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■ Editorial:

The turning point

This year, for the first time ever, the IUNS International Conference on Nutrition is taking place in Africa. Could this be the turning point in Africa's efforts to eliminate malnutrition? Are we now going to see a massive change in the way governments, industry, donors, scientists and others tackle the problems that have been facing us for so long?

It should be clear to everybody by now that hunger and malnutrition are not simply the result of not eating enough nutritious food. People's diets and health are strongly influenced by poverty, as well as lack of education, sanitation and health care. Wars, civil unrest, natural catastrophes, market restrictions and bad governance all make it harder for the average family to provide itself with the minimum necessities of life.

While preparing this issue of *Nutriview*, I have been encouraged to learn about the way Africans are taking new steps to make better nutrition and health a priority goal. Governments are finally realizing that economic development and good nutrition are interdependent; collaboration between stakeholders is getting stronger day by day; more and more individuals are taking on the responsibility to "champion" measures designed to correct earlier failings. With the support of organizations such as GAIN, efforts can be started on a secure financial footing. The agreement reached with African leaders at the G8 summit in Gleneagles, Scotland, could be another important step to accelerate progress towards the Millennium Goals,

especially in Africa. From the people behind the New Partnership for Africa's Development (NEPAD) we learn that the multifactorial causes of malnutrition are best addressed with multisectoral interventions, and that to achieve sustainable results we must invest in nutrition, not in nutrition programs.

I hope this means that, in the twenty-first century, we shall, at last, start to deal with malnutrition in a holistic manner, and not, as in the past, look only at the role of specific nutrients in specific conditions. With this statement, I do not want to belittle the achievements of those great researchers who discovered the vitamins in the first place, or recognized the critical health roles of iodine, iron and vitamin A. But the preoccupation with single nutrients is clouding our view of the main problem. Every day (or so it seems) nutrition scientists are discovering new aspects of micronutrient malnutrition. While some still discuss whether it is safe and economical to fortify flour with folic acid, others have shown that it not only can prevent neural tube defects, but heart disease as well. But with this "microscopic" view of nutrition, we are forgetting that healthy growth and development depend on all the vitamins, as well as many minerals, trace elements and other factors (possibly acting together synergistically) and not just folic acid, vitamin A, iodine or iron in isolation.

Just because research shows us the importance of one nutrient for a particular condition, it does not mean other (as

yet untested) nutrients are not equally important. We are now learning that deficiencies of selenium, zinc, vitamin D and vitamin K (to name but a few) are just as widespread globally, and just as critical for health. Maybe this is the opportunity for Africans to show the world how malnutrition can be defeated.

South Africa is a perfect example of how it can be done. It was one of the first countries on the continent to introduce mandatory food fortification with multiple micronutrients. Now, all eyes are watching to see if South Africans become healthier and more prosperous as a result. If you can go by the enthusiasm that is expressed by all the stakeholders in the country, South Africa's effort has to be successful. However, some critical voices can also be heard, concerned that the success could be impaired if monitoring and quality control are neglected, and legislation is not strictly enforced.

Monitoring, quality control and legislation enforcement are, indeed, among the most difficult aspects of food fortification. To ensure success, it is essential that they are properly organized and financed right from the start. After all, the costs for implementing food fortification with multiple micronutrients are minimal in relation to the huge returns on investment that can be achieved.

Africa has gone a long way in its nutrition efforts over the past decade. It is essential now that efforts are reinforced. With the right decisions, we can make the African Dream come true – *A. Bowley* ■

■ From the IUNS President:

Role of international nutrition science in human development and planetary health

The International Union of Nutritional Sciences (IUNS) is in a unique and responsible position to ensure that Contemporary and Future Nutritional Science delivers human and planetary goals. More than

