of this conference (Ministry of Agriculture, Irrigation and Water Development, and IFPRI) for the good work done, and USAID and Irish Aid for their financial support for the conference. Secondly, allow me to thank the speakers and all participants including the exhibitors for their contributions to this conference. We don't take this for granted and I encourage you to keep up the good spirit.

Appendices

APPENDIX 1:

Unleashing Agriculture's Potential for Improved Nutrition and Health in Malawi: Policy Action Note

This Policy Action Note is the outcome of presentations and panel and table discussions on making linkages across sectors, building capacity, and investing in evidence-based and responsive research. The note aims to inform and motivate policymakers and planners in the agriculture, nutrition, and health sectors to coordinate and integrate their activities to help Malawi's agriculture become more responsive and contribute to the nutritional and health status of the population.

POLICY ACTIONS

A. Strengthen Cross-Sectoral Linkages at All Levels

1. Enhance the Agriculture-Nutrition-Health (A-N-H) link at the policy level

(a) *Intensify policy dialogue among the agriculture, nutrition, and health sectors*. The National Nutrition Policy and Strategic Plan (NNP&SP) and the National Nutrition Education and Communication Strategy (NECS) give room for this dialogue, and if their provisions are followed and greater mutual trust shown, the A-N-H linkages will be energized, with sectoral roles and responsibilities for nutrition and health outcomes clearly defined. Dialogue is necessary to maintain coherence at the policy level across the sectors.

(b) *Recast food and nutrition security as an urgent—not an optional—issue on the agenda in the Agriculture Sector Wide Approach (ASWAp).* Maintain nutrition as a key feature in the dynamic ASWAp document throughout revisions, and ensure that nutrition is prioritized at the implementation. For example, biofortified legumes can be part of the Farm Input Subsidy Program (FISP). Higher visibility for nutrition can be part of the post-Comprehensive Africa Agriculture Development Programme (CAADP) roadmap.

2. Revitalize joint planning mechanisms—there is need for a driver!

(a) *Conduct joint planning on nutrition before national budgets are drawn.* This will ensure that consideration of budgetary implications/needs of all sectors is fed into the national budget process. In this way, the NNP&SP and the Health Sector Support Program will inform/influence the ASWAp and its priorities.

(b) *Enable the Department of Nutrition, HIV and AIDS (DNHA) to take the lead in the joint planning process*, and hold it accountable to the nutrition directorates of Ministry of Agriculture, Irrigation and Water Development and the Ministry of Health for adequate consultations and needs assessments, which must involve the private sector and civil society in sufficient numbers.

(c) *Harmonize and coordinate monitoring and evaluation systems within the health and agriculture sector-wide approaches with regard to nutrition outcomes*. Clarify who has the mandate to ensure that the agriculture component of the NNP&SP is achieved. The nutrition directorate in the Ministry of Agriculture, Irrigation and Water Development should be held accountable to the DNHA and the Ministry of Health (Nutrition Directorate) for the implementation of programs that link A-N-H.

(d) *Enable the DNHA to scale up its capacity*, such as by increasing its staff base and engaging a technical driving body to boost its capacity to effectively carry out this crucial coordination role.

3. Engage key stakeholders—politicians, institutional leaders, women, youth

(a) *Promote awareness among stakeholders on household food and nutrition security, quality of care, and a healthy environment using an interdisciplinary approach, such as through analysis of household decisionmaking (including gender issues) to complement scientific research.*

(b) *Make multisectoral policy and strategy consultations more comprehensive and inclusive* prior to joint sectoral working group planning by using National and District Stakeholder Panels.

4. Integrate nutrition into planning and budgets at all decentralized levels

(a) *Apply incentives for increased production of nutritionally important crops and livestock*. Legumes, fruits and vegetables, small livestock (poultry, goat, rabbit), and biofortified crops such as vitamin-A rich cassava, orange fleshed sweet potato, iron- and zinc-rich beans, and vitamin A-rich tomatoes all offer dietary advantages. However, the focus on staple crops through the Farm Input Subsidy Program (FISP) should continue because farmers will only diversify when the staple is secured.

(b) *Earmark funds for nutrition extension work at the district and Extension Planning Area (EPA) levels* to ensure that nutrition issues are prioritized.

(c) *Strengthen district level cross-sectoral collaboration in A–N–H,* which is weaker than at the national level. Learn from non-state actors (e.g., World Vision) who have effectively integrated nutrition into the Area Development Program (ADP).

(d) *Build the capacity and influence of District Food and Nutrition Officers* for the sake of promoting food and nutrition security in all agriculture development divisions (ADDs).

B. Scale up investments in Integrated Agriculture–Nutrition–Health Programs

1. Build on successful agriculture programs that focus on nutrition and health

(a) *Entrench improved nutrition as one of the outputs in all programs in the agricultural sector*. Good program design with nutrition integrated would encourage management accountability for nutritional outcomes. Objectives would be achieved cross-sectorally, and so indicators should reflect nutritional benefits.

