

The **Pan African** Nutrition Initiative



"Hunger is a complex crisis. To solve it, we must address the interconnected challenges of agriculture, health care, adverse and unfair market conditions, weak infrastructure, and environmental degradation."

Kofi Annan



CAADP
Comprehensive Africa Agriculture
Development Programme

Foreword

Through the development and endorsement of the Comprehensive Africa Agriculture Development Programme (CAADP) in 2003 by African leaders, food insecurity, hunger and malnutrition were identified as major problems in Africa that required immediate action. Subsequently, in the CAADP regional consultations during 2004-2006, it became clear that nutrition issues were not adequately reflected in the AU-NEPAD CAADP processes.

To fill this gap, it was decided that a robust tool and guiding document was required to effectively address the multi-sectoral and crosscutting nature of nutrition, whereby all relevant sectors could see their contribution and role in reducing hunger and malnutrition. Thus the Pan African Nutrition Initiative (PANI) was born. The PANI was drafted through a multi-stakeholder consultative process in 2005 and further refined to finality in 2008. The problems, and more importantly the solutions, for food insecurity and malnutrition, as articulated in the PANI, are seen through what is dubbed the 'Nutrition Lens' - a tool for analysis, planning and program delivery.

Indeed PANI and the 'Nutrition Lens' have come at an opportune time - when there is a lot of energy, interest and commitment from a range of stakeholders concerning issues of nutrition on the continent. We view PANI as a key and main reference document alongside the Framework for African Food Security (FAFS) and believe that it is well placed to provide much-needed guidance to the various sector players and to bring to bear effective project and program design as well as tangible results and impact.

We are also confident that this important document will find full use at the Regional Economic Community (REC), country and even community level, as food security and nutrition program implementers tackle food security and nutrition priorities on the ground. Through this, we believe we shall be able to effectively implement the resolutions of the Abuja 2006 Food Security Summit and move closer to achieving the Millennium Development Goals in Africa.

By Prof. Richard Mkandawire *Head of NEPAD Agriculture Unit*

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Executive Summary

Africa's Burden of Malnutrition

Malnutrition is both a cause and consequence of Africa's devastating burden of poverty, disease and mortality. One-third of the population is chronically malnourished, and this contributes to more than half of all deaths from malaria and childhood illness. Interactions with HIV hasten the onset of disease and death. Economic losses due to malnutrition, including vitamin and mineral deficiencies that can contribute to reduced productivity¹, are as high as 6 to 10% of GDP. Lifting this burden is central to Africa's economic and social renewal. Unfortunately, if the trends of the past 15 years continue, malnutrition will become more widespread and severe. Accepting this devastating status quo is tantamount to accepting a continued humanitarian crisis and economic decline. Most disturbing of all, this malnutrition crisis can be prevented by applying low-cost technologies, delivering basic services, communicating simple changes in behavior, and investing relatively modest resources.

Policy Framework for Improved Nutrition in Africa

While African governments are officially committed to the Millennium Development Goals (MDGs), successfully lifting the burden of malnutrition will have a large influence on achieving these goals. However, the opportunity to achieve the MDGs by 2015 is receding and urgent action is required lest they become empty promises. The New Economic Partnership for African Development (NEPAD) offers a unique opportunity to reaffirm international commitments, mobilize resources, and rededicate Africa to improving nutrition, reducing the burden of disease and protecting precious human capital.

NEPAD's *Pan African Nutrition Initiative*, nested within the Comprehensive Africa Agriculture Development Program (CAADP), offers a promising approach for capitalizing on the natural synergy of increased food production and improved nutrition. However, within the labor-intensive context of African agriculture, CAADP's objectives for agricultural renewal cannot be achieved on the backs of a malnourished workforce robbed of energy and incapable of reaching its full productive potential.

Mobilizing a Multi-sectoral Response to Malnutrition

Availability of and access to a sufficient quantity of food is a necessary, but not sufficient, response to African's burden of malnutrition. While food security is a pre-requisite for development, global experience confirms that an adequate food supply alone is not enough.

¹See T. Sanghvi, J. Ross, and H. Heymann "Why is reducing vitamin and mineral deficiencies critical for development?", *Food and Nutrition Bulletin* 28 (1), 2007, Table 1.3, S172.

Dietary diversity, food quality, maternal knowledge, good care practices for young children, and access to health services, clean water and other public health measures have all proven to be indispensable. Improving nutrition requires multiple channels and the integration of the contributions made by the public and private sectors to provide a strategic mix of food, health care, sanitation, education and other "enablers" of good nutrition. However, few mechanisms exist to address the multi-factorial causes of malnutrition through multi-sectoral interventions.

At present, because many stakeholders are involved, nutrition policies and programs are often planned and implemented by separate institutions - and are the main business of none. Clarifying leadership and coordination among sectors is therefore a major challenge to securing political support, building consensus, and mobilizing resources to stem the tide of malnutrition in Africa.

A Tool for Nutrition Policy Development and Implementation: The Nutrition Lens

The *Pan African Nutrition Initiative* is dedicated to catalyzing a multi-sectoral process of investment planning, facilitating capacity building and mobilizing resources to address the burden of malnutrition. The Nutrition Lens (NL) is a tool for integrating nutritional perspectives and expertise into the mainstream investment planning process. The Nutrition Lens creates opportunities to:

- Review the potential impact of agricultural and other proposed sectoral projects on nutrition;
- Define optimal nutritional inputs from each sector;
- Identify opportunities to integrate nutritional initiatives across multiple sectors;
- Provide a multi-sectoral implementation framework to manage programs and monitor results.

The Nutrition Lens can significantly enhance the nutritional impact of development investments within current policy and resource frameworks, as defined by international agreements and national plans of action. This is because, first, it capitalizes on program synergies, identifies opportunities to deliver products and services in a cost-efficient manner, and avoids wasteful duplication. Second, because it addresses a multi-dimensional problem with a multi-dimensional solution, it creates a cycle of reinforcing benefits that can sustainably improve nutrition and achieve the planned results.

In an environment of limited institutional, financial and technical capacity, the *Pan African Nutrition Initiative* proposes a "learning by doing" approach; this means moving urgently to implement proven and feasible interventions while simultaneously working to build needed capacity for planning and implementation. Therefore, the approach is two-pronged:

Nutrition Initiative - Proposed Fast-Track Programs: Links to Impact on Malnutrition and Achievement of Millennium Development Goals

MDG	Impact of Malnutrition ²	Fast-Track Program
Goal 1: Eradicate extreme poverty and hunger.	Malnutrition erodes human capital, through irreversible and intergenerational effects on cognitive and physical development.	<ul style="list-style-type: none"> › Nutritional enhancements to the <i>Pan African Cassava Initiative</i> and <i>NERICA Initiative</i>. › Fortification by large-scale food industries as part of CAADP's <i>Multi-Country Agricultural Productivity Programme</i>. › Comprehensive package of essential nutrition interventions delivered as part of the health services and programs in the <i>NEPAD Health Strategy</i>. › Comprehensive package of nutritional education and services to rural communities along with CAADP investments to expand agricultural extension services in Pillar 3. › Building of sustainable business models for the production, distribution and marketing of high energy and high-nutrient-density foods or snacks for vulnerable groups as part of CAADP's <i>Multi-Country Agricultural Productivity Programme</i>. › Coordinated national and regional media strategies for nutrition advocacy and public education in the <i>NEPAD Communications Plan</i>.
Goal 2: Achieve universal primary education.	Malnutrition affects the chances that a child will go to school, stay in school, and perform well.	<ul style="list-style-type: none"> › Comprehensive package of educational, health and nutritional interventions delivered through the <i>Home Grown School Feeding Initiative</i>.
Goal 3: Promote gender equality and empower women.	Anti-female biases in access to food, health and care resources may result in malnutrition, which in turn may reduce women's access to assets. Addressing malnutrition empowers women more than men.	<ul style="list-style-type: none"> › Comprehensive package of educational, health and nutritional interventions delivered through the <i>Home Grown School Feeding Initiative</i>. › Comprehensive package of nutritional education and services provided to rural communities along with CAADP investments to expand agricultural extension services.
Goal 4: Reduce child mortality.	Malnutrition is directly or indirectly associated with most child deaths and it is the main contributor to the burden of disease in the developing world.	<ul style="list-style-type: none"> › Building of sustainable business models for the production, distribution and marketing of high energy and high-nutrient-density foods or snacks for vulnerable groups as part of CAADP's <i>Multi-Country Agricultural Productivity Programme</i>. › Comprehensive package of essential nutrition interventions delivered as part of the health services and programs in the <i>NEPAD Health Strategy</i>. › Sustainable channels for reaching children under 5 with vitamin A supplementation twice a year in the <i>NEPAD Health Plan</i> and national <i>Community Driven Development (CDD)</i> investments.
Goal 5: Improve maternal health.	Maternal health is compromised by malnutrition, which is associated with most of the major risk factors for maternal mortality. Maternal stunting and iron and iodine deficiencies in particular, pose serious problems for the health and development of newborns.	<ul style="list-style-type: none"> › Building of sustainable business models for the production, distribution and marketing of high energy and high-nutrient-density foods or snacks for vulnerable groups as part of CAADP's <i>Multi-Country Agricultural Productivity Programme</i>. › Comprehensive package of essential nutrition interventions delivered as part of the health services and programs in the <i>NEPAD Health Strategy</i>.
Goal 6: Combat HIV/AIDS, malaria, and other diseases.	Malnutrition may increase the risk of HIV transmission, compromise antiretroviral therapy, and hasten the onset of full-blown AIDS and premature death. Malnutrition increases the chances of TB infection resulting in TB disease, and it also reduces malarial survival rates.	<ul style="list-style-type: none"> › Comprehensive package of essential nutrition interventions delivered as part of the health services and programs in the <i>NEPAD Health Strategy</i>. › Building sustainable business models for the production, distribution and marketing of high energy and high-nutrient-density foods or snacks for vulnerable groups as part of CAADP's <i>Multi-Country Agricultural Productivity Programme</i>.

² Adapted from S. Gillespie and L. Haddad, "The Double Burden of Malnutrition: Causes, Consequences and Solutions", Sage Publications Inc., 2003

- › Apply the multi-sectoral NL approach to ongoing national planning and investment processes to identify opportunities, create multi-sectoral awareness, and build capacity.
- › Proceed to urgently scale up proven, low-cost initiatives that have been demonstrated to be feasible and effective in Africa.

Within the framework of current NEPAD and CAADP initiatives, there are a number of opportunities to cost-effectively scale up programs to national levels within 1 to 3 years. These include:

- › **CAADP Pillar 2** - Food fortification by large-scale food industries, as part of the *Multi-Country Agricultural Productivity Programme*.
- › **CAADP Pillar 2** - Nutritional enhancements to optimize nutritional benefits and mitigate nutritional risks, for example the *Pan African Cassava Initiative and NERICA Initiative*.
- › **CAADP Pillar 3** - Expansion of the production, distribution and marketing of high energy and high nutrient foods for vulnerable groups as part of the *Multi-Country Agricultural Productivity Programme*.
- › **CAADP Pillar 3** - Package of educational, health and nutritional services delivered through the *Home Grown School Feeding Initiative*.
- › **CAADP Pillar 4** - Package of nutritional education and services to rural communities linked with investments to expand agricultural extension services.
- › **NEPAD Health Strategy** - Comprehensive package of essential nutritional interventions delivered as part of the health services and related programs.

These proposed "fast-track" programs offer potential for significant progress toward the MDGs and are likely to improve the lives of more than 100 million people by 2015. The links between the MDGs and the "fast track" programs to improve nutrition are outlined in the table above (p. 4).

A NEPAD-CAADP country-level round table process has already begun. The purpose of the round tables is to chart the road map and review national commitments to allocate 10% of development budgets to agricultural development. Integrating the Nutrition Lens into this process provides an opportunity to apply nutritional expertise and experience, build a multi-sectoral nutrition strategy, clarify institutional arrangements, and define coordination mechanisms and leadership structures. The Pan African Nutrition Initiative proposes to engage a core group of countries in a multi-sectoral process of national capacity building, planning and budgeting in order to propose a 10-year investment package which integrates food security and nutrition across proposed investments in agriculture as well as other sectors.

³ Food Security Assessment, Economic Research Service/USDA, March 2002

⁴ Ibid

⁵ SCN, Nutrition and the Millennium Development Goals, SCN News 28, 2004

⁶ Vitamin & mineral deficiency: A global damage assessment report.

UNICEF/MI, 2004

⁷ Ibid

I. An Unacceptable Status Quo

Africa's Burden of Malnutrition

Hunger is both a cause and a consequence of Africa's devastating burden of poverty, disease and mortality. An estimated 337 million Africans do not consume the calories required for basic nutrition.³ More than 200 million suffer the debilitating symptoms of chronic or severe malnutrition.⁴ Interactions between infection and malnutrition cause more than half of all the deaths in children under 5 years of age and nearly 60% of all malaria deaths.⁵ For 25 million Africans living with HIV, malnutrition hastens the onset of disease and death.

Two-thirds of Africans, including many who consume sufficient calories and protein, lack minute quantities of critical vitamins and minerals. Widespread vitamin A deficiency means that 600,000 African children under 5 years of age die unnecessarily from common childhood diseases.⁶ More than 16,000 women die each year during childbirth because of anemia.⁷ Plus, more than 2 million African babies are highly likely to die just before or after birth as a consequence of their mother's anemia.⁸

Responding to this health and humanitarian crisis is not just a moral imperative. According to the World Bank, "Nutrition is as much or more of an economic issue, as a welfare, social protection and a human rights issue."⁹ Hungry adults cannot be productive. The Millennium Development Project's Hunger Task Force estimates that malnutrition leads to losses in GDP of between 6 and 10% from depressed performance in physical labor.¹⁰ Hungry children cannot grow and learn. The retarded cognitive development and poor school performance of today's children due to iodine and iron deficiency anemia will lower their adult earnings by US\$1.6 billion annually.¹¹

Lifting this enormous burden is fundamental for improving the prospects for Africa's economic and social renewal. However, if the trends of the past 15 years continue, malnutrition will become more widespread and severe. Some projections indicate that the proportion of Sub-Saharan Africans consuming less than the minimum 2,100 calories per day will grow to roughly half the population by 2011.¹² In Eastern Africa, blighted by HIV/AIDS, the prevalence of malnutrition is forecast to be 25% higher in 2015 than in 1990.¹³

⁸ K. West et al. "Double blind, cluster randomized trial of low-dose supplementation with vitamin a or beta carotene on mortality related to pregnancy in Nepal". *BMJ* 318: 570-575, 1999

⁹ Economic Growth through Improved Nutrition, HDNHE, World Bank, Draft May 20, 2005

¹⁰ Halving Hunger: It Can be Done, Report of the Task Force on Hunger, UN Millennium Project, 2005; Earthscan, London, UK and Sterling, USA.