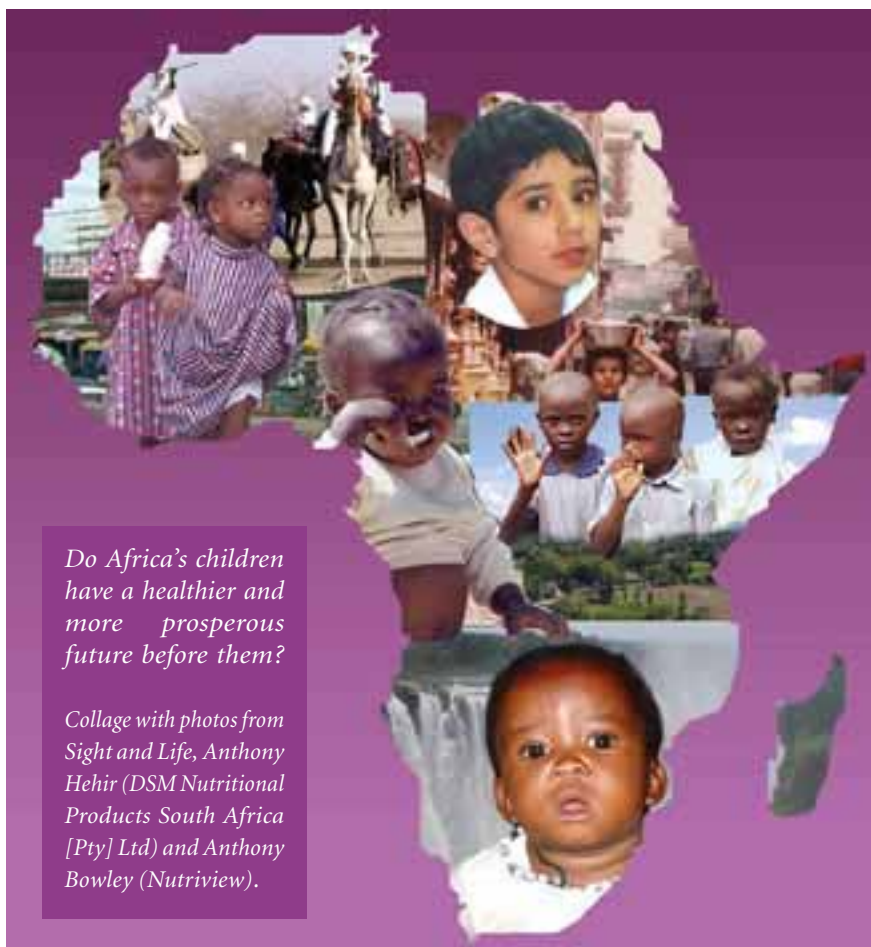
half of the world's nations have their national nutrition science organization as a member (Adhering Body) of IUNS. Such arrangements provide for dialogue amongst nutrition scientists internation-

ally, which has intrinsic merit. Unless they are purposeful, though, a great deal of organizational effort does little more than simply maintain the organization as an end in itself. It is generally

agreed that IUNS has a responsibility to contribute its expertise at several levels and in different ways. These include the development of international food/nutrition databases, and of nutritional definitions and criteria, together with guidelines and policies, on the basis of sound scientific principles. What needs greater emphasis is that all of this noble work provides an exceptional facility for human development and for what is increasingly critical, namely planetary health. Herein lies a trend for nutrition science, to be less anthropocentric and more mindful of ecosystems, their evolution and integrity, particularly in regard to the future food supply and healthful environments—a kind of “enlightened self-interest” for the human species and its food and nutrition scientists.

It is usually difficult to deal with the magnitude and extent of problems that beset us globally. No less the nutritional ones. So, perhaps paradoxically, international nutrition science also has to think and act locally, as well as globally. To this end, for the last quadrennium, the IUNS has had a particular focus on Africa, especially sub-Saharan Africa, and the IUNS leadership has agreed that this will continue for at least another quadrennium, if not longer. There is a general consensus that our generation of nutrition scientists will be regarded as negligent unless we address adequately and creatively the hunger and poverty in Africa. This is not to say that Africa is alone in this plight. Indeed, the regionalization of IUNS activities comes with an imprimatur to strengthen interregional collaboration, particularly between Africa, Asia and Latin America, but also within the African continent. During the last four years the African Union of Nutritional Sciences and the Middle Eastern Nutrition Association (includes North Africa) have been formed, with an African Continental Nutrition Congress planned for 2007 in Morocco.

Regional Nutrition Leadership and Institutional Capacity Building activities have gathered momentum—jointly between IUNS and the United Nations University. Inter-Scientific Union activities have strengthened; for example IUNS and the International Union of Food Science and Technology collaborate in an on-line Food Science and Technology training initiative in Africa. The IUNS President chairs the International Science Coun-



cil initiative on the Sciences for Health and Well-Being. This engages all major science unions, so allowing new science platforms and models to develop in regard to contemporary and future needs.