(b) *Build on successes* based on lessons from, for example, the Micronutrient and Health (MICAH) project, and design even better projects for particular districts. Be realistic about outcomes, especially taking into account human resource constraints.

(c) *Clearly define the objectives and financial and human resources necessary* for nutrition- and health-focused agriculture to attract support from politicians and other decisionmakers. The Scaling Up Nutrition (SUN) initiative offers scope for this. Achievements should be measured at EPA, district, ADD, and national levels.

2. Build agricultural extension capacity at the grassroots level

(a) *Increase the capacity of agricultural extension by employing more pre-service and in-service training* on how to fit nutrition messages into agriculture extension. Alternatively, consider reinstating the Farm Home Assistants, who would be specially trained in home economics and

nutrition, and encourage women to participate. Be sensitive to the fact that front-line staff may already be overwhelmed; be realistic when making demands of them.

(b) *Orient the whole extension network on the importance of nutrition- and health-focused agriculture* so that everyone, including the supervisors, has the requisite knowledge (e.g., on links with health) and will stress the nutritional aspects of agriculture.

3. Advocate for long-term investment in nutrition and health focused agriculture programs

(a) *Ensure adequate time in nutrition- and health-focused agriculture programs to allow for measurable impact.* The impact of new food varieties, food fortification, and other interventions on community health is hard to assess in the short term. The majority of successful integrated programs (such as the Micronutrient and Health (MICAH) project *and the Ekwendeni Hospital) are long-term (at least 10 to 15 years). Five-year programs for irrigation are too short for a country with only one rainy season.*

(b) *Designate funding for research*, taking into account the long-term nature of agricultural research.

(c) *Incorporate the role of agriculture for improved nutrition and health in primary and secondary education curricula to bring awareness to children, their parents, and future generations.* B*ring together the young and the old in discussion groups on nutrition to benefit from the social-learning mix in* community-based interventions. *The Junior Farmer Field and Life Schools can be important avenues to promote nutrition through school gardens.*

(d) *Maintain awareness of the key determinants of nutritional status*. Promote awareness of household nutritional food security, quality of care, and a healthy environment, using an interdisciplinary approach, such as through analysis of gender issues in household decisionmaking, to complement scientific research.

Materials related to the **"Unleashing Agriculture's Potential for Improved Nutrition and Health in Malawi" conference can be found at www.malawi2011.ifpri.info**

APPENDIX 2:

Conference Program

MONDAY, SEPTEMBER 26

11:00 – 12:00	**Opening of Knowledge Fair**	**Margret Lwanda**, Deputy Director for Nutrition, HIV & AIDS, Ministry of Agriculture, Irrigation and Water Development
		Rajul Pandya-Lorch, Head of 2020 Vision Initiative, International Food Policy Research Institute
12.00 – 1:00	*Lunch*	

Inaugural Plenary Session: Setting the Stage

1:00 – 1:15	**Keynote address** Global, Regional, and National Trends in Agriculture, Nutrition and Health	**Rajul Pandya-Lorch**, Head of 2020 Vision Initiative, International Food Policy Research Institute
1:15 – 1:30	**Keynote address** Framework for unleashing agriculture to be nutrition and health sensitive	**Purna Wasti**, Food and Agriculture Organization of the United Nations
1:30 – 1:40	**Statement by Irish Aid**	**Adrian Fitzgerald**, Embassy of Ireland
1:40 – 1:50	**Statement by USAID**	**Doug Arbuckle**, Embassy of the United States of America
1:50 – 1:55	**Remarks on agriculture, nutrition, and health in Malawi**	**Erica Maganga**, Principal Secretary, Ministry of Agriculture, Irrigation and Water Development
1:55 – 2:10	**Inaugural speech** *Making agriculture in Malawi more nutrition and health sensitive*	**Hon. Prof. Peter Mwanza**, Minister of Agriculture, Irrigation and Water Development
2:10 – 2:15	**Group photograph**	
2:15 – 2:30	*Tea break*	
2:30 – 2:40	**Introduction of workshop design and approach**	**Rajul Pandya-Lorch**, Head of 2020 Vision Initiative, International Food Policy Research Institute

Plenary Session 1: Learning from Global, Regional and National Perspectives

2:40-3:30	**Chair** 5 min	**Jeff Luhanga**, Principal Secretary II, Ministry of Agriculture, Irrigation and Water Development
	Panelists Global, regional and local experiences in linking agriculture, nutrition, and health	**Todd Benson**, Senior Research Fellow, Development Strategy and Governance Division, IFPRI, and Program Leader, Uganda Strategy Support Program
		Brenda Shenute Namugumya, Public Nutrition Specialist, Makerere University, Uganda
		Alexander Kalimbira, Senior Lecturer in Human Nutrition, Dept. of Home Economics/Human Nutrition, Bunda College of Agriculture
3:30–5:00	**Panel Discussion and Q&A**	
5:30	*Cocktails*	