¹¹ Vitamin & mineral deficiency: A global damage assessment report.

UNICEF/MI, 2004

¹² Food Security Assessment, Economic Research Service/USDA, March 2002

¹³ Economic Growth through Improved Nutrition, HDNHE, World Bank, Draft May 20, 2005

Perhaps the most devastating fact of all is that much of this spiraling nutritional crisis can be prevented. Across the developing world, modest investments in low-cost technologies, delivery of basic services and communication of simple behavior changes have successfully cut the proportion of hungry people in half, from 33% to 18%.¹⁴ The Copenhagen Consensus, issued by a group of leading economists including three Nobel laureates, identified the correction of nutritional deficits as among the most cost-effective of all development investments.¹⁵ Despite these achievements in many parts of the world, large scale investments to improve Africa's nutrition have not been mobilized and the nutritional crisis continues to become more severe.

II. Policy Framework for Improved Nutrition in Africa

Over the past 15 years, African governments have pledged to address the challenge of malnutrition - at the World Summit for Children in 1990, for example, the International Conference on Nutrition in 1992, the OAU in 1993, the World Food Summit in 1996 and the United Nations General Assembly Special Session on Children in 2002. And, In 2000, African governments committed to the Millennium Development Goals (MDGs) for 2015. Despite these important commitments, the nutritional status of Africans has deteriorated over the past decade and the human, social and economic burden continues to grow.

The MDGs set concrete targets for a world with less poverty, hunger and disease; greater survival prospects for mothers and their infants; better educated children; equal opportunities for women; and a healthier environment. According to the United Nations former Secretary General, Kofi Annan, these "constitute an unprecedented promise by world leaders to address, as a single package, peace, security, development, human rights and fundamental freedoms".¹⁶ However, the MDG vision cannot be realized without a concerted effort to improve nutrition in Africa. Improving nutrition is strongly linked to the achievement of six of the eight MDGs (see table above).

The UN Millennium Project estimates that investments to increase agricultural productivity and reduce chronic hunger will average about 5 to 8% of the total financing needed to achieve the MDGs.¹⁷ But even these modest investments have not materialized. According to the World Bank, Sub-Saharan Africa is not on track to achieve a single MDG.¹⁸ Today, with growing malnutrition throughout Africa, the opportunity to achieve the MDGs by 2015 is receding and urgent action is required lest the goals become empty promises. Inaction is tantamount to accepting a continued humanitarian crisis and economic decline.

The New Partnership for African Development (NEPAD), a program of the African Union, offers a unique opportunity to reaffirm international commitments and

rededicate Africa to improving nutrition, reducing the burden of disease and protecting precious human capital. NEPAD recognizes that improved food security is a pre-requisite for sustainable development in Africa. In October 2005, NEPAD's Comprehensive Africa Agriculture Development Programme (CAADP) was endorsed by the African Heads of States and Governments as a framework for the restoration of agriculture and food security. The Pan African Nutrition Initiative, nested within CAADP, aims to stimulate "agriculturally led development which eliminates hunger, reduces poverty and food insecurity".¹⁹ This is consistent with the recommendation to "link nutritional and agricultural interventions" put forward by the UN Millennium Development Project. The Millennium Development Project Task Force recommends that the policy and resource mobilization process should:

- › "Create institutional structures to integrate agriculture and nutrition policy at all levels (from ministries to community levels) and encourage cross-sectoral coordination at legislative and executive levels."
- › "Formulate agricultural policies and investments to bring nutritional benefits, and assure that nutritional interventions are fully funded parts of the country's agricultural development strategy."²⁰

CAADP recommends substantial investments in a market-driven vision for agricultural development with the objective of improving productivity to an average annual growth rate of 6%. However, within the labor-intensive context of African agriculture, this ambitious target cannot be achieved on the backs of a malnourished population. With a workforce robbed of energy and initiative, and incapable of achieving its productive potential, significant growth of food production is not possible. To grow agricultural productivity, simultaneous investments are essential to improve the nutrition of Africa's food producers, especially its small-scale farmers.

The robust 6% growth rate targeted by CAADP will not achieve the MDG targets.²¹ Data from Africa and around the world confirms that higher agricultural production alone does not guarantee improved nutrition. Malnutrition persists in regions where food is plentiful. For example, the Arsi region in Ethiopia and Iringa region in Tanzania have both achieved high food production, but still suffer very high rates of malnutrition.²² It is estimated that a sustained economic growth of 2.5% from 1990 to 2015 would only result in a 27% reduction in malnutrition, far below MDG

¹⁴ Task Force on Hunger, Draft, September 2004

¹⁵ The Economist, March 4, 2004

¹⁶ Kofi Annan in Millennium Development Report, United Nations, 2005

¹⁷ Halving Hunger: It Can be Done, Report of the Task Force on Hunger, UN Millennium Project, 2005; Earthscan, London, UK and Sterling, USA.

¹⁸ World Bank, Global Monitoring Report, 2005

¹⁹ From Draft Framework African Food and Nutrition Security (FAFS), May 2007

²⁰ Halving Hunger: It Can be Done, Report of the Task Force on Hunger, UN Millennium Project, 2005; Earthscan, London, UK and Sterling, USA.

²¹ Report of London CAADP Review, February, 2005

²² Pelletier et al. (1995); Smith et al. (2005)

targets.²³ The evidence suggests that, even with rising incomes and reliable access to food supplies, Africans will continue to suffer high rates of malnutrition.

III. Mobilizing a Multi-sectoral Response to Malnutrition

Multi-factorial Roots of Hunger

Hunger has many faces. There are many reasons why people's diets do not supply sufficient nutrition to keep them strong, healthy and productive. Achieving freedom from hunger, where nutrition is no longer an impediment to survival, health or the achievement of our full human potential, requires addressing a range of deficits in dietary diversity, food quality, maternal knowledge, care practices for young children, and access to health services, water and sanitation, and other public health measures. Availability of and access to a sufficient quantity of food is necessary, but not enough, to ensure adequate nutrition.

As hunger has many faces, nutritional interventions must take many forms. In the words of the former UN Secretary General, "Hunger is a complex crisis. To solve it, we must address the interconnected challenges of

²³ Haddad et al. (2003)

Underlying Causes of Malnutrition

Food Security

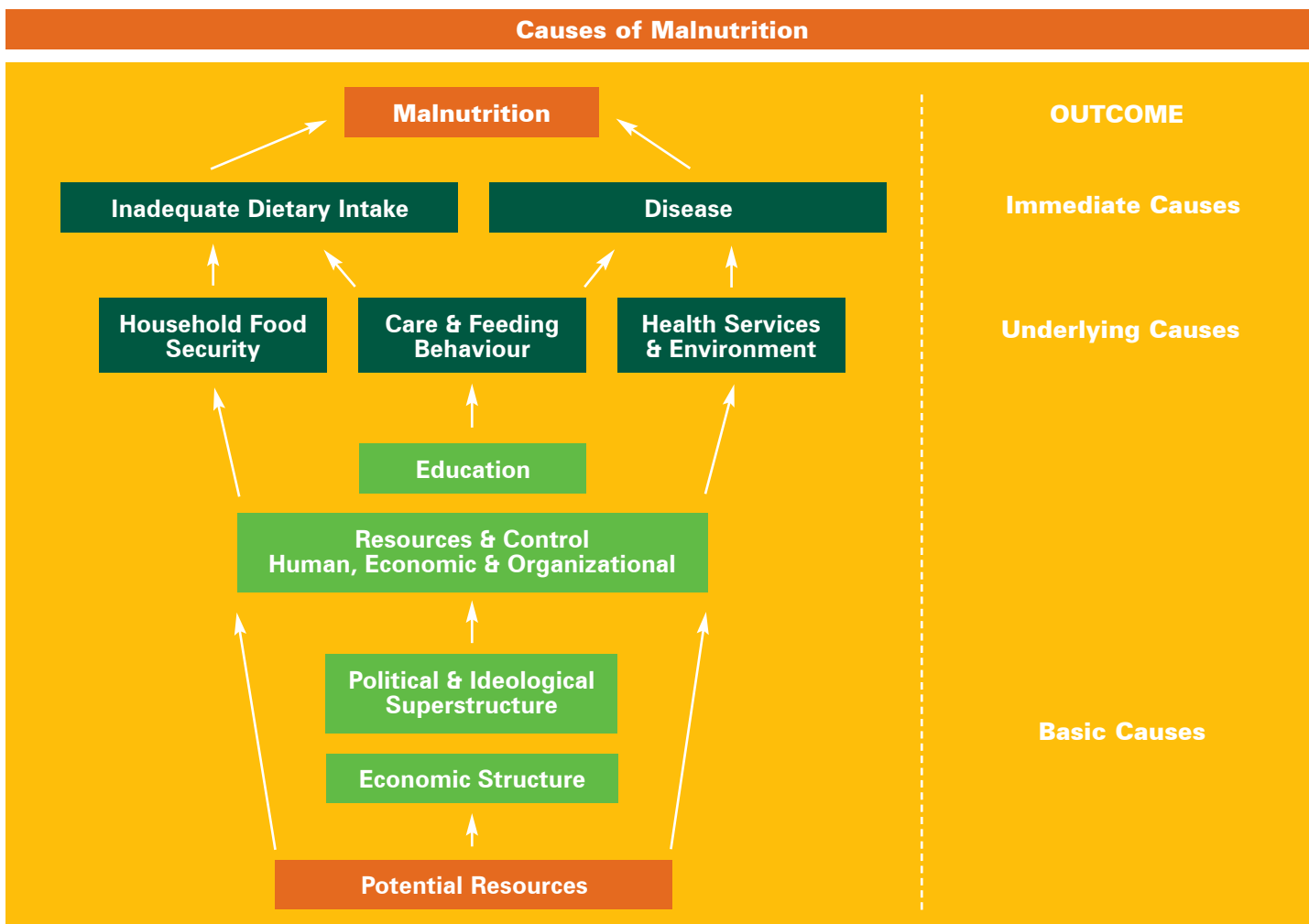
- › Availability and access to a sufficient quantity and quality of affordable food is limited by a number of factors related to production, distribution, and utilization in the home.
- › Diets are usually very limited, with a preponderance of basic starches and a lack of vegetables, fruit and other higher value nutrients - resulting in micronutrient deficiencies.

Health

- › Infection and disease cause a severe deterioration in the nutritional status of individuals with otherwise sufficient nutrient intake.
- › Diseases such as malaria and HIV/AIDS or parasitic infestations raise nutritional needs and interfere with the ability of the body to utilize nutrients effectively.
- › During a person's life, there are periods of exceedingly high need that cannot be met by typical daily diets.

Care & Feeding Behavior

- › Often women and young children do not eat until the males are finished. With the little remaining in the family pot, they have little chance of meeting their nutritional requirements.
- › Young women are often unaware of the value of breastfeeding or how proper feeding can protect their babies.



agriculture, health care, adverse and unfair market conditions, weak infrastructure, and environmental degradation". Widespread malnutrition reflects a failure of multiple sectors to provide for the basic human rights to food and nutritional security. Interventions must reach across sectors to address the multi-sectoral sources of that failure.

For decades, many nutritional initiatives have supported individual programs providing food aid, food production, health services, clean water and sanitation, or encouraging behavior change. However, real results were often limited because the multiple dimensions of malnutrition were not addressed simultaneously within a comprehensive and integrated strategy. A key lesson gleaned from decades of nutritional programs is that multi-factorial causation is best addressed with multi-sectoral intervention. Improving nutrition requires work through multiple channels and integration of the contributions made by the public and private sectors to provide a mix of food, health care, education and other "enablers" of good nutrition. While the contribution of each individual sector may be insufficient, in aggregate these multiple inputs create a reinforcing dynamic that can succeed in addressing the multi-factorial causes of malnutrition.

Obstacles to Developing Multi-sectoral Nutritional Policy and Programs

While there may be general awareness of Africa's nutritional crisis, nutritional policy and programs have not been "mainstreamed" into the development planning and investment process. There are a number of reasons for this. Since improved nutrition is the outcome of activities in a variety of sectors, there is no natural "constituency for nutrition", or clearly defined institutional leadership and coordination. As a partial responsibility of several ministries or departments, nutrition is often the main business of none. Because country financing is usually allocated by sectors, unless one sector takes the lead, no large scale advocacy and action can follow. Consequently, there is a failure to develop an "actionable" national policy and program options with concrete links to national development budgets. According to a recent World Bank review, the experience with national "nutrition policy-making has by and large been discouraging" because:

- › Broad goals are established without setting specific targets or defining concrete interventions.
- › Institutional roles and responsibilities for implementation are not defined and points of accountability are not identified.
- › Financial analysis, including clear budgeting of interventions or consideration of the relative cost-effectiveness of different service delivery approaches, is insufficient.
- › Proposals are rarely prioritized, sequenced or based on an analysis of institutional and financial capacity.
- › Activities are not linked to national investment plans. For example, Poverty Reduction Strategy Papers often identify nutrition as a development obstacle,

but rarely propose significant investments.²⁴

- › Nutritional advocacy lacks a professional, systematic and personalized process that can influence politicians, implementing agencies and development partners.²⁵

In this environment, political leaders cannot make the link between good governance and good nutrition. They are not aware that effective and inexpensive interventions are available or that malnutrition is a major barrier to achieving national development goals. As a result, there is little political will to provide an enabling environment or mobilize investments. Within the complex of competing priorities, ministerial mandates and budget pressures, nutrition is often ignored or seen as a small specialty within the health sector - and its essential contributions to food security and national development are lost.

Rising to the challenge of malnutrition in Africa means communicating across traditional sectoral interests and perspectives to forge a common national agenda focused on realizing the full range of human, social and economic benefits of improved nutrition. Improved nutrition will most likely be achieved by integrating a nutritional perspective into the overall investment planning process, and by building capacity for more specific, concrete and professional program development. Real and sustained results will, most likely, be achieved by establishing national mechanisms that define feasible program linkages and synergies across a range of sectors - rather than establishing large distinct nutrition programs *per se*.