Nutrition Science can justify a unique position amongst the sciences, and promote its own methodologies, strategies and objectives. However, the persistence, extent and gravity of nutritionally-related health problems demands more innovation and collaboration than at present. None of individual, societal or planetary health is addressable by nutrition alone, but by partnerships among the sciences, or yet altogether different approaches.

Sensing a critical point in the history of nutrition science, often threatened by its incorrectly perceived irrelevance to economic development and health advancement, and by uncertain career pathways for talented young people, the IUNS President established an inquiry, jointly with the World Health Policy Forum (WHPF) and the University of Giessen, about a possible New (for the time being) Nutrition Science to reactivate the discipline and inspire support for it. This has led to the Giessen Declaration

of 8th April 2005, prepared by a Group of Eminent Scholars from and beyond the realm of Nutrition Science. It is available on the IUNS web site and draws attention to the synergistic and integrative requirements of nutrition science with its biomedical, social and environmental dimensions.

For Nutrition Science to achieve its potential contribution to human development, its objectives will be:

1. To strengthen the Biomedical-Social-Environmental Science Partnership.
2. To facilitate the transfer of nutrition science and its partnerships to relevant technologies for human development and environmental sustainability.
3. To build the capacity of individuals, institutions and the private sector to optimize the food supply so that hunger is overcome, nutritionally-related disease prevented, and health promoted.
4. To work with communities to deal with nutritionally-related disease in ways that are culturally-sensitive, sustainable and effective.
5. To support sustainable food and nutrition policy based on sound science.

In order to be organizationally compe-

tent to tackle these objectives, the IUNS has focussed its resources these past four years on the following:

1. The International Congress of Nutrition in Durban, to ensure it has positive consequences for Africa and encourages dialogue amongst Communities-in-Development worldwide. The congress is also much more work-in-progress than usual, and its pre-congress workshops (Safaris) feed directly into the congress.
2. Regionalization of IUNS activities and programs with portfolio responsibilities of Councillors for Regions, and sharing of regional facilities and resources with UN Agencies and a progressively regionalized ICSU.
3. The case for nutrition science and cognate technologies to have economic significance through improvement in the human condition and, therefore, a solid justification for a greater flow of resources into the science. At the same time, and with similar reasoning, the work of IUNS would itself generate revenue, and help sustain it by the employment of talented staff who would be provided with appropriate infrastructure. Science/technology partnerships and major internationally significant project management are part of the solution to this challenge.

4. Task forces that address IUNS objectives. These have had varying degrees of progress and impact, but, invariably, the process has been institution building, if not immediately consequential. For example, the Evidence Based Nutrition task force has worked with the Food and Agriculture Organization and the World Cancer Research Fund to develop a reference science-based platform for nutrition policy and expenditure. Its future course alongside Evidence Based Medicine in National and International Health Policy will require ongoing review and commitment.

The Eco-Nutrition task force has contributed to the work of other initiatives, such as those in the new Nutrition Science, InFoods, and Indigenous Food Systems, with less standalone significance than was envisaged. Nutritional Resistance to Infection has set out a raft of new issues in nutrition science including the missing information about parasitic disease and nutritional status; the approaches taken to emergency nutrition during the Tsunami disaster; and the growing concern about new pathogens which cross species barriers where ecosystems are impaired or malnutrition supervenes. Nutrition and Lifelong Health has opened up the enquiry of how nutritional status at any stage of life may affect health and well-being at a later stage and reminded

us of the inadequacy of present nutrition policies in regard to perinatal mortality, growth and development and Disability Adjusted Life Expectancies (DALES). And then there are the profoundly important findings of the Transitional Nutrition Technologies and Nutrition, School Feeding task forces.

A great tribute is to be paid to those who have led these task forces, to those who have served on them, and to their younger members who are our future leaders. We see all activities of the Union as opportunities for capacity building. The recruitment and accord of responsibility to younger nutrition scientists is an undertaking we have, along with other scientific unions, to ICSU.