TUESDAY, SEPTEMBER 27

8:15 – 8:30	**Day 1 Recap and Plans for Day 2**	**Rajul Pandya-Lorch**, IFPRI

Plenary Session 2: How agriculture can contribute to nutrition and health outcomes—Lessons from practice (evidence)

8:30 –9:35	**Chair**	**Alex Kalimibira**
	Panel presentation 1 National research efforts	**Francis Maideni**, Station Manager, Dept. of Agricultural Research Services, Ministry of Agriculture, Irrigation and Water Development
	Panel presentation 2 Zinc- and iron-enriched beans	**Gift Ndengu**, Nutritional Facilitator, International Center for Tropical Agriculture
	Panel presentation 3 Orange-fleshed sweet potatoes	**Erna Abidin**, Seed systems specialist, International Potato Center
	Panel presentation 4 Evaluation of integrated ANH program	**Willie Kalumula**, Operations Director, World Vision Malawi
9:35¬–10:20	**Discussion and Q&A**	
10.20–10.35	*Tea break*	

Plenary Session 3: Strengthening the Linkages: Policy Frameworks and Programme

10:35–11:55	**Chair**	**Felix Phiri**, Deputy Director of Nutrition, Office of President and Cabinet
	Panel presentation 1 Agriculture Sector Wide Approach policy framework	**Wilfred Lipita**, Ministry of Agriculture, Irrigation and Water Development
	Panel presentation 2 The role of agriculture in the SUN initiative	**Margret Lwanda**, Deputy Director for Nutrition, HIV & Aids, Ministry of Agriculture, Irrigation and Water Development
	Panel presentation 3 Farmer-led approaches to improving food security and nutrition through sustainable agriculture and social change	**Rachel Bezner-Kerr**, Assistant Professor, University of Western Ontario
	Panel presentation 4 Private sector	**Theresa Banda**, Malawi and Africa Program Manager, Valid International
	Panel presentation 5 NGOs and CSOs	**Edson Musopole**, Board Chairman, Civil Society Agriculture Network
11:55–12:30	**Discussion and Q&A**	
12:30–1:30	*Lunch*	

Parallel Sessions: Strengthening agriculture responsiveness to nutrition and health

1:30–3:15	**Parallel session 1** Policies	**Julia Tagwireyi**, Senior Nutrition Adviser, UN World Food Programme, Uganda
	Parallel session 2 Capacity development and program delivery	**Stella Kankwambwa**, Director, Agriculture Extension Services, Ministry of Agriculture, Irrigation and Water Development
	Parallel session 3 Advocacy and communication	**Prince Kapondamgaga**, Executive Director, Farmers Union of Malawi
	Parallel session 4 Research/extension and technology	**Rachel Bezner-Kerr**, Assistant Professor, University of Western Ontario
3:15–3:30	*Tea break*	

Plenary Session 4 Action Plan and Way Forward

3:30 – 4:00	**Chair**	**Rajul Pandya-Lorch**, IFPRI
	Report back from the parallel sessions and Summary of Plenary and Parallel Session as input for Action Plan	**Leaders of parallel sessions**
4:00–4:45	Panel discussion on way forward	**Jeff Luhanga, MoAIWD** **Felix Phiri, Office of President and Cabinet**
4:45–5:00	Keynote: Closing remarks	**Jeff Luhanga, MoAIWD**

APPENDIX 3:

List of participants

NAME	INSTITUTION
Erna Abidin	CIP
Doug Arbuckle	USAID
Enock Balakasi	Joy FM
Jollam Banda	
Godfrey Banda	Zomba Education District
Pilirani Banda	Agri FNO
Theresa Banda	Valid International
Angella Banda	Radio Islam
Victor Barbierro	Peace Corps
Todd Benson	IFPRI, Uganda
Rachel Bezner-Kerr	Univ of Western Ontario
M Bodzalekani	MoAIWD-KADD
Nikolas Bosscher	FICA
Samuel Bota	IFPRI/RENEWAL
Blessings Botha	Irish Aid
Cecily Bryant	Care Malawi
Ruth Butao	Irish Aid
James Bwirani	Fewsnet
Anne Carr	Individual
Stephen Carr	Individual
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William Chalira	CRWRC
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Felix Chando	Ministry of Finance
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Zelpher Chapweteka	MoAIWD
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Margret Chikaziena	MoAIWD
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Kelvin Chisale	AONET
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John Edgar	USAID
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Frank Flood	Irish Aid
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Numeri Geresomo	Bunda College
Nicole Gesnote	CIDA
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Jim Goodman	DAES
Stewart Gwaladi	MBC-TV
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ISBN 978-0-89629-794-4