IV. The Nutrition Lens: An Investment Planning Tool

Complex, multi-dimensional issues are best addressed by comprehensive, multi-faceted interventions. Since improved nutrition is an outcome of development activities in a variety of sectors, interventions may be most effective and cost-efficient when they are integrated into existing programs and build on existing institutional capacity - especially when financial resources and managerial capacity are limited. As is the case in other crosscutting issues, like HIV or gender, vertical programs may not be appropriate, efficient or effective. Therefore, the CAADP Pan African Nutrition Initiative recommends applying a "Nutrition Lens" across multiple sectors as an essential component of the investment planning process.

Objectives of the Nutrition Lens

A Nutrition Lens applies nutritional perspectives, methodologies, expertise and outcome criteria to systematically assess national development investments. Working within the existing regional and

²⁴ Economic Growth through Improved Nutrition, HDNHE, World Bank, Draft May 20, 2005

²⁵ Ibid

national investment and planning framework, applying this comprehensive nutritional perspective can:

- › Ensure that the potential contributions of nutrition to the achievement of the MDGs are seriously considered; this should include integrating nutritional indicators into the evaluation process.
- › Identify nutritional problems, vulnerable populations and appropriate interventions, and estimate the potential impact of public investment on health, growth and productivity.
- › Define optimal nutritional inputs from each sector, identify opportunities to integrate initiatives across multiple sectors, and capitalize on cost efficiencies among programs.
- › Integrate nutritional "best practices" across a range of sectors, including reviewing the nutritional impact, or unintended impact, of proposed investments.
- › Provide a platform to coordinate multi-sectoral inputs and expertise in the planning and program development process, including:
 - J Assessing and building capacity for analysis of nutrition policy and investment planning.
 - J Defining leadership structures, coordinating mechanisms and institutional arrangements to create a more powerful and active constituency for nutrition.
 - J Identifying concrete opportunities to move from small-scale, donor- and project-driven financing to sustainable national programs via PRSPs, PRSCs, SWAPs, HIPC and other mechanisms.
 - J Enabling systematic management, information exchange and monitoring for a range of programs impacting food and nutrition security.

The aim of the Nutrition Lens is to facilitate and leverage opportunity - it is a tool rather than a new program. The CAADP vision of linking food production and improved nutrition defines a leadership role for the agricultural sector in facilitating and leveraging opportunities using the Nutrition Lens.

Simultaneous Planning and Implementation

While human, institutional and financial capacity continues to be a significant restraint, Africa's nutrition crisis cannot wait on traditional incremental approaches. A recent World Bank review found that many successful programs "learn by doing" and do not wait on comprehensively developing capacity before scaling up. The review recommends Building Capacity through Results, a process that builds capacity specifically matching the needs of program implementation stages. "Capacity development activities are limited to only those needed to achieve the next step. Capacity development automatically responds to operational needs, and managers have an incentive to focus on it." ²⁶

²⁶ Economic Growth through Improved Nutrition, HDNHE, World Bank, Draft May 20, 2005

Applying the Nutrition Lens

Food & Agriculture Programs:

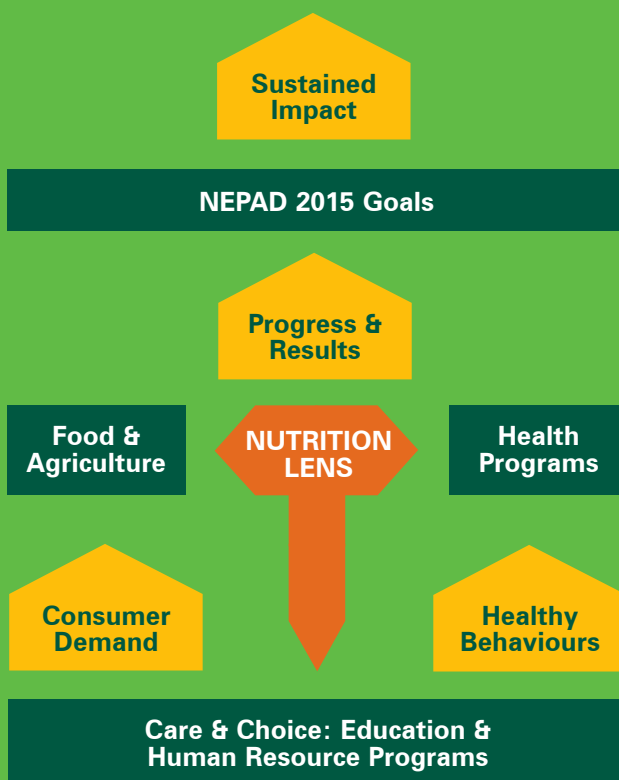
Nutrition criteria applied to investments in food production maximize the positive impact that increased food production has on nutritional status. Integration with health services ensures food inputs are well utilized to improve nutritional status. Coordination with education and community programs supports private investment in nutritious products by creating consumer demand.

Health Programs:

Investments in health services are reviewed for key nutrition interventions such as deworming and parasite control, supplementation, immunization and prenatal care. Integration with education, communication and community action programs optimizes impact on healthy choices and behaviors, enables population to take full advantage of health services and creates conditions for the success of health programs.

Education, Community Action, Media Communications & Human Development Programs:

Including health and nutrition components in education and other human development programs support agriculture and health programs by empowering individuals to make better decisions as farmers, consumers and parents. Healthy behaviors support the success of health interventions. Consumer awareness and demand sustains commercial investments in new agricultural and commercial products.



The Life-Cycle Approach Defines Windows of Opportunity

A key role for nutritional expertise and best practice is to assure nutrition programs match the nature and epidemiology of the problem. According to the World Bank, even when some "PRSPs identified specific nutrition actions, these often did not correspond to the type of malnutrition problem".¹ For instance, the predominant impact of malnutrition is during pregnancy and the first two years of life and most of the damage caused then cannot be reversed. Yet, many programs continue to expend large resources on groups other than pregnant women and children under two. To avoid these mismatches, the NL incorporates the "life-cycle approach" which defines specific periods of acute vulnerability when it is difficult to meet nutritional needs from a normal diet. For example:

- › For pregnant women, iron requirements triple during the second trimester and continue to rise during the critical final months of pregnancy.
- › Growing children demand high levels of nutrients per kilogram of body weight. The ravages of common childhood infections raise their requirements for a range of vitamins and minerals. Yet their small stomachs limit intake.
- › Illness and disease raise nutrient requirements, deplete stored nutrients and often suppress appetite. People living with HIV need 30% more calories and higher levels of many micronutrients to hold off the onset of AIDS and accompanying opportunistic infections.
- › Among displaced populations, physical hardship, emotional stress and lack of food often cause severe malnutrition that cannot be addressed through the provision of normal foods.

By identifying periods of acute vulnerability among specific groups, the life-cycle approach defines "windows of opportunity" in which nutrition programs can achieve significant results.

¹Economic Growth through Improved Nutrition, HDNHE, World Bank, Draft May 2005

To seize the initiative within the context of limited capacity, and based on the concept of "learning by doing", the CAADP Pan African Nutrition Initiative proposes a two-pronged approach which simultaneously:

- › Creates a process to apply the multi-sectoral Nutrition Lens approach to ongoing national planning and investment processes. In addition to building capacity to analyze a range of proposed programs and to optimize their impact on nutrition, this process will create awareness and commitment among a range of development sectors.
- › Moves ahead as quickly as possible to scale up a series of focused, proven and feasible initiatives. In addition to significant nutritional benefits, successful implementation of these fast-track actions will build credibility for nutrition programs, the commitment

of political leaders, and the capacity of institutions and personnel.

The following sections provide an outline of how the Nutrition Lens process might be applied to a range of planned CAADP and other NEPAD programs. The review will highlight opportunities to apply an informed nutritional perspective to sectoral investment plans as well as identify immediate opportunities for fast-track investments.

V. How CAADP can Contribute to Improved Nutrition

CAADP has proposed a far-reaching and ambitious program to generate growth in Africa's agricultural sector by investment in Four Pillars for Agricultural Development. All CAADP stakeholders agree that the synergies between agricultural production and improved nutrition are numerous and that nutrition is a cross-cutting theme throughout all four CAADP Pillars. While only Pillar 3 directly addresses food security, applying the Nutrition Lens (NL) process optimizes the contribution that each Pillar makes to the sustainable improvement of nutrition. Some broad investment themes are applied to each of the four Pillars in the following section.

Pillar 1. Extend Area under Sustainable Land Management and Reliable Water Control Systems

Capitalizing on the close links between water, health and nutrition can add significant value to investments in the expansion and management of water control systems. New water projects are often breeding grounds for the organisms that cause or spread diseases such as schistosomiasis, malaria and diarrheal diseases. Waterborne bacteria, for example, account for as many as half the estimated annual 3 to 5 billion episodes of diarrheal illness that result in possibly 2.2 million deaths.

Investments in irrigation should optimize opportunities to provide safe, clean water for human consumption as well as to minimize vulnerability to waterborne diseases. The NL provides a tool to review proposed investments as part of the overall Water Management and Irrigation Initiative to ensure those projects take full advantage of opportunities to:

- › Expand access to clean potable water and target water and sanitation programs in areas where diarrhea is an important contributor to malnutrition.
- › Ensure new water sources "do no harm" to the nutritional and health status of local people.

Pillar 2. Improving Rural Infrastructure and Trade-related Capacities for Market Access

Modernizing food processing capacity and opening up access to national, regional and global markets is a key to unlocking the productive potential of rural Africa. Applying the NL perspective to these investments focuses on:

- › Developing capacity in food processing industries to improve food quality and safety.
- › Ensuring investments in agro-industry are "small-holder friendly", offering nutritional benefits to small-scale farmers, women's enterprises and other rural stakeholders.

The following section reviews three broad investment themes outlined in CAADP Pillar 2 to identify potential "fast-track" opportunities.

Investments in Large-Scale Agro-Industry

CAADP envisions a 60% increase in the capacity of the African food industry by 2015, which will require significant investment to expand and modernize processing facilities.²⁷ These investments will provide opportunities to improve the nutritional quality of food products at very low marginal cost.

Fortifying staple foods with iron, vitamin A and other essential vitamins and minerals can significantly reduce the prevalence of micronutrient deficiencies at an incremental cost of 1-2%. Over the past decade, some large-scale agro-industries in Africa have initiated fortification programs and many more are aware, receptive and waiting on supportive and enabling public policy.

For most countries, modest investments in advocacy, capacity building and start-up financing over a 5-year period could achieve fortification on a national scale and allow the marketplace to sustainably absorb the low marginal costs. While each national regulatory and industrial environment will define specific options, broad regional costs are estimated below.

- › **Maize Meal:** By 2015, fortification of maize at large commercial mills in 23 countries in which maize consumption is high could provide more than 100 million Africans with an average 30% of daily needs for key vitamins and minerals at a cost of approximately US\$0.17 per person per year. The need for donor start-up support is estimated at US\$20 million over 5 years (Annex 1).
- › **Wheat Flour:** In 26 countries where per capita consumption of wheat flour is high, fortification at large commercial mills could provide 62 million consumers with a significant added intake of key vitamins and minerals. The need for donor support is estimated at US\$6.9 million over 3 years (Annex 2).

²⁷ Comprehensive Africa Agriculture Development Programme. NEPAD, July 2003

- › **Vegetable Oil:** In 39 countries where consumption from commercial sources is high, vegetable oil fortification has the potential to reach over 100 million Africans with an average one-third of daily requirements for vitamin A (Annex 3).
- › **Salt:** Over the past decade the coverage of iodized salt in Africa has grown to about 70% of the population. But significant gaps remain, particularly among low income and rural populations. An investment of US\$10 million over 4 years, concentrating on capacity building, public education and focused support to key salt producing countries, will have a major impact on sustaining and expanding current achievements (Annex 4).

These traditional fortification programs have proven to be effective throughout the world. In addition, applying the Nutrition Lens to planned CAADP investments (that aim to increase the capacity and competitiveness of Africa's food industry) highlights new opportunities for innovative technologies to be used to enhance nutritional quality. Some of these opportunities are outlined below.

- › **Cassava Flour:** The growing consumption of cassava-based foods, particularly among the urban poor, is expected to increase the market for cassava flour. However, cassava offers less protein and micronutrients than staple grains. As cassava is increasingly processed in large factories, applying the NL focuses on opportunities to improve the nutritional value of milled cassava flour through fortification. The cost of initial product and program development to integrate fortification into the Pan African Cassava Initiative is projected at US\$750,000 (Annex 5).

Mills Protect Millions of Africans

Ongoing and developing programs in nine countries may result in the fortification of possibly one-third of all wheat consumed in Sub-Saharan Africa. Mandatory programs in South Africa and Nigeria are adding a multiple micronutrient mix, including vitamin A, to nearly all domestically milled flour. Mandatory fortification in Guinea was initiated in 2005. In Sudan, newly adopted legislation is being phased in. In the Democratic Republic of the Congo, a company with more than 70% of the market has initiated fortification. Ghana, Uganda, Cape Verde and Côte d'Ivoire are in the process of launching national programs.

Previously, fortified maize meal was only available to affluent consumers. Over the past decade, however, technologies to fortify maize meal with multiple micronutrients have been adapted to Africa's milling and consumer environment. In Zambia, South Africa, Uganda and Malawi, government and local industry are working to reach consumers with a range of critical vitamins and minerals. In South Africa and Ghana, where large mills produce a significant share of national consumption, mandatory programs are projected to reach 27 million people with significant levels of vitamin A and iron as well as a range of essential B vitamins.



A Life-Saving Teaspoon

Controlling vitamin A deficiencies in West Africa, where 48% of children do not consume enough of this critical nutrient, is projected to avert 105,000 child deaths every year. Just a teaspoon of fortified oil added to a young child's porridge promises to deliver 30% of the daily requirements for potentially life-saving vitamin A. That promise may soon become reality.

In the West African nations of Benin, Burkina Faso, Côte d'Ivoire, Guinea Bissau, Mali, Niger, Senegal and Togo, approximately 70% of populations at risk of vitamin A deficiency consume industrially processed oil. The Faire Tache d'Huile initiative has mobilized governments and industry, along with international donors, to invest in fortification of cooking oil throughout the region.

The initiative is a collaboration of the Association of Oil Producers of the UEMOA Zone (AIFO-UEMOA), an umbrella organization for 14 cooking oil industries with West African Health Organization (WAHO), the UEMOA Commission and the two leading producers of vitamin A, BASF and DSM. Start-up support has been provided by the United States, Canadian and Taiwanese governments along with private foundations, corporate foundations and individuals.