That there should be an epoch-making significance to the future nutrition science is self-evident to many of us, but this view is not as widespread as it needs to be among decision makers. The momentum that now exists in IUNS should make its future and relevance bright, but nothing should be taken for granted. The acid test of how we are travelling will be when Africa turns the nutritional corner, under the stewardship of Africans.
– Professor Mark L. Wahlqvist AO, MD BS (Adelaide), MD (Uppsala), FRACP, FAFPHM, FAIFST, FTSE, President, International Union of Nutritional Sciences ■

■ Feature:

NEPAD: driving forward the nutrition agenda

The Comprehensive Africa Agricultural Development Programme (CAADP) is a flagship program of the African Union and the New Partnership for Africa's Development (NEPAD). It envisages a significant increase in agricultural production as a key engine for economic development. The contribution this can have for improving nutrition and health has been specifically recognized within the food security pillar of CAADP and through a Pan-African Nutrition Initiative.

For Africa, there are no long-term solutions to food security without addressing the short-term nutritional needs of Africa's

rural population. Long- and medium-term investments in agricultural productivity need to be matched with immediate investments to protect the nutritional status and health of Africa's present and future agricultural workforce, a population assaulted by disease and weakened by food insecurity.

If current trends continue, malnutrition in Africa will become more widespread and severe. Accepting this is the same as accepting continued humanitarian crisis and economic decline for the continent. Much of this enormous burden can be prevented by applying low-cost technologies,

delivering basic services, communicating simple behaviors and investing modest resources. The challenge is to capitalize on the promise of these interventions with effective implementation.

Freedom from hunger is only achieved when nutrition no longer impedes survival, health and the achievement of full human potential. It is not simply a matter of ensuring that people have access to sufficient quantity and quality of affordable food. To achieve this goal, we must engage multiple sectors to facilitate or provide a range of inputs that empower individuals to help themselves.

Addressing multifactorial causes

Widespread malnutrition reflects a failure of multiple sectors to provide for the basic human rights of food and nutrition security. Interventions must reach across sectors to address the multisectoral sources of that failure. In the words of UN Secretary General Kofi Annan: “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.”

Nutrition services and programs are traditionally located within departments of health, where the critical activities of detecting and treating health impacts of

poor nutritional status are appropriately housed. However there is widespread recognition that problems with intersectoral determinants require similarly intersectoral solutions. By applying a Nutrition Lens or “nutrition impact assessment” to programs, the positive contribution to improving nutritional status can be maximized (*see box*). Equally importantly, potential or actual negative impacts can be identified and hopefully reduced.

For an effective approach a Nutrition Lens is therefore recommended. It will significantly enhance the impact of development investments within the current policy framework as defined by international agreements and subsequent

national plans of action. This is because it capitalizes on program synergies and opportunities to deliver products and services in a cost-efficient manner and avoids wasteful duplication. By addressing a multidimensional problem with multidimensional solutions, it creates a cycle of reinforcing benefits that can actually improve nutrition and achieve the planned results. The two-pronged approach will move forward specific fast-track nutrition-linked initiatives or components of key programs while leading a national drive for improved integrated policy, planning and monitoring to effectively improve nutrition.

Nutrition Lens: an investment planning tool

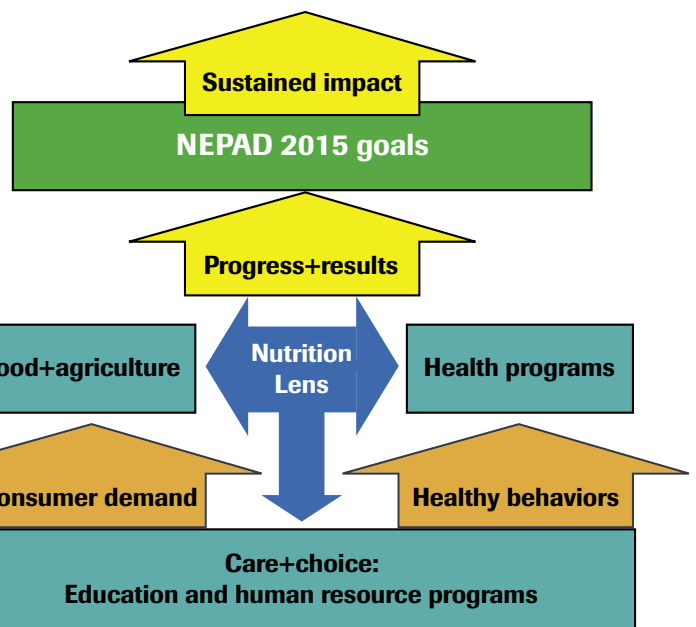
A Nutrition Lens is an investment planning tool and process that applies an informed multisectoral nutrition perspective to review potential impact of proposed projects, define optimal nutritional inputs from each sector and identify opportunities to integrate nutrition initiatives across multiple sectors. It provides a multisectoral implementation framework to manage programs and monitor results.