Source: The Faire Tache d'Huile initiative

- › **Rice:** The NERICA initiative will increase the volume of rice grown, processed and consumed in Africa. Public investments in new, large-scale rice processing should include developing capacity for fortification. The cost of initial product and program development for this new concept is projected at US\$500,000 (Annex 6).
- › **Double Fortified Salt:** With iodized salt already reaching more than two-thirds of Africans, the potential to also add iron holds great promise for significantly lowering rates of anemia. Pilot projects have demonstrated consumer acceptance, defined shelf-life, and clarified production processes. The cost of support for a 3-year program to develop products and policy, including conducting marketing trials and developing regulatory frameworks, is projected at US\$1,500,000.
- › **Special Nutritional Products:** Investments in large- and medium-scale food industries open up opportunities to produce high-energy and nutrient-dense foods that address the needs of vulnerable groups, such as children aged from 6 to 24 months and HIV-infected populations.
- J Fortified blended foods are in high demand for emergency relief, public food distribution and specialized uses, such as therapeutic feeding. Today these nutrient-dense foods are

predominantly sourced from overseas suppliers.²⁸ Investments in African capacity can shift this processing to domestic suppliers, and development activities can create new market opportunities for blended foods - for example, as complementary foods for young children. Some African food processing companies have already introduced low-cost, branded blended food products into the market. Investments in agro-industry should develop and expand this market for African-based processors (Annex 7).

- J A range of new products originally developed for emergency assistance have been proven safe, effective and acceptable in Asia and are being piloted in Africa. These products include fortified lozenges or candies, and micronutrient "scoops" or "sprinkles" that can be added to porridge and other foods in community kitchens or in the home. These are appropriate both for public distribution and for sale. Modest investments could expand already-available processing capacity and build consumer demand (Annex 8).

Investments in Regional Trade Development and Facilitation

Creating an enabling business and trade environment is a foundation for expanding national and regional markets for agricultural products and processed foods. CAADP's Regional Trade Development & Facilitation Initiative (RTDFI) recommends investments in harmonization of standards, building national and regional regulatory institutions and other activities facilitating food trade and commerce. At a low marginal cost, many of these investments can simultaneously build an enabling environment for food fortification and other enhanced nutritional products.

Collaborations between international and regional agencies, NGOs and governments in the WAHO and ECSA regions are currently working to facilitate food fortification. This includes building national and regional capacity to establish food standards; ensuring product quality, safety and affordability; creating consumer demand; and assuring transparent enforcement Targeted investments could create valuable synergies between this work and the RTDFI, for example by:

- › Creating networks of technical and laboratory services to support trade in fortified foods (the investments needed to do this could be integrated into broader RTDFI investments in food safety and regulatory capacity).
- › Building the capacity of customs and food control inspectors, which is critical to expanding African regional markets as well as to initiating large-scale food fortification.

Planning for the Regional Trade Development & Facilitation Initiative should consider investments that build an enabling regional environment for food

Regional Action to Build Capacity and Results

The Regional Food Fortification Network is an initiative of the East, Central and Southern Africa Health Community (ECSA), based in Arusha, Tanzania. The organization represents 12 ECSA member states as well as four neighboring countries. Technical workgroups are building regional capacity and have made a number of key recommendations, including:

- › Defining harmonized specifications for pre-mixes and fortified foods; a regional system for quality assurance; a coordinated system for food control and enforcement.
- › Considering sources of nutrient pre-mixes and analyzing possibilities for their local manufacture. Major gaps in capacity are being addressed with a regional training plan for food regulators and industries.
- › Developing a list of suitable analytical methods, and approved analytical facilities in the region. Most countries have laboratories for food analysis. A training course sponsored by the Medical Research Council of South Africa laid the foundation for a Regional Laboratory Network of Food Fortification Analysis.
- › Developing regional guidelines for the use of nutritional and health claims and logos.

The collaborating partners in this initiative are UNICEF, USAID and the Micronutrient Initiative.

fortification. Financing for one 3-year regional program has been estimated at US\$5 million (Annex 9).

Including Small-Scale Enterprises in Agribusiness, Supply Chain and Quality Control Initiatives

Investments in market infrastructure and human resources to develop national and export markets for rural farmers should simultaneously seek opportunities to develop local markets and enhance nutrition for local small-scale farmers, particularly women.

- › Village-based food preservation, which makes foods available outside the area and season of production, stabilizes supplies, means that diets are more diverse, and provides employment for millions of rural people.²⁹ Preserving food is often a source of income for rural women.³⁰ An NL assessment of the Agribusiness, Supply Chain, & Quality Control Initiative can identify the investments needed in training, technology, market development and other activities to develop village-based food preserving initiatives.

²⁸ WFP is working to procure locally in South Africa, Malawi, Mali, Kenya, Ethiopia, Senegal, Madagascar, and Zambia.

²⁹ The preparation of gari, a dried, fermented cassava product, in West Africa and the smoking of fish in Ghana are examples of such processes, which transform highly perishable commodities into products that can be transported long distances and stored.

³⁰ Agriculture, Food and Nutrition for Africa, FAO, Rome, 1997

History of African Cooperatives Producing and Marketing Highly Nutritious Products

Over the years a number of community-based collaborative activities to produce and market nutritious foods for young children have shown promise for expansion and sustainability. While some of these products have disappeared from Africa, the time has come to learn from past successes, synthesize lessons learned and move forward. Examples include:

Superfarine (Benin):

Small-scale production, mixing and milling of local grains and legumes enjoyed a steady increase in demand because the products had familiar tastes and aromas, were easy to use and were supported by local, grassroots promotional activities. Initially the project was subsidized but gradually evolved to retail pricing aiming for long-term sustainability.

Musalac (Burundi):

Production of this low-cost instant porridge, CF porridge, expanded from a single to seven satellite facilities managed by hospitals, cooperatives and other community associations. In many cases these became financially self-sufficient and generated surpluses from sales which were used to subsidize local health care services.

Vitafort (Congo):

Overseen by an inter-sectoral committee that includes health service managers and development organizations, the project expanded to five units, each with a monthly production of more than 8,000 sachets to be sold through small shops and kiosks as well as through health centers.

Source: Packaged foods for Complementary Feeding, USAID LINKAGES, 1999

- › As well as fortification, small-scale blending of grains and legumes offers opportunities to add value to village-scale production, enhance local economic activity, and improve the nutritional quality of foods consumed by small-scale farmers. Even though it's more expensive than large-scale fortification, in places where populations have an extremely high risk of malnutrition, small-scale mills may be a very cost-effective intervention. Within the Agribusiness, Supply Chain, & Quality Control Initiatives, investments in market infrastructure can simultaneously develop capacity for local level fortification. Complementarities between investments in market infrastructure and fortification include:
 - J Introduction of new farming and food processing technologies that include batch mixers, micro-feeders, packaging equipment and other technologies to enable local fortification.
 - J Building local "market intermediaries" to help open up wider markets that bring parallel opportunities for technical and business support services, such as providing spare parts, maintenance and fortificant pre-mix.

- J Capacity building of rural food inspection services, to establish quality-assurance systems for products bound for national and export markets; such systems could also be applied to products for local consumption.
- J Partnerships with local institutions, such as farmers' unions, local governments, NGOs and others, that build capacity for communication and training of local millers as well as generating local consumer demand for fortified products.

A recent review of the ten African countries with the highest per capita maize consumption found that small-scale maize fortification could deliver between 60% and 100% of the daily needs for most vitamins and minerals to high-risk rural populations.³¹ Although pilot projects have been successfully completed, sustainable business models for scaling-up have not been tested. Financing for a multi-country business development phase is estimated at US\$13 million over 5-years (Annex 10). Lessons from small-scale maize fortification can be applied to small-scale processing of sorghum, millet and cassava in other African nations (Annex 11).

Pillar 3. Increasing the Food Supply for Vulnerable Groups and Reducing Hunger

Increasing agricultural productivity in the long term cannot be sustainably achieved without addressing the short-term nutritional needs of Africa's rural population. Therefore, long- and medium-term investments in agricultural productivity need to be matched with immediate investments to protect Africa's rural agricultural workforce - a vulnerable population assailed by disease and weakened by food insecurity.

The following section applies the NL and defines fast-track options for three areas of investment outlined in CAADP Pillar 3.

Emergency Food Aid: Strategic Food Reserves and Risk Management Systems

CAADP estimates that US\$17 billion will be needed for the period 2002 to 2015 to respond to emergencies and provide safety nets for the most vulnerable.³² The NL highlights a number of options to assure food aid is timely and targeted, and gets results, by:

- › Building capacity for nutritional surveillance to enable more timely and cost-effective response to emergencies. Food security information systems and "early warning systems" should include nutritional status indicators to more effectively monitor trends among vulnerable populations.³³

³¹ Report to Micronutrient Initiative in 2003, which included Mozambique, Tanzania, Swaziland, Zimbabwe, Zambia, Malawi, Kenya, Togo, Benin, and Lesotho

³² Comprehensive Africa Agriculture Development Programme, Table 1. NEPAD, July 2003

³³ The Government of South Africa provided US\$1.7 million to WFP to support development of an integrated food-security information and vulnerability monitoring system in 2004, in addition to strengthening the Southern Africa Development Community vulnerability analysis initiative (WFP Annual Report 2004)

Progress on CAADP Pillar 3

- › The Abuja Heads of the State Summit on Food Security (December 2006) have resolved to ensure that nutrition issues are systematically integrated into agricultural and food security interventions.
- › CAADP's Pillar 3 Framework for African Food Security has been drafted. It provides a framework for harmonizing and implementing the Pan African Nutrition Initiative (PANI), the Africa Regional Nutrition Strategy (ARNS), and the Africa Ten Year Strategy (ATYS) to combat vitamin and mineral deficiencies (VMD).
- › Consultations with five RECs have identified early nutrition and food security actions for implementation.
- › SADC reviewed food and nutrition policies and programmes in 2005/6.
- › National Round Tables conducted by RECs have led to a signed compact in Rwanda, which will be joined by a number of countries in 2008/9.
- › Home Grown School Feeding initiatives have been launched in Ghana and Nigeria, two of the 12 pilot countries identified.
- › Food fortification was initiated in at least 7 countries.
- › Programmes to strengthen the production of orange fleshed sweet potatoes, to combat VMD, were launched in several countries and regions.

- › Providing non-emergency food aid to address the needs of 200 million Africans suffering chronic malnutrition; such aid has grown considerably in recent years with support for school feeding, HIV/AIDS programs, mother-and-child health and nutrition initiatives, and other activities. Within this range of programs and multiplicity of objectives, applying the NL ensures that food aid capitalizes on nutritional "best practices" by:
 - J Evaluating the nutritional content of food aid rations, developing guidelines for food baskets and recommending formulations of processed food aid products.
 - J Identifying local nutritional problems and optimizing opportunities to utilize traditional foods and local food reserves.
 - J Capitalizing on the life-cycle approach to ensure food aid matches the distinct needs of vulnerable groups, such as young children, pregnant women, and people living with HIV (PLWHIV).
 - J Integrating nutritional education with food aid distribution programs to promote positive caring practices and behavior changes to improve nutritional status.
 - J Developing options for cost-effective rehabilitation and therapeutic strategies, such as community based care and treating the malnourished at home rather than at rehabilitation centers.
 - J Identifying where to apply evidence-based nutritional best-practices to food programs. For example, superior results are often achieved when food distribution is conditional on using health or nutrition services.

Food-Reserve System Initiative

NEPAD, with the support of WFP, the World Bank other key donors and in collaboration with FAO, commissioned a study of food-reserve systems. The study sought to identify actions that could be taken at the regional level, including the possibility of establishing regional stocks, as a means of contributing to the availability of supplies in times of emergency and acute food crisis, and ensuring that people without purchasing power have access to the food they need. It is based on a review of the origins and operational experiences of eight countries: in the Sahel, Burkina Faso, Mali and Niger; in Southern Africa, Malawi, Tanzania and Zambia; and in the Horn of Africa, Ethiopia and the Sudan. It draws lessons from these experiences that could enhance the effectiveness of existing and future national food-reserve systems in supporting food security policies.

Source: Draft Framework for African Food and Nutrition Security (FAFS), Sept. 2007.

- › Maximize the nutritional quality of food aid. Applying an NL can help determine the potential benefits, costs, risks and trade-offs involved in:
 - J Distributing fortified milled cereals, as opposed to whole grains. This includes deploying mobile small-scale mills and developing the capacity of Africa's large-scale mills to supply fortified staples as well as special nutritional products for vulnerable populations.³⁴ Fortification can deliver superior nutrition as well as offer convenience and be time-saving for the end-user, relieving the recipients (mainly women) of exhausting work in pounding and grinding whole grains.
 - J Integrating salt, doubly fortified with both iron and iodine, into the basic food basket of distribution programs.
 - J Identifying opportunities to purchase local foods with nutritional quality equal to or better than centrally produced food aid products.

Home Grown School Feeding Programme

School feeding has demonstrated benefits in school attendance, student achievement, and gender equity.³⁵ However, evidence of nutritional improvement is inconsistent. Applying nutritional expertise and analysis will ensure that school meals succeed in improving the nutritional status of school children - and expand the benefits to other vulnerable groups in the community. The NL can optimize the nutrition provided through school feeding programs by:

- › Analyzing the content of school meals to ensure that the rations offer at least 33% of the daily

³⁴ Among many donors, there is a growing realization of the need to facilitate or enable vulnerable families to more easily process the rations they receive, namely the milling of cereals.

³⁵ WFP Annual Report, 2004

requirements for calories, protein and fat as well as micronutrients.

- › Optimizing delivery of essential vitamins and minerals. This can be implemented at an industrial level through fortification or by local vendors at the "point of preparation" in school or community kitchens using sachets or scoops.
- › Maximizing the use of local foods with high nutrient values. In Burkina Faso, the use of red palm oil in twice-a-week school feeding reduced vitamin A deficiency from 50% to less than 5% after less than one school-year.³⁶ Projects in South Africa also showed the effectiveness of orange-fleshed sweet potato in school feeding programs to combat vitamin A deficiency.