A Nutrition Lens can:

- highlight nutritional problems, vulnerable populations, and the potential impact of public investment on human development, productivity and growth;
- integrate nutrition “best practices” in development programs;
- identify potential synergies and capitalize on cost efficiencies among programs;
- ensure development investments “do no harm” from a nutritional point of view;
- ensure MDGs and other national commitments for improving nutrition are seriously considered in the investment planning process;
- enable coordinated management, information exchange and monitoring for a range of programs impacting food and nutrition security.

The Nutrition Lens process can be implemented within the current policy framework defined by international agreements and subsequent national plans of action. This offers an opportunity to significantly enhance the nutritional impact of currently planned investments without necessarily requiring significant additional resources. The figure below outlines how the Nutrition Lens might function to reinforce collaboration among agriculture, health and human development sectors and focus investments on multisectoral interventions leading to sustainable results.

Food+agriculture programs: Nutrition criteria applied to investments in food production maximize the positive impact of increased food production on nutritional status. Integration with health services ensures food inputs are well utilized to



achieve improved 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 populations to take full advantage of health services and creates conditions for 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 sustain commercial investments in new agricultural and commercial products.

Opportunities for national teams

A number of opportunities for national teams to cost-effectively invest in improving nutrition, health and productivity are already apparent within proposed NEPAD and CAADP initiatives. They include:

- Nutritional enhancements to optimize investments in the Pan African Cassava Initiative and New Rice for Africa (NERICA) Initiative.
- Ensuring maximal nutrition impact of the Home Grown School Feeding Initiative through local fortification of foods and a package of educational activities and health interventions.
- Large-scale industrial fortification of processed foods including vegetable oil, sugar, salt, maize meal and wheat flour with vitamins and minerals.
- Business models to promote the cultivation, production, distribution and marketing of foods with a high nutrient density (including small grains, foods rich in vitamin A such as orange sweet potatoes and red palm oil, and low-cost locally-produced mixes or snacks) for vulnerable groups such as children 6–24 months and individuals infected with HIV.
- Enhanced effectiveness of agricultural extension services by ensuring the complementary capacity to deliver essential nutrition education and services to rural communities.
- Integrated support for community action to leverage communication channels, expand service delivery infrastructure and empower communities to generate their own progress towards good nutrition and health.
- Product development and expansion of sustainable business models for rural small-scale fortification of maize meal, millet, sorghum and cassava flours.
- Coordinated national and regional advocacy and public education strategies to harness the emerging media and communications channels.
- A comprehensive package of essential nutrition interventions to be integrated into health services and other appropriate public delivery mechanisms, including Education Development Plans.
- Sustainable national outreach strategies or Child Health Weeks to ensure access for children under five years with twice-yearly vitamin A supplements and other essential actions, as a lead



Roadside advertising for fortified flour in Lagos, Nigeria. Photo: Heidi-Lee Robertson, DSM Nutritional Products South Africa (Pty) Ltd.

program in a community-level child survival initiative.

National and regional reviews using the Nutrition Lens process are a practical results-oriented approach to leverage all available resources to improve nutrition and thereby lower morbidity and mortality among women and children, and protect and develop Africa's precious human capital. Its effective use by national investment planners, NEPAD and its partners will require that they:

- advocate the need to invest in a comprehensive, integrated and multisectoral approach to nutrition at appropriately high levels and lead a national effort to ensure results are achieved;
- establish institutional frameworks, accountability mechanisms, high level leadership and multisectoral partnerships to apply a nutrition review of national investment plans;
- engage a core group of countries in a multisectoral process of national capacity building, planning and budgeting necessary to propose a 10-year package of investments that integrate nutrition investments across Agriculture, Health, Education, Human Resources and other appropriate sectors.

Investing in nutrition, not nutrition programs

Over the past decades, many nutrition programs have supported food production, health services, clean water and sanitation or behavior change. But success of these interventions was 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 nutrition programs is that multifactorial causation is best addressed with multi-sectoral intervention.