However, real and sustained improvement in nutritional status may be elusive unless school programs address the multi-factorial causes of malnutrition among school children with a comprehensive package of nutritional education, behavior change, and other programs including:

- › Nutrition, health and hygiene education.
- › HIV/AIDS prevention and awareness.
- › Sanitation, such as water purification and the use of latrines.
- › Pharmaceutical inputs such as vitamin and mineral supplements and deworming tablets.

It should be recognized that, in many cases, school feeding may not reach the most vulnerable segments of the community. School feeding programs capitalize on opportunities to build channels from schools to households in order to reach 6 to 24 month old siblings, pregnant mothers, people with HIV, and other high risk groups. For example:

- › As local farmers produce more nutrient-dense crops to satisfy specifications for supplying school programs, there are opportunities to expand to other programs and markets targeting vulnerable groups.
- › School children can carry messages on improved child feeding practices to their mothers and grandmothers.

These "synergistic entry points" to the community enhance the effectiveness of the school feeding program, expand the benefits to the community, and create operational cost-efficiencies. Equally important, these outreach programs raise the community profile and create demand for nutritional services, thereby enhancing opportunities for sustainable operation and financing. Identifying these synergies should be a standard component of school feeding programs.

Incentives for local production and marketing of nutritionally-rich foods

Public incentives have often been used to stimulate farmers to produce nutritious foods and encourage the expansion of local markets. Recent nutrition research

Developing Young Minds and Local Farming through School Feeding

According to the World Food Program, school feeding is "the single, most important long-term investment towards the future reduction of poverty and food insecurity in the continent." Over the past five years, absolute enrolment in schools with canteens increased by 48% for girls and 12% for boys in the region. The enrolment of girls in WFP-assisted schools with both canteens and take-home rations increased by 77% over the same period, helping to eliminate gender disparities in education.

The NEPAD "home grown" school feeding concept links food and nutrition for students to agricultural development through the purchase of locally/domestically produced food, school gardens and the incorporation of agriculture into school curricula. Demand for locally produced food will be stimulated and trigger market mechanisms, particularly when concentrated in marginal rural areas where such mechanisms do not yet exist.

A joint WFP and NEPAD program initially targeted nine countries: Senegal, Mali, Ghana, Ethiopia, Kenya, Malawi, Mozambique, Nigeria, Uganda and Zambia. Key components of the program are that at least 50% of the financing is met by government and implementation includes participation of both the private sector and civil society, and local communities. In several countries, Heads of State have become strong proponents of this approach which simultaneously improves children's school performance as well as agricultural activities.

Source: WFP Report to NEPAD, 2005

suggests opportunities for developing local production of a number of nutritious foods, including:

- › Red palm oil, naturally rich in vitamin A and traditionally consumed in many parts of Africa, which has been successfully introduced in a number of new markets (Annex 12).
- › Beta-carotene-rich sweet potato, grown in many parts of Africa, which has been proven effective in reducing vitamin A deficiency (Annex 12).
- › Small grain cereals that are more nutritious and better suited to Africa's ecosystems.
- › The meat of small animals, including chickens, rabbits, and guinea pigs, which are acceptable in light of local cultural values.

Capitalizing on these opportunities involves investments in training farmers, distributing seeds, developing sales outlets, providing access to capital, and building consumer awareness and demand.

The NL perspective highlights evidence that incentives and subsidies to the agricultural and processing sectors often disproportionately benefit large producers and male-dominated cash crops - at the expense of crops

³⁶ Department of Nutrition, Université de Montréal, Canada. Proposal to the Micronutrient Initiative, 2004

typically grown by women.³⁷ However, evidence shows that providing income opportunities for women typically has a much higher return in terms of improved nutrition, both for women and their families. Therefore, the NL focuses on expanding opportunities for women, including:

- › Offering education, training and other incentives to increase the local production of vegetable and other garden crops predominantly grown by women.
- › Developing the capacity of women's cooperatives to process and market nutritious local foods, including blending grains, legumes and other foods into special nutritional products for children and high risk groups, such as PLWHIV.
- › Building women's enterprises to market and distribute a range of non-food products proven to improve nutritional status, including water purification products, oral rehydration salts, condoms, and vitamin and mineral supplements.

Pillar 4. Agricultural Research, Technology Dissemination and Adoption.

New agricultural technologies can improve crop yields and access to food, but may also pose nutritional risks, especially for the most vulnerable. The following section applies the NL to three broad areas of investment described in CAADP Pillar 4 to explore opportunities and mitigate risks.

Assessing the Nutritional Impact of New Crops or Technologies

In addition to production and market criteria, the adoption of new food crops should consider the importance of food quality. Applying the NL includes reviewing the energy density, micronutrient supply and potential impact on dietary adequacy and diversity of new food crops, for example:

- › There are a number of nutritional risks associated with new processed foods, particularly among populations transitioning from subsistence farming to a market-based commercial food system. Applying a nutritional perspective will identify risks and mitigation strategies.
- › New demands on agricultural workers must minimize the workload of the HIV-infected. The NL process will optimize opportunities to utilize small grains which offer superior nutrition while requiring less work. Farm mechanization or new on-farm food processing technologies should also be assessed in the light of the workload of women or farm workers with HIV.

Biofortification

Poor farmers need improved crop varieties that are tolerant to drought, salinity and major fungal, bacterial



Red Palm Oil: Rich Local Source of Vitamin A

Red palm oil (RPO) is produced in many regions of Africa and is a concentrated source of vitamin A. One teaspoon can supply the daily nutritional requirement for a young child. A 2-year pilot program in Burkina Faso demonstrated that expanding the consumption of RPO was both feasible and effective, even in areas where it was not traditionally consumed. Women were trained in better RPO extraction techniques as well as in building small businesses to sell and distribute the vitamin A-rich oil.

After a social marketing campaign reaching more than 1.3 million people, 40% of mothers and children reported consuming some RPO and rates of vitamin A deficiency were cut in half among women and dropped by nearly 30% among children under 5 years of age. According to the preliminary findings, the introduction of RPO in school canteens may offer spectacular results. In one school-year, adding RPO to meals twice weekly reduced vitamin A deficiency from 50% to 5%.

Sources: Home Economics Association of Burkina Faso; Health Science Research Institute, Burkina Faso; Micronutrient Initiative; Helen Keller International

³⁷ Economic Growth through Improved Nutrition, HDNHE, World Bank, Draft May 20, 2005

Linking Drought-Tolerant Crops to Markets

In addition to ensuring that newly developed crops are hardier, increase yields and offer equal or superior nutrition, a focus on commercial viability is critical to success. Farmers are not likely to adopt new seeds or change their cropping patterns unless there are secure market opportunities for new products. A range of programs are needed to create incentives, not only for increasing home consumption and local sales, but also to create market chains from small landholders to large-scale food processing industries.

Focusing on markets can define these opportunities to enhance commercial value. For example, since 2003, Tanzanian and Ugandan breweries have switched from maize to more drought-tolerant sorghum. Using sorghum in commercial brewing has expanded incentives for farmers to plant and market this hardy crop. The emergence of starch and ethanol markets could do the same for cassava production.

Source: Draft Framework for African Food and Nutrition Security (FAFS), May, 2007

and viral diseases, as well as insects. They also need crops that contain more protein and micronutrients. Research and development efforts for staples important in the diets of the poor should focus on the quality of nutrition as well as crop yields. Harvest Plus is one program already undertaking pilot research in Africa on the potential for nutrient enhancement of staple and non-staple foods.³⁸

Integrating Nutrition into Agricultural Extension Services

Reviving agricultural extension services so that they deliver appropriate technologies and knowledge to Africa's farmers is fundamental to boosting agricultural productivity. Investments in re-invigorating or expanding agricultural extension services, especially in rural areas, offer cost-efficient channels for delivering nutritional information and services simultaneously. Applying the NL defines opportunities to integrate health and nutrition education with extension services including:

- > Developing cadres of health and nutrition paraprofessionals "matched one-on-one" to agricultural extension agents on a national, sub-national or district basis.³⁹ These "nutrition extension" cadres can provide links to available local health, nutrition and education programs.
- > According to the FAO, only 5% of extension services have addressed the needs of rural women while no more than 15% of extension agents are women. Since women are more concerned with the nutritional needs of the family than men are, the provision of extension counseling, credit and agricultural inputs should optimize the participation of women. Improved planting materials, better

cultivars, and advice on cultural practices should be developed for home gardens, because these are predominantly tended by women.

The application and cost of an initiative to integrate agricultural extension and nutrition services is flexible. As part of the agreed increase in government support to agricultural development, consideration might be given to allocating a set proportion of resources budgeted for agricultural extension to integrating nutrition services and activities that focus on women.

VI. Applying the Nutrition Lens to Health Investments

Given the close links between disease and malnutrition, the ambitious objectives targeted by the African Union's Health Strategy cannot be achieved without significant reductions in malnutrition. Therefore, a key component of the NL process is developing strategies to integrate a package of essential nutritional interventions across a number of health services. Elements of this package, "mainstreaming" nutrition into health services, include ensuring that:⁴⁰

- > Biannual delivery of vitamin A capsules to all children aged 6 to 59 months is sustained through health services' infrastructure, community distributions and large-scale campaigns. These programs should include deworming tablets in areas of high parasitic infection.⁴¹
- > All contacts with mothers, including HIV positive mothers, provide counseling for breastfeeding, home and market options for improved complementary feeding and care, as well as iron and folic acid supplements.
- > Growth monitoring and other contacts with vulnerable and sick children through the Expanded Programme on Immunisation (EPI) and other community-based programs include a full range of health and nutrition products, services and information.
- > Programs delivering prenatal care and counseling develop sustainable options to provide pregnant women with iron supplements for at least three months.
- > Immunization, diarrhea treatment, malaria prevention, and other programs targeting children less than 5 years of age also integrate vitamin A information and capsule distribution.

In addition to this essential package, health services can develop opportunities for the distribution and

³⁸ Launched in 2003 as a Challenge Program of the Consultative Group for International Agricultural Research (CGIAR), with a mandate to develop bio-fortified staple crop varieties high in iron, zinc and beta-carotene to help improve micronutrient intakes and nutritional status in at-risk populations.

³⁹ Ethiopia currently offers one example of a large-scale government initiative to invest in training community health and nutrition workers, who will work alongside their agricultural extension counterparts in key areas of the country.

⁴⁰ These interventions outline core components of an essential nutrition package defined in WHO/UNICEF's IMCI and USAID's Essential Nutrition Actions

⁴¹ Deworming for Health and Development: Report of the Third Global Meeting of the Partners for Parasite Control, WHO Geneva, 29-30 November 2004

Sustaining Distribution of Vitamin A Capsules

Twice-yearly vitamin A supplementation is a fundamental component in the arsenal of effective interventions against childhood killer diseases and should be considered an essential health service. As National Immunization Days (NIDs), which ensure very high access, are phased out, alternative community-based options to sustain vitamin A supplementation are essential (and already being implemented in several countries).

Vitamin A capsule programs are appropriate to community level distribution because the capsules are easy to transport, easy to administer (in some countries supervised volunteers are used for this) and, above all, are popular with mothers and communities. Community-based vitamin A capsule distribution can be easily integrated with a number of other outreach-based programs in a synergistic manner. Covering 85 to 90 million children in the 23 worst affected African countries with two rounds of vitamin A supplements will cost about US\$0.5 per child.

Source: The Micronutrient Initiative

Integrating Deworming and Vitamin A Campaigns

In many African countries, such as the Democratic Republic of the Congo, access to health care services is very low and national vitamin A campaigns are among the rare opportunities to reach at-risk children. In the DRC 60% of children are vitamin A deficient, 70% are anemic and 80% are infected with worms. Based on a growing body of evidence indicating that worm infection is associated with anemia and reduces absorption of vitamin A, the decision was made to integrate deworming tablets into the vitamin A campaign in May 2005. The incremental cost to the campaign was about US\$0.02 per child. During the first round, about 80% of children given vitamin A capsules also received de-worming treatment - eliminating their parasite infection and consequently improving their iron and vitamin A status.

According to the WHO, "the results were decisive." The chewable and slightly sweet de-worming tablet was extremely popular and demand was high. The vitamin A campaign credited the addition of de-worming for helping to achieve a 14% increase in the number of children treated, from the 2004 stand-alone campaign to the 2005 rounds (which involved both vitamin A dosing and de-worming).

Source: Action Against Worms, WHO, January, 2006

promotion of food aid and special nutritional products, including complementary foods and fortified products. A range of programs delivering safe water products, currently marketed through both public and private sector channels, can be strengthened through partnerships with a range of health programs to capitalize on natural synergies with programs focusing on community hygiene.

Currently, these nutritional components are not systematically integrated into health services and are often neglected in favor of "medical interventions". Therefore, health services require investments in training of personnel, clear guidelines and effective accountability mechanisms, along with strong management and monitoring to ensure that the crucial contribution of nutrition to survival, health and well-being is recognized by all health workers. The NL process provides an opportunity to consider these institutional and human capacity building needs within the investment planning process.

VII. Applying the Nutrition Lens to Education, Community Action and Communications

Good nutrition is not intuitive - food producers and consumers don't always know what food or what feeding practices are best for their customers, their children or themselves. The NL process provides a national platform for considering investments in education, community action and media communications to reach rural and urban populations with reinforcing messages that inform production and business decisions and that also empower individual consumers.

Education Development Plans

Focusing a nutritional perspective on NEPAD Educational Development Plans highlights a range of opportunities to empower the next generation of caregivers and consumers with a set of life skills that they need to make the best use of their options and resources. Such opportunities include setting up:

- › Benchmarks for nutritional knowledge and behaviors that are embedded into reform of school curricula, classroom activities and teacher training programs.
- › Special school programs on "life skills" with components on consumer nutrition education, including partnerships with the private sector to create consumer demand for nutritious commercial products.
- › Programs for tertiary technical and educational institutions to train nutritionists who are not only technically expert, but also simultaneously capable of working in political and multi-sectoral program environments.
- › Partnerships and collaborations of ICT and distance learning projects with the health and agriculture

sectors as well as the private sector to deliver nutrition education, information and consumer options.

Community-based initiatives

Integrating nutritional components into community-based activities enables communities to identify their own nutritional problems, define and target their own nutritional interventions and monitor their own progress. Applying the NL process can systematically integrate popular and effective nutritional components into Community Driven Development (CDD) programs that are scaling up rapidly in Africa.⁴² Modest, added investment to ongoing CDD programs can empower communities to:

- › Deliver messages on maternal and child nutrition and health, including infant feeding, positive hygiene and sanitation behaviors.
- › Promote specific health services, such as growth monitoring, and prenatal care, or assist with distribution of vitamin A supplements.
- › Develop micro-enterprises to deliver a range of health and nutrition products, including safe water disinfectants, complementary foods for young children, high nutrient density foods for people living with HIV/AIDS, oral rehydration salts, bed-nets or condoms along with butane and other commercial products.