Improving nutrition requires multiple channels, integrating contributions of the public and private sectors, to provide a strategic mix of food, health care, education and other "enablers" of good nutrition to reach a range of populations with distinct needs throughout their life-cycle. While nutrition science has identified the problem, clarified the cause, quantified the consequences, and defined potential interventions, effective programming may work best by defining complementarities and establishing program linkages across a range of sectors rather than establishing a large distinct nutrition program per se.

Real and sustained results in improved nutrition will most likely be achieved by integrating a nutrition perspective into the overall development and planning process across NEPAD's agriculture, health, education, environment and other investment sectors and within individual national investment plans. While the contribution of each individual sector on its own may be insufficient to achieve food and nutrition security, in aggregate these multiple inputs create a reinforcing dynamic of positive impacts that can succeed in addressing the multifactorial causes of malnutrition. In a word, results. – *This article is based on a draft concept note submitted to NEPAD by the Micronutrient Initiative. The ideas set out in that note have been debated at a series of planning meetings in each of the Regional Economic Communities and a set of early actions identified.* ■

■ Feature:

South Africa concentrates efforts on its integrated nutrition program

Facing the malnutrition problem

In South Africa, malnutrition is manifested in both undernutrition and overnutrition. So complementary strategies are needed to address both. In the 1999 National Food Consumption Survey (NFCS) only one household in four appeared food secure. Two out of four households at the national level experienced hunger, while one was at risk of hunger. A significantly higher percentage of households in rural areas experienced hunger than in urban areas. There was an overall consistent association between hunger risk classification and anthropometric status. A similar association was found with energy intake and the intake of micronutrients. Households at risk of hunger or experiencing hunger procured a smaller number of food items and had a similarly smaller number of food items in their inventory. Additionally, such households tended to be of the informal dwelling type, had the lowest monthly income and spent the lowest amount of money weekly on food; the mothers also had a lower standard of education. Food insecurity is further exacerbated by the HIV/AIDS pandemic. Already limited family resources now also have to cover increasing needs for health care; house-

holds headed by orphaned children are especially vulnerable. Food insecurity and malnutrition are highest in provinces with large rural populations.

The NFCS also showed that more than one fifth of children aged between 1 and 9 years are stunted. Younger children (1–3 years of age) are most severely affected together with those living on commercial farms, and in tribal and rural areas. More than 10% of children in this age group are underweight (18% on commercial farms). Wasting is not common (3.7% in children aged 1–9 years).

Micronutrient deficiencies are highly prevalent in the country, especially in vulnerable groups such as children and women. The NFCS showed that most children consume a diet of poor protein quality that is also low in energy and micronutrient density. Half of the children aged 1–9 years had intakes of vitamin A, vitamin C, riboflavin, niacin, vitamin B6, folate, calcium, iron and zinc that were less than half the recommended level. This supports the findings of the 1994 South African Vitamin A Consultative Group (SAVACG) survey, which showed that a third of children in the age group 6–71 months were vitamin A deficient,

indicating that vitamin A deficiency is a public health problem. More than one fifth of the same children in this survey were anemic.

According to the NFCS, 6% of South African children in the 1–9 year age group are overweight. Overnutrition is also a matter of concern among adults. The 1998 South African Demographic and Health Survey (SADHS) found that 9% of males and 30% of females over the age of 15 were obese, putting them at an increased risk for diabetes mellitus and other chronic diseases of lifestyle (20% of men and 26% of women were overweight without obesity).

A vision of optimal nutrition for all South Africans

South Africa's Integrated Nutrition Programme (INP) was developed from the recommendations of the Nutrition Committee appointed in 1994 by the Minister of Health to develop a nutrition strategy for the country. The Committee recommended an integrated approach to nutrition to replace the fragmented food-based approach of the past. It incorporates a vision of optimal nutrition for all South Africans, while its mission is to implement integrated nutrition activities aimed at improving the nutritional status of all South Africans through the health care system. To effectively and efficiently prevent and manage malnutrition, the INP implements specific strategies (also called focus areas) and support systems.

The focus areas comprise:

- Disease-specific nutrition support, counseling and treatment. Encompasses nutrition and dietetic practices for the prevention of nutrition-related disorders and rehabilitation of affected persons.
- Growth monitoring. Entails regular measurement, recording, and interpretation of a child's growth over time with the purpose of promoting child health, human development and quality of life.
- Nutrition education. Aims to improve the nutritional status of the population, prevent nutrition-related diseases and improve the quality of life; includes nutrition advocacy to support/draw



Rural households are more likely to experience hunger than urban households.
Photo: Anthony Hehir, DSM Nutritional Products South Africa (Pty) Ltd.

attention to a nutrition cause or issue to achieve a desired result.

- Micronutrient malnutrition control. Involves activities to prevent or control vitamin/mineral deficiencies in vulnerable populations through dietary diversification, micronutrient supplementation and/or fortification of commonly consumed foods.
- Food service management. Includes planning, development, control, implementation and evaluation of and guidance in respect to suitable food service systems (procurement, storage, preparation and service of foods and beverages) for the provision of balanced nutrition to groups in the community and in public institutions for healthy and/or ill persons.
- Promotion, protection and support of breastfeeding.
- Contribution to household food security. Nutrition-related activities that contribute to adequate access by households to amounts of foods of the right quality to satisfy the dietary needs and to ensure a healthy active life of all household members at all times throughout the year. Support systems include:
 - Nutrition information system (nutrition surveys, nutrition surveillance and information management).
 - Human resource system (a management tool to help nutrition managers coordinate program activities and

meet the INP objectives by having the right number of people with the right competencies in the right place at the right time; includes human resource management and human resource development).

- Financial and administrative system (management of financial allocations, expenditure, assets/liabilities relating to the INP and administrative tasks).

A decade of perseverance

Since 1994, South Africa has achieved numerous milestones in its efforts to eliminate malnutrition. The most noteworthy of these have been:

- Mandatory fortification of all maize meal and wheat flour (white and brown bread flour) with six vitamins and two minerals (vitamin A, thiamine, riboflavin, niacin, vitamin B6, folic acid, iron and zinc)
- Mandatory iodization of all table salt
- Vitamin A supplementation
- Baby Friendly Hospital Initiative have declared 146 (30.4%) of South Africa's 480 maternity facilities baby friendly.
- Guidelines, counselling and nutritional support (enriched food supplements and micronutrient supplements) for people living with HIV/AIDS and tuberculosis
- Development of food-based dietary guidelines for South Africans older than 7 years.

- Standardization of the "Road to Health" chart.
- Primary School Feeding for 4.5 million children (15 000 primary schools) every year (transferred to the Department of Education from April 2004).
- Development of Food Service Management Guidelines.
- Development of information, education and communication materials on key interventions (food-based dietary guidelines, iodine deficiency, vitamin A supplementation, nutrition and HIV/AIDS, food fortification, training on key interventions).

It doesn't stop here

Key national and provincial priority activities for 2005/2006 include:

- Improve coverage of routine prophylactic vitamin A supplementation, especially among children older than 18 months and post-partum mothers.
- Strengthen compliance monitoring of the national food fortification program, including the salt iodation programme.
- Improve growth-monitoring practices.
- Strengthen nutrition supplementation as part of the comprehensive plan for HIV and AIDS.
- Strengthen nutrition supplementation management to prevent malnutrition in children under five years of age.
- Decrease case fatality rate of severe malnutrition in health facilities.
- Support the Healthy Lifestyle Campaigns.
- Strengthen the implementation of the food-based dietary guidelines as a tool for nutrition education.
- Strengthen community support for infant feeding.
- Finalize the draft regulations relating to foodstuffs for infants and young children.
- Monitor implementation of the food service policy and guidelines.
- Enhance the technical role of nutrition in food security interventions.

South Africa's Integrated Nutrition Programme shows what can be done with good planning and a highly motivated team. It also confirms that one cannot expect to reach the desired objectives instantaneously. It takes lots of hard work and perseverance. – Maude de Hoop, Directorate: Nutrition, Department of Health, Pretoria, South Africa ■



South Africa's special logo for fortified food and some examples of fortified wheat flour and maize meal products.

■ Feature:

Nutrition developments in Kenya since 2001

The end of the 1990's saw a dwindling of fortunes in the overall health of the Kenyan population. The HIV pandemic, increasingly unpredictable weather patterns, bad governance, uncoordinated national economic programs (resulting in poor economic growth) and a huge influx of refugees from neighboring countries are among the myriad of factors that have impacted negatively on people's health. Kenya is currently ill-equipped to halt the worsening health situation. In addition to the devastating HIV/AIDS scourge, malaria, malnutrition and tuberculosis have become endemic and extremely difficult to manage nationally.