In addition to expanding the available infrastructure and resources, civil society offers the credibility and channels to engage political leaders and pressure public and private institutions.

Harnessing the Power of the Media

The penetration of marketing and mass media, particularly radio, is significant both in urban and rural areas. There has been a parallel growth in the communications industry, including advertising and public relations, as well as community-based media mainly servicing governments and NGOs. Applying the NL process can improve the quality and coverage of these growing media channels by:

- › Researching audiences, segmenting target groups and developing persuasive messages with a clear rationale and call to action that motivate political and business decision makers as well as consumers.
- › Informing and motivating technicians in both the public and private sectors, including farmers and food industry workers, enabling them to apply their knowledge, skills, networks and resources to deliver products and services that improve health and nutrition.
- › Empowering individuals and communities to more effectively utilize existing resources to improve nutrition and enhance health, through consistent and coordinated messaging, to:
 - J Disseminate information on positive role models, thus enabling individuals to adopt enlightened and effective health and caring behaviors.

- J Promote more appropriate and timely use of health services in the public and private sectors.
- J Empower consumers to make the best use of traditional and new products in local markets.

Sometimes advertising changes food preferences in unhealthy ways. A responsible media also has a role to play in mitigating these negative effects.

VIII. Applying the Nutrition Lens to HIV Care, Treatment and Prevention

The HIV pandemic strikes Africa within a pre-existing context of widespread malnutrition, reinforcing an already vicious cycle of low immunity and dietary deficiencies, and aggravating infection. The importance of nutrition in the context of HIV/AIDS was recognized at successive meetings of the East, Central, and Southern Africa (ECSA) Ministers of Health who called for the integration of HIV/AIDS interventions into the broad range of maternal and child health programs and urged member states to mobilize communities for proper nutrition in the management of AIDS. A number of countries in the region are developing or implementing national guidelines on nutritional care and support for PLWHIV.⁴³

The devastating negative synergies of HIV/AIDS and malnutrition have been well documented.⁴⁴ Malnutrition is a major complication of HIV as well as a significant factor in the progression of the disease. Better nutrition enables HIV-infected people to maintain health, sustain productivity, and preserve the quality of their lives as long as possible.⁴⁵ Providing food, pharmaceuticals and information that enable people to help themselves are crucial components in minimizing the negative cycle of HIV-malnutrition interactions. Therefore, improving nutrition should be considered a core component of HIV/AIDS programs.

The life-cycle approach, recognizing that interventions must address distinct threats to specific vulnerable groups at certain periods in their lives, is useful in developing the distinct nutritional care, counseling and treatment programs needed to address the progressive stages of HIV including:

- › Nutritional support for people living with HIV.
- › Nutritional management of HIV-related illnesses.
- › Management of anti-retroviral (ARV) drug interactions with food and nutrition.

⁴² Economic Growth through Improved Nutrition, HDNHE, World Bank, Draft May 20, 2005

⁴³ West Africa Nutrition forum recommended that ECOWAS member countries should include nutrition as part of HIV/AIDS programs and urged the WAHO to direct advocacy to Ministers of Health, to strengthen effective enforcement of legislation relating to the code of marketing for breast milk substitutes in the HIV/AIDS context.

⁴⁴ A comprehensive literature summary is provided in Nutrition and HIV/AIDS: Evidence, Gaps, and Priority Actions, SARA Project, 2004

⁴⁵ Weight loss and anemia are independent predictors of mortality in HIV+ adults, Mocroft et al. AIDS (1999) and Wheeler et al. JAIDS (1998)

- › Therapeutic feeding for the moderately and severely malnourished.
- › Special support for nutrition of HIV-exposed infants and young children.

Sustainably addressing HIV and malnutrition through life cycles requires multiple and reinforcing programs across health, agriculture, education and other sectors. The NL process can be applied across this range of programs to identify potential synergies and integrate the following into the spectrum of investments addressing the HIV pandemic.

- › Integrate nutritional education and communications with channels of HIV care, counseling and prevention including:⁴⁶
 - J Improving food intake, maintaining weight, and preventing food-borne infections. While the need for calories, protein and micronutrients rises as the disease progresses, food intake is often limited by mouth sores or loss of appetite from fatigue or depression.
 - J Managing nutrition-related symptoms of common HIV-related illnesses and opportunistic infections that limit food intake, decrease nutrient absorption and drain the body of stored nutrients.
 - J Empowering ARV clients to manage side effects and prevent drug-food interactions. Side effects of anti-retroviral therapies decrease appetite and are exacerbated by interactions with some foods - threatening nutritional status as well as adherence to the treatment regimen.⁴⁷
 - J Focusing on the special needs of HIV infected mothers and infants, including providing special education on complementary feeding and breastfeeding.
 - J Recognizing that traditional medicines may help treat many of the symptoms of opportunistic infections. Certain herbs and spices can improve digestion and stimulate appetite.⁴⁸
 - J Recognizing that prevention is inseparable from care and support and should be closely linked with all education and messages.
- › Adapt the growing body of knowledge about specific nutrient-HIV interactions into public sector food and pharmaceutical distribution programs including:
 - J Food aid programs should include blended and fortified foods to address the higher nutritional requirements of HIV-infected patients as well as to improve the resistance of the overall population.
 - J Therapeutic feeding should include nutrient-dense foods and nutritional protocols as developed by WHO or appropriate national institutions.
 - J Iron/folate supplements for pregnant women and other pharmaceutical interventions should integrate multiple micronutrient approaches as data on optimal formulations becomes available.⁴⁹

Nutritional and HIV programs need to foster partnerships and program convergences. Policies, operational guidelines, training and resources will be necessary to empower programs and service providers. Therefore, national plans should include mechanisms to build capacity and enable integrated approaches to minimizing HIV-malnutrition interactions.

IX. Driving Forward the Nutrition Agenda: Applying the Nutrition Lens to National Investment Planning

Significant progress in addressing Africa's nutrition crisis can be achieved within the current policy framework and existing resource commitments. Several Regional Economic Communities (RECs) are ready to proceed (the first RT took place in March 2007 in Rwanda) and about 20 countries are planning CAADP round tables by the end of this year (2008). These regional and national reviews provide an opportunity to initiate the multi-sectoral NL consultation process as well as leverage the modest level of donor resources that may be needed to "jump-start" the process.

1. Fast-Tracking Region-wide and National Nutrition Initiatives

Experience and evidence indicates that a number of interventions are ready to be "fast-tracked." The *Pan African Nutrition Initiative* recommends that RECs and national round tables assemble the modest resources necessary to convene key stakeholders, review the feasibility and rationale for nutritional investments, identify management and coordination mechanisms, define implementation plans and budgets, secure commitments, and mobilize resources within a 1 to 2 year time frame for the following initiatives:

- › A comprehensive package of educational, health and nutritional interventions delivered through the *Home Grown School Feeding Initiative*.
- › Fortification by large-scale food industries as part of CAADP's *Multi-Country Agricultural Productivity Programme*.
- › Building of sustainable business models for the production, distribution and marketing of high energy and high-nutrient-density foods or snacks for

⁴⁶ Guidelines and training materials have been developed by a number of agencies and are comprehensively summarized in HIV/AIDS: A Guide for Nutritional Care and Support. 2nd Edition. Food and Nutrition Technical Assistance Project, Academy for Educational Development, Washington, DC, 2004

⁴⁷ Wieser et al. JAIDS (2003) and Chen et al. CID (2003)

⁴⁸ FAO and WHO, Living Well with AIDS, A Manual for Nutritional Support, Rome, 2002

⁴⁹ Micronutrient supplementation studies have shown a wide range of benefits: reduced hospitalizations in adults (Selenium - Burbano); Increased survival in adults with advanced disease (Jiamton); increased weight gain in pregnant women (Villamor et al.); reduced morbidity and mortality in children (Vitamin A - Coutsoudis); improved birth outcomes and reduced mother-to-child transmission (Fawzi et al.)

vulnerable groups as part of CAADP's *Multi-Country Agricultural Productivity Programme*.

- › A comprehensive package of essential nutritional interventions delivered as part of the health services and programs in the *NEPAD Health Strategy*.
- › Nutritional enhancements to the *Pan African Cassava Initiative* and *NERICA Initiative*.
- › A comprehensive package of nutritional education and services to rural communities along with CAADP investments to expand agricultural extension services.
- › Developing the capacity of national technical institutions to create cadres of technically expert nutritionists and development experts in the *NEPAD Education Plan*.

2. Applying the Nutrition Lens and Building Capacity through CAADP

Capacity to apply an integrated nutritional perspective to a range of investments in agriculture and other sectors is limited. The *Pan African Nutrition Initiative* proposes to engage a core group of countries, many of them already engaged in implementing some of the fast-track recommendations, in a process of capacity building, planning and budgeting. Coordinated by the RECs and supported by NEPAD-CAADP, this may include the following components:

- › *Build the national rationale for urgent investment* - Reach consensus on the magnitude of the human and economic burden through *National Damage Assessment Reports* and consider priority intervention options.⁵⁰
- › *Identify key sectors and stakeholders* - Review the impacts of malnutrition on the performances of agricultural investments and other national investment priorities. Review programs and the capacities of these priority sectors to define their optimal inputs to nutritional interventions, including resource mobilization, management, monitoring and evaluation.
- › *Define coordination and management mechanisms* - Propose institutional frameworks for leadership and multi-sectoral coordination mechanisms. Leadership for the NL process can reside in agriculture, health, or a designated multi-sectoral commission.
- › *Conduct an investment analysis* - Define the capacity building needs, outline the implementation plans, estimate the financing requirements, review the benefits and costs, project the returns on investment, and create a 10-year financial summary.
- › *Explore new financing mechanisms* - Define the financing channels for an integrated 10-year nutritional improvement program within the context of existing mechanisms, such as PRSP, PRSCs, SWAPs, CDDs, HIPC and other channels.
- › *Develop national goals for nutritional improvement* - Based on the scale or coverage of the proposed

investments, project the potential reductions in the national prevalence of malnutrition, using appropriate indicators.

- › *Propose immediate next steps* - Identify short-term capacity building needs and propose national and regional approaches to train core teams to facilitate applying the NL.

Resources required for the national activities and analyses in five countries, regional meetings, technical assistance and CAADP management are estimated at US\$1 million.

3. Creating Capacity within the NEPAD Secretariat and CAADP

Activities will require leadership, coordination and support from the NEPAD Secretariat and CAADP. Enabling both fast-track initiatives and NL capacity building activities will require advocacy targeting national leaders involved in the NEPAD process. Both through RECs and channels connecting directly to governments, the Secretariat should advocate for the serious consideration of NL and fast-track initiatives as an integral component of Regional and Country Compacts.

To manage the development and consistent application of the Nutrition Lens as part of the regional planning and investment process, technical and communications capacity should be built into the CAADP Project Preparation Facility with the aim of:

- › Advocating the need to invest in a comprehensive, integrated and multi-sectoral approach to nutrition at appropriately high levels.
- › Developing a range of support materials, such as guidelines for a minimum package of nutritional interventions within agriculture, health, education and other lead sectors.
- › Developing guidelines for the education and training of key stakeholders, to build their knowledge of the integral links between agriculture and nutrition, and to assist them in revising their country work plans so that nutrition-related issues are incorporated.
- › Working with other NEPAD sectors to apply the NL process to the regional investment planning and resource mobilization processes.
- › Providing technical assistance to governments, either directly or within the context of the Project Preparation Facility, to facilitate NL implementation in national investment plans.
- › Providing a clearing house for technical nutritional information and the synthesis of best practices as well as to enable information-sharing, mutual learning and replication of successes.

This process can be implemented over the next 6 to 12 months with modest investments in personnel and capacity within the CAADP and the NEPAD Secretariat. In addition to the required technical assistance, resources to enable this capacity within the NEPAD Secretariat and CAADP are approximately estimated to be US\$250,000 annually.

⁵⁰ Using the analytical methodology established by UNICEF/MI, Vitamin and Mineral Deficiency Damage Assessment Reports and USAID/AED profiles to quantify the enormous human and economic burden of malnutrition

Annexes: Potential Fast-Track Projects based on "Early Actions"

Annex 1. Five-Year Program for Maize-Meal at Large-Scale Mills

Maize is the dominant staple cereal in Africa, representing approximately one-third of all grain consumption. While much milling in rural areas occurs in small-scale hammer mills, large milling enterprises, where fortification is feasible and efficient in the short-term, currently supply an estimated 10-40% of the market. Fortification in large-scale maize mills is currently mandated in South Africa and is implemented on a voluntary level in up to ten other Sub Saharan countries. Zambia initiated national maize-meal fortification in 2007. It is projected that universal maize-meal fortification in large and medium-scale enterprises in 23 countries will cover more than 100 million consumers, providing up to 60% of their daily needs for key vitamins and minerals. Based on current South African mandatory regulations, incremental public and private sector costs for fortification with eight key micronutrients, including vitamin A, is approximately US\$3.50 per metric ton of maize-meal or US\$0.17 per person per year.

Objective: Achieve 100% sustainable fortification of maize-meal in large and medium-scale mills by 2012.

Activities: (a) strengthen capacity of governments to provide core regulatory, monitoring and public education functions and to strengthen the capacity of the private sector to produce fortified maize-meal; (b) undertake advocacy to engage stakeholders and create an open government-industry dialogue; and (c) undertake capacity building at national and regional levels to develop institutions and networks to facilitate policy development, procurement of fortification inputs, training and the development of personnel, and laboratory and technical support.

Action by African Countries: Governments should design and implement a strategy to adopt multi-micronutrient maize fortification including: (a) building a public regulatory structure along with inspection and enforcement processes; (b) developing national capacity for the milling and marketing of fortified maize-meal; (c) developing government-industry collaborations to ensure consumer acceptance, increased public awareness and to sustain fortification in the market place; and (d) providing adequate incentives and protection for private sector investment in maize-meal fortification.

Actions by Partners: Provide technical assistance and co-funding, through loans and grants, to finance the above activities. It is estimated that US\$15 million in donor support could achieve 100% fortification in large-scale maize mills in 22 countries within 3-5 years. This includes a period of national advocacy and capacity building followed by launch and phased-up

implementation. Donor funds are requested in order to support government capacity, program development and limited financial incentives to the production sector. Production costs could be completely absorbed by the domestic market by the fourth year.

Annex 2. Four-Year Program for Fortification of Wheat Flour in 26 Countries

Since wheat is primarily imported, industry is centralized and fortification is considered very feasible and cost efficient. Expanding urban populations and a wider market share for commercially processed products will greatly expand the coverage of wheat flour from large-scale mills. In 1992-2002, wheat consumption grew by nearly 40% (from 14.5 to 20 kg per person per year).⁵¹ Urban populations, in which wheat flour consumption is relatively high, are expected to increase by 43%, adding more than 164 million consumers by 2015. In 26 countries the market for flour is projected to reach 20% of the population or about 62 million people in 2015.⁵² Average consumption will deliver 25-60% of requirements for key vitamins and minerals. Based on current South African mandatory regulations, incremental public and private sector costs for fortification with eight key micronutrients, including vitamin A, is approximately US\$3.50 per metric ton of wheat flour. Wheat flour fortification is mandatory in Nigeria and South Africa and voluntarily implemented in several other countries.

Objective: Achieve 100% fortification of wheat flour in large and medium-scale mills in four years.

Activities: (a) strengthen capacity of governments to provide core regulatory, monitoring and public education functions and strengthen the capacity of the private sector to provide fortified wheat flour; (b) advocacy to engage stakeholders and create an open government-industry dialogue; and (c) capacity building at national and regional levels to develop institutions and networks to facilitate policy development, procurement of fortification inputs, training and development of personnel, and laboratory and technical support.

Action by African Countries: Countries would design and implement a strategy to adopt multi-micronutrient wheat flour fortification into the current food quality and safety regulatory structure as well as the wheat flour milling industry including: (a) building a public regulatory structure along with inspection and enforcement processes; (b) developing national capacity for milling and marketing of fortified wheat flour meal; (c) developing government-industry collaborations to ensure consumer acceptance, increase public awareness and sustain fortification in the market place; and (d) providing adequate incentives and protection for private sector investment.

⁵¹ FAO Food Balance Sheets

⁵² UNDP Human Development Report 2004

Actions by Partners: Provide technical assistance and co-funding, through loans and grants, to finance the above activities. Approximately US\$6.9 million in donor support could achieve 100% fortification in 26 countries within 3-5 years.⁵³ This includes a period of national advocacy and capacity building followed by launch and phased-up implementation. Donor funds are requested to support government capacity, program development and limited financial incentives to the production sector. Production costs could be 100% absorbed by the fourth year.

Annex 3. Large-Scale Vegetable Oil Fortification with Vitamin A

The fortification of vegetable oil with vitamin A is one of the most effective, technically simple and inexpensive approaches to supplementing diets with this critical micronutrient. Currently, in many parts of Africa packaged vegetable oil is fortified; in South Africa, it is estimated to account for 70% of packaged oil. However, bulk-packaged oil which is "scooped" into individual tins and plastic bags in markets and usually consumed by low income populations is not fortified. Mali, Cote D'Ivoire and Ghana are currently working toward national programs for vegetable oil fortification. There have been feasibility assessments in South Africa, Uganda, Sudan, Malawi and other countries. In

the Sub Sahara the average consumption is 7.4 kg per person per year (FAO FBS); fortification at 60 IU per g with an assumed 70% retention will deliver an additional 16% of the WHO Safe Level of 2000 IU per day for an adult woman. The estimated cost of fortification at the indicated scale for 40 countries is US\$16.6 million annually, about US\$3.00 per metric ton or less than US\$0.075 per person per year. Given the fact that they are low, and a history of vegetable oil fortification in Africa, these costs can be quickly absorbed into the retail cost of oil.

Objective: Achieve 100% fortification of vegetable oil in large and medium-scale refineries and mills in five years.

Activities: (a) strengthen capacity of governments to provide core regulatory, monitoring and public education functions and strengthen the private sector to provide fortified vegetable oil; (b) undertake advocacy to engage stakeholders and create an open government-industry dialogue; and (c) undertake capacity building at national and regional levels to develop institutions and networks to facilitate policy development, procurement of fortification inputs, training and the development of personnel, and laboratory and technical support.

⁵³ Including adjustments for small mills in several countries



On average, fortified vegetable oil provides one-third of the vitamin A that a person needs each day to stay in good health

Action by African Countries: Countries would design and implement a strategy to adopt vegetable oil fortification with vitamin A into the current food quality and safety regulatory structure as well as the industry production process. This includes: (a) building a public regulatory structure along with inspection and enforcement processes; (b) developing national capacity for adding vitamin A to vegetable oil and making appropriate adjustments in the distribution system; (c) developing government-industry collaborations to ensure consumer acceptance, increase public awareness and sustain fortification in the market place; and (d) providing adequate incentives and protection for the private sector investment.

Actions by Partners: Provide technical assistance and co-funding, through loans and grants, to finance the above activities.

Annex 4. Sustaining and Expanding Universal Salt Iodization

After more than a decade of public-private collaboration, about 66% of African households consume iodized salt. However, those with limited access to iodized salt are disproportionately rural, poor and at risk of Iodine Deficiency Disorders. Development partners are currently considering the costs involved in sustaining current progress, expanding coverage and focusing on special circumstances such as countries facing emergencies, small salt producers and those exporting large volumes of salt throughout the continent. A four-year investment of US\$10 million concentrating on capacity building, public education and strengthening systems for potassium iodate procurement, as well as advocacy and other support to key salt-producing countries, could greatly increase coverage of iodized salt and progress toward Universal Salt Iodization (USI).

Over the past decade advocacy and support for USI has been integrated into many health programs across Africa. While these have been relatively successful, this progress is now reversing. In many African countries, household salt iodization coverage is falling below 30% and coverage of poor and rural populations is often particularly low. Collaboration with other sectors, including the private sector, should:

- › Define cost-effective approaches to sustaining current coverage of iodized salt, including accelerating public-private partnerships, upgrading food control and inspection capacity and creating consumer awareness and demand;
- › Identify strategies to expand coverage with a focus on special circumstances including countries facing emergencies and countries with small salt producers;
- › Focus regional advocacy on achieving USI in key

salt-exporting countries such as Senegal, Ghana, Ethiopia and South Africa, and could dramatically increase the iodized salt supply throughout Africa.

- › Apply salt iodization to animal husbandry and related agricultural initiatives, which can improve animal reproduction and growth, increase iodine intake by the human population, and reduce leakage of un-iodized animal salt into the food marketplace. Salt iodization should be seen as an attractive investment for farmers, as sufficient iodine consumption by livestock increases the health of the animals (and their offspring), which can increase farmers' household income.

Fortified salt can be used to prevent serious disorders like iron and iodine deficiency



Annex 5. Nutritional Enhancements to the Pan Africa Cassava Initiative

The many advantages of cassava (which provides low-labor and low-cost calories) have led to an initiative to expand the production and processing of this staple food. However, compared to staples such as maize-meal or wheat flour, cassava offers little protein, vitamins or minerals. However, the potential negative nutritional consequences of cassava as a staple can be addressed by fortifying processed cassava to improve its over-all nutritional profile.

African pilot studies indicate that fortification is feasible. A premix of 12 micronutrients has been successfully piloted in Nigeria with no negative product changes in *lafun*, *garri*, or *fufu*.⁵⁴ Protein enhancement of *garri* by the addition of soybean flour has been successfully piloted in the Anambra State of Nigeria with no reports of adverse consumer reaction. Though it is not currently done in Africa, large-scale fortification of cassava flour is considered feasible and requires small incremental investment. It is currently being done on a commercial scale by Bogasari in Indonesia.⁵⁵ Costs are low and over-all sales are good.⁵⁶

For those consuming from small-scale processors who cannot fortify, the potential for cassava to deliver improved nutrition can be greatly enhanced by encouraging the consumption of green cassava leaves. Where available this has been recommended by such organizations as the Hunger Task Force of the United Nations, the International Institute of Tropical Agriculture and African Food Preservers for Food Security.⁵⁷ Small-scale programs have been piloted throughout Africa and Asia. Most recently in October 2004, when the Cameroon Baptist Convention Health Board recommended juice made of pounded cassava leaves as part of their manual on the Prevention of Mother to Child Transmission of HIV.⁵⁸

Goal: To take full advantage of the large potential of cassava to contribute to food security and to ensure that changes in dietary patterns due to the Cassava Initiative "do no harm."

Objectives: (a) enhance nutrition of commercial cassava flour by fortification; and (b) enhance nutrition of non-commercial consumers through nutrition education to increase consumption of green cassava leaves.

Activities: (a) complete product development for large-scale cassava fortification in an appropriate African context; (b) large-scale market trial for fortified cassava based on the Bogasari technology; (c) include fortification as part of product standards for processed commercial cassava products; (d) include fortification investments as part of new cassava processing capacity; and (e) include dietary education to encourage the consumption of cassava leaves as part of promotion of cassava agriculture to small landholders.

Action by African Countries: Investments and strategies to develop and modernize the cassava sector including investment in fortification and nutrition education. Such action includes the development of a nutrition component of the national cassava strategy including parallel investments in public regulatory structure, national fortification capacity, and in government-industry collaborations that raise consumer awareness, ensure consumer acceptance, and sustain fortification in the market place.

Actions by Partners: Provide technical assistance and co-funding, through loans and grants, to finance the above activities.

Annex 6. Nutritional Enhancements to the NERICA Initiative

The New Rice for Africa (NERICA) will enhance African farmers' access to high yielding rice varieties, as well as to complementary production and processing technologies. It is important to note that as populations increase their rice consumption a number of micronutrient issues emerge. Beri-beri, a consequence of thiamin deficiency, is widely reported among the rice eating populations of Asia along with iron, vitamin A and riboflavin deficiencies.

While fortified rice is available in industrial countries (and is mandated by law in California), there has been little opportunity to adapt these technologies to developing countries due to traditional reliance on widespread small-scale de-hulling and milling facilities. As Africa invests in more centralized and larger-scale processing facilities to meet the anticipated increase in rice production and consumption, new fortification technologies can be tested and adapted to local needs. Fortification of rice is relatively new and includes several competing technologies such as:

- Micronutrient coating, which is being developed by the Philippines Food Nutrition Research Institute.
- Cold extrusion technologies for faux rice kernels known as Ultra Rice, which are being piloted by PATH (Program for Appropriate Technology in Health) in South America and Asia.
- Hot extrusion technologies for faux rice kernels, which were recently developed by Buhler SA (the world's largest supplier of milling equipment) and DSM (formerly Roche Fine Vitamins & Chemicals).

⁵⁴ Cassava Fortification in Nigeria: The Journey So Far, Canice Chukwekke Asonye, University of Benin Sight & Life.

⁵⁵ Tivul is a traditional Indonesian food made from cassava, and associated with food shortage before the rice harvest. Bogasari's tivul is a low cost, instant and labor saving product fortified with vitamin A, B6, B12, folic acid, iron and iodine.

⁵⁶ Personal communications, Bogasari Mills.

⁵⁷ Improved nutrition via consumer education and increased consumption of widely available "green leaves", has been demonstrated in a number of countries, most notably Thailand's campaign to increase the consumption of ivy leaves.

⁵⁸ Based on recommendations in: Woods, MN: Dietary Recommendations for the HIV/AIDS Patient. In: Nutritional Aspects of HIV Infection, ed. T. Miller and S.L. Gorbach, Arnold Press, London, 1999, pp 191-203.

Objectives: To take full advantage of new investments in rice processing in order to enhance the food security of rice consumers in Africa.

Strategy: The NERICA initiative plans to invest in quality rice processing centers to improve the quality of milled rice and develop supply to local and regional markets by small holder farmers. This provides an opportunity to invest in developing rice fortification in order to enhance the nutritional impact of NERICA program.

Activities:

- › Develop most cost-effective fortification technology for NERICA based on available models.
- › Include investments in appropriate rice fortification technologies as part of NERICA proposals.
- › Include fortification components in policy, capacity and institution building investments to develop a competitive rice sector.

Annex 7. Building Capacity to Produce Nutrient Dense Foods

Nutrient dense, high protein and fortified foods are recommended for a range of high risk groups, including children aged 6-36 months, people with HIV, pregnant women and populations facing emergencies. Blended foods are the most economical form of nutrient dense foods, and consist of cereal-based processed foods with added mixes of vitamins, minerals, protein, calories and other key nutrients.

In 2003, 413,000 metric tons of blended foods were shipped to Sub Saharan Africa, mainly from donors in Europe and North America. This was, however, not enough to meet the enormous needs of the vulnerable populations involved. Only an estimated 10% was produced in Africa, indicating an overwhelming dependency on donor financing and external sources of production. The World Food Programme is working to procure locally from suppliers in South Africa, Malawi, Mali, Kenya, Ethiopia, Senegal, Madagascar and Zambia. In some cases the products being sourced are branded products, such as Famix in Ethiopia or Likhuni Phala in Malawi.

Investments in African processing capacity can supply relief, and ensure public distribution, therapeutic feeding and commercial markets. While initially more expensive than processing in industrial countries, domestic production of blended foods in Africa is recommended as a way to reduce dependency on foreign supply and meet the overwhelming need of at-risk populations. It would also capture the direct and indirect economic and social benefits of local production. Developing an African supply base for blended foods involves investment in both production and market development - both public welfare distribution and private commercial markets. Essentially there are three models for investment in blended food production:

- › **Use of major food processors**, which in many African countries can adapt production processes and respond to market incentives (such as purchases for public distribution programs) without significant assistance. Additionally, large-scale processors will respond to public-private partnerships. This includes generating innovative sales and distribution in order to reach vulnerable groups, and reducing the risks of developing new commercial markets in low income areas.
- › **Use of medium-scale enterprises located in district level commercial centers**, which can respond to market incentives for blended foods with some technical assistance. With some capacity building and access to new markets, these may be encouraged to develop sustainable, commercial products. Along with several medium-scale suppliers in Malawi, WFP is developing this model for Likuni Phala.
- › **The development of local enterprises**, which produce 200-600 metric tons of blended foods to supply smaller markets (accounting for 10,000-15,000 higher risk consumers). This requires relatively more intense capacity building and higher start-up costs. However, small-scale enterprises at rural sub-district levels are closest to vulnerable groups and offer benefits associated with community ownership and participation in production. Experiences in Africa and elsewhere indicate that an investment of US\$100,000-US\$150,000 over 2-3 years will develop profitable and sustainable suppliers of blended foods.⁵⁹

Objectives: Build domestic production and market capacity for blended foods in order to supply vulnerable populations such as children aged 6-36 months, pregnant women, people with HIV and populations threatened with severe food insecurity.

Activities: Use Regional Economic Community planning meetings and other investment planning platforms to define, develop and test technical, promotional and financial mechanisms to expand the production and marketing of blended foods in both public distribution programs and commercial markets.

Action by African Countries: Assign an investment planning process to: (a) identify the volumes of blended foods needed by high risk groups; (b) review current consumption, sources of supply and potential domestic production capacity; (c) define optimal mixes of investment in large, medium and small-scale enterprises; and (d) develop plans to build domestic production, distribution and/or marketing capacity through public welfare systems, therapeutic feeding and health centers, NGOs and other appropriate public outlets, as well as developing new commercial channels through public-private partnerships.

⁵⁹ Based on Investment of Central Synod Presbyterian Church of Malawi (with resources provided by World Vision) in Domasi Fortification Unit in Malawi 2000-2005.

Actions by Partners: Donors should provide technical assistance and shoulder developmental costs. In addition, donors may review procurement policies for blended foods to ensure optimal support and synergy with the development of local production and marketing.

Annex 8. Some New Approaches to Combating Vitamin and Mineral Deficiencies in Emergencies and Food Security Programs

A Guide to Micronutrient Interventions

The health and nutrition community has long recognized the importance of consuming micronutrients during emergencies, as documented in the Sphere Project "Humanitarian Charter and Minimum Standards in Disaster Response". Yet, field-based evidence indicates that micronutrients are frequently not delivered to the extent that they are needed. Even where field staff are aware of inexpensive and easily used ways to improve micronutrient intake, difficulties accessing supplies and difficulties associated with their delivery capacity may prevent them being made available.

The Micronutrient Initiative (MI) has developed new approaches that use the food distribution system to deliver micronutrients. Using a food-based approach removes the burden from health systems, which are usually over-taxed during the first phases of an emergency. The interventions listed here do not require medical staff to administer them. They are easy to use and distribute, and offer cost-effective ways of reducing vulnerability to the health impacts of micronutrient deficiencies. They can also be targeted at specific needs.

Another approach is to use supplements (e.g. vitamin A, iodized oil capsules, iron folate tablets or zinc tablets) for which the MI can provide procurement assistance. However, these interventions usually have to be distributed and administered by health staff.

These products have all been developed to withstand the harsh environmental conditions typical in most emergency settings. They have all been tested for acceptability and feasibility within large-scale program delivery, although certain interventions would need some piloting in particular settings.

These interventions also have in-built flexibility, which means that they can be adjusted to the requirements of specific emergency settings. Once specific requirements are known, MI can assist in adjusting and customizing the products to context-specific needs.

The Food-Based Approach:

The following products (developed by MI) can be used in emergency settings, as well as in areas of chronic

food insecurity, by integrating them within food distribution systems. Costings are indicative and do not include transportation or program delivery costs.

Anuka: Targeted at 6-24 month-old children, these individually packaged sachets of multi-micronutrient mix can be added into cooked food at the household level and are mainly used to combat iron-deficiency anemia. Cost: US\$2.40 per child per year.

Candies/Fortified Lozenges: Developed for 2-6 year-olds, adolescent girls, pregnant and lactating women, these hard-boiled lozenges filled with multiple micronutrients are used to combat vitamin A deficiency and iron-deficiency anemia. Cost: US\$1.20 per person per year (300 units).

Commercial Fortification (maize-meal, wheat and oil): Targeted at the entire population, these multi-micronutrient premixes include combinations of iron, folic acid, vitamin A, B-complex vitamins and zinc added to staple food at the industry level. Cost: For wheat and maize flour, US\$0.50-US\$5.00 per metric ton plus the cost of the flour; for oil, US\$4.00 per metric ton plus the cost of the oil.

Double Fortified Salt (DFS) and DFS Premix: For the entire population, this is table salt enriched with iron and iodine and is used as for normal salt. Cost: US\$0.20 per person per year, plus cost of salt.

Iodized Salt: For the entire population, refined table salt enriched with iodine is recommended to be used daily. Cost: US\$0.03-US\$0.04 per person per year, plus cost of salt.

Small and Medium-Scale Milling (such as maize-meal): Targeted at the entire population. Multi-micronutrient premix is added to staple food at a small-scale or in on-site mills. Cost: US\$0.60 per person per year, plus the cost of the staple food.

Vita Shakti (as it is called in India) or Rahma (in Sudan): For children below five years of age as well as the entire population, this free-flowing multi-micronutrient powder can be added to cooked food at the household level and combats vitamin A deficiency and anemia. Cost: US\$0.35-US\$0.45 per person per year.

Annex 9. Enhancement of CAADP Regional Trade Facilitation Initiative

A series of consultations have concluded that efficiencies of scale at the regional level can contribute to more effective national fortification programs. Examples include establishing regional fortification guidelines; supporting a laboratory network for food fortification quality analysis, regional advocacy and communications capacity; and providing training and development programs for the food production sector and for government regulators. The scope of these regional activities parallels and supports those outlined in CAADP's *Regional Trade Facilitation Initiative* and can be integrated into this initiative.

Objectives: Build regional policy support and institutional technical capacity to support food fortification in Africa as an integral part of CAADP's *Regional Trade Facilitation Initiative*.

Activities: As part of the *Regional Trade Facilitation Initiative* establish mechanisms to work with national institutions in a range of areas including:

- › Providing training and (possibly) putting in place regionally harmonized certification of national food control, customs, nutrition monitoring and other program personnel;
- › Providing technical support, including reference laboratories, methodologies and protocols for food, nutrition and health analysis;
- › Identifying regional business opportunities and efficiencies of scale such as building premix facilities and offering bulk purchasing of fortificants;
- › Providing a regional platform to harmonize standards, regulations and processes and ensuring no unnecessary barriers to trade.

Action by African Countries: Designate high-level government participation in these regional processes and commit to pursuing consensus recommendations for regional and national actions. This includes long-term commitments to support and share in the financing of regional institutions.

Actions by Partners: Donors should provide technical assistance and shoulder the costs of regional developmental undertakings (estimated at US\$5 million). This process would result in recommendations for effective national investments.

Annex 10. Five-Year Program to Develop Small-Scale Maize Fortification in Southern Africa

For the foreseeable future, small-scale mills and processors will continue to be the dominant suppliers of milled staple cereals and tubers for high-risk rural

consumers. In Southern Africa, fortification of maize-meal at this small-scale community level is projected to deliver more than two-thirds of the average daily requirements of iron, folic acid, vitamin A and other vitamins and minerals at incremental costs estimated at US\$1 per person per year.

Given exceptionally good targeting of rural and at-risk populations, public investment in this area is a high priority. While pilot trials in several countries have shown technical feasibility, consumer acceptability and some indications of commercial potential, there are no sustainable business models for small-scale community level fortification. Small-scale fortification offers a decentralized model for a rural development focus for value-added processing by small independent rural businesses; thus developing tens of thousands of small rural businesses across Africa. To date, work has focused on maize-meal fortification; however, the lessons learned can be applied to fortification of sorghum, millet and other staples produced on a small scale.

Objectives: Conduct a four-year program in countries with high maize-meal consumption to: (a) determine commercial feasibility and sustainability of fortification at the community scale; (b) build models and business plans for expansion into regional and national scale markets; and (c) expand lessons learned to other staples such as sorghum, millet, cassava and others that are commonly processed at the community level.

Activities: Develop and test approaches to small-scale fortification, including marketing trials, in four broad areas: (a) finalize product development including defining those blending technologies and fortification profiles with the lowest costs and highest benefits; (b) define program linkages and collaborations in order to cost efficiently and create support infrastructure such as premix procurement systems, feeder purchase and maintenance, community marketing, quality assurance, training and technical assistance; (c) develop models for financial incentives including start-up funding, subsidy approaches and other temporary measures; and (d) design commercial scale business and investment plans and conduct resource mobilization activities.

Action by African Countries: Specifying small-scale fortification as a long term component of rural agricultural development and mobilizing relevant domestic institutions to support trials. Countries with the highest maize-meal consumption from the small-scale milling sector may consider taking the lead. Examples include Malawi, Mozambique, Swaziland, Tanzania, Zambia, South Africa or Zimbabwe. As investments in rural market infrastructure are defined during the proposal preparation process, identify opportunities to develop investments in farmer cooperatives and medium-scale rural-based mills for the fortification of maize, millet, sorghum, and other staple cereals, as well as salt and oils.

Actions by Partners: Donors should provide technical assistance and shoulder the costs of this developmental undertaking which has implications for the small-scale fortification of other foods in Africa and Asia. An estimated US\$13 million would support 4-6 large-scale trials.

Annex 11. Three-Year Program to Develop Small-Scale Mill Fortification in West Africa

In addition to privately owned and operated mills, the Multifunctional Platforms Project (MPP), operated by the Government of Mali, has established approximately 450 mills in rural villages. And, it intends to expand this by a further 4,500 over the next 10 years. These mills play an important role in processing cereals consumed by the majority of rural populations and the urban poor. Key objectives of the demonstration projects include showing that:

- › Direct Addition (DA) is a safe fortification method (e.g. it's usually correctly applied by mills);
- › the actual dose rate delivered by DA is close to the target;
- › the supporting IEC, compliance monitoring and quality control systems function routinely and ensure proper use, effectiveness and safety;
- › high household acceptance and compliance levels for DA can be expected;
- › use of commercial distribution mechanisms is efficient, effective and scalable;
- › DA contributes to reducing vitamin and mineral deficiency (VMD).

The project will be implemented by a team of institutions, primarily drawn from government and including the National Fortification Alliance, Ministry of Industry and the MPP. The preliminary 36-month budget estimate is US\$1.25 million.

Annex 12. Expand Production and Consumption of Locally Grown Micronutrient Rich Foods

Red Palm Oil (RPO) is traditionally consumed in many parts of Africa and has been successfully introduced to a number of new areas, cutting Vitamin A deficiency (VAD) by 50% or more. A newly developed product, beta-carotene rich sweet potato, known as orange fleshed sweet potato (OFSP), was introduced in Mozambique and has been adopted by rural small farmers and accepted by consumers. It has had a positive impact on household food security and has improved child nutritional status. It should be noted that the average consumption of potato, sweet potato and yams in Sub Saharan Africa is 47 kg per person per year: about half that of cassava.

In the relevant countries, these successful projects should be integrated into the national nutrition strategy and expanded to the widest possible scale. In some cases these concepts can be extended to other countries. Where oil palm and OFSP are not grown or will not grow, other opportunities to introduce new nutritious crops and foods should be considered across Africa in national agricultural and health development plans.

Objectives: Consideration and analysis of underutilized opportunities (1) to develop the production and marketing of new more nutritious strains of indigenous crops or (2) to expand the consumption of traditional nutritious foods to new market areas. This would include:

- J The introduction of OFSP to areas where white-fleshed sweet potato is already widely grown;
- J The expansion of RPO consumption and its use as a commercial food in areas not consuming it;
- J The development of other promising production or marketing opportunities;
- J The expansion of existing production areas, processing sites and storage/distribution capacity;
- J The building of effective marketing chains linked to promotional programs to increase demand.

Activities: Capitalize on Regional Economic Community processes in order to communicate the potential for the introduction and/or scale-up of appropriate vitamin-rich food crops as national programs and to advocate for resource mobilization. Communicate the potential for OFSP and RPO to countries where white-fleshed sweet potato or RPO production is widespread. Develop pilot projects and plan for investments to bring production and marketing of the projects to national scale.

Action by African Countries: Consider appropriate application of RPO and/or OFSP in the development of rural production and market infrastructure and ensure that this is included in the proposal preparation process. Identify pilot projects and expand other opportunities to introduce highly nutritious locally grown and processed foods to those most in need.

Action By Donors: Consider supporting the expansion of ongoing RPO and OFSP programs and provide technical assistance to countries in the process of developing and producing their own indigenous products.

Annex 13. Delivery of Vitamin A Supplements to Children Under Five

In 1998, WHO-recommended the provision of Vitamin A supplementation (VAS) with routine and other immunization contacts, in order to integrate their provision with other health services. From 1998, as National Immunization Day (NID) campaigns became widespread, many countries integrated VAS and oral polio vaccine distribution, enabling large numbers of children to receive at least one VAS dose annually. As polio and NIDs are being phased out, or in some cases terminate abruptly, few countries have made adequate provision to ensure that VAS reaches all eligible children twice each year. Linking VAS to measles campaigns is another opportunity for ensuring that a high coverage is achieved. However measles campaigns do not consistently happen twice-yearly.

It is imperative to identify effective mixes of distribution mechanisms in order to provide high and sustained protection for children under five. Doing this would include:

- › Campaign-style approaches which are effective but can have high human and financial resource costs;
- › Integrating VAS with routine health and immunization contacts. Without much higher rates of contact than those achieved by routine services, vitamin A coverage will fall below the levels needed to control deficiency;
- › Providing VAS in all health service packages that reach children as part of a strategy to improve vulnerable children's access to such services;
- › Community level actions. Vitamin A capsules are realistic as they are easy to transport, easy to administer, and above all popular with mothers and communities. Using them as a "lead intervention" could make regular six-monthly contact with mothers and communities much easier to develop and sustain, and is an approach that should be tested.

Objectives: Develop a mix of multi-sectoral strategies to reach children under five with twice-yearly VAS.

Activities: Use Regional Economic Community planning meetings and other investment planning platforms to advocate for VAS and define the most appropriate and cost-effective mix of strategies to implement twice-yearly by integrating them into overall child survival and nutrition programs.

Actions by African Countries: Consider a range of multi-sectoral, national opportunities that can be used to deliver VAS. Examples would include: (a) conducting twice-yearly outreach activities ("Child Health Weeks") together with extensive social mobilization in order to deliver high-dose vitamin A supplements and other effective interventions to children under five; (b)

conducting community-focused events highlighting the survival of children and the key practices that can improve their lives and well-being; and (c) taking advantage of other occasions to build the skills and commitment of community-level partners and of public health networks and other systems.

Actions by Donors: A range of donors are committed to developing an accelerated program that can provide 85-90 million children in the 23 worst affected countries with two rounds of vitamin A supplements. Total overall costs are estimated at US\$0.50 per child.

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