Another group of ailments, comprising mostly non-communicable diseases (including cancers, diabetes, hypertension and stroke) are rapidly on the increase, affecting both the affluent and the poor in equal measure. Malnutrition, as a consequence of both environmental factors and poor planning, continues to affect millions of people throughout the country, because of perennial food shortages arising out of recurrent famines and poor rainfall patterns. At the root of all the problems is poverty and protracted drought, both of which have resulted in both chronic and transient hunger of unparalleled proportions.

The African representation at the IUNS International Conference of Nutrition, held in Vienna in 2001, dwelt at length on aspects of malnutrition trends in the world, with emphasis on developing countries and particularly sub-Saharan Africa where health problems are generic. My presentation on behalf of Africa outlined effects of malnutrition on children, the ageing, the prevalence of micronutrient deficiencies, the dreaded HIV/AIDS and attendant health complications, the double burden of diseases in developing countries, rampant poverty and globalization as they impact on nutrition in less-developed countries.

Since that congress, one wonders what we have achieved, whether at the individual or collective level. Some 800 million people in the world continue to be hungry, and most are in Africa. What has changed since 2001? Well, 2005 is the year for Africa and it is refreshing to learn that there is more donor attention and support

towards Africa. Challenge (supported by the Consultative Group on International Agriculture Research, CGIAR) and GAIN (supported by the Gates Foundation) programs are addressing nutritional needs and concerns. In a way then, one could say we are getting more tangible support for nutrition. Unfortunately, instead of making strides forward, these resources seem to be going towards limiting damage, as HIV/AIDS, tuberculosis and malaria continue to cause havoc. Nevertheless, in Kenya there is renewed vigor to reformulate the National Food Policy to include a more powerful nutrition component, and the Rural Outreach Program continues to publish the African Journal of Food, Agriculture, Nutrition and Development (AJFAND).

Recent initiatives instill hope

Many initiatives addressing various components of nutrition have taken place in Kenya since 2001.

The Kenya Coalition for Action in Nutrition (KCAN) held its first National Nutrition Congress in Nairobi in February 2005. The congress theme was "Food and Nutrition Security for Health and Development". Sub-themes included Nutrition; Immunity and HIV/AIDS; Nutrition in the Lifecycle and Lifestyle; Capacity Building; Food Security; Micronutrient Nutrition; Emerging Issues in Nutrition, Nutrition in Emergencies, and Food Safety. The conference brought together various stakeholders in the area of nutrition and health in the country, region and from the international community. The meeting, which was addressed by Kenya's First Lady, focused on various issues and strategies needed to deal with nutrition problems in Kenya. It provided a forum for discussion on diverse issues in nutrition ranging from research, policy and programs. (KCAN web site: <<http://www.k-can.or.ke/>>; the KCAN chairperson Faith Thuita can also be contacted at fthuita@comhlth.ac.ke)

The Ministry of Health employed over 100 nutritionists in 2005, in recognition of the key role nutrition plays in the overall health of the people. This is unprecedented, more so given that in the past, just about anybody could act as a nutritionist. The Ministry of Health is realizing that diet,

in most cases, is the first step in disease management. We have taken long to reach this far. It is actually an indication that the government is waking up, albeit late, to begin appreciating the need to focus on preventive rather than just curative measures, which in many ways have proved inadequate and unsustainable. The HIV Voluntary Counselling and Testing (VCT) team must, therefore, have a nutritionist on board. Other conditions, such as malaria and tuberculosis, also require nutrition counselling.

The need to streamline the work of nutritionists and dieticians has been gathering steam for quite a while, and a motion lined up in parliament seeks to facilitate recognition and registration of nutritionists and dieticians. In other words, the motion, if passed into an Act of Parliament, would formulate prerequisite regulatory structures necessary to ensure that even when there is legislation to facilitate the registration of nutritionists/dieticians, there should also be a legal framework to enforce professional conduct. Nutrition by its very nature tends to involve a variety of professions. The challenge then is to ensure that core responsibilities of nutritionists/dieticians are clearly defined against other groups and individuals who are not fully trained and certified to offer such services. Hopefully, the training of nutritionists and dieticians will also be streamlined, since at the moment it is uncoordinated.

The role of the Codex Alimentarius in developing standards, regionally and internationally, is unquestioned. No modern international or regional body would consider developing such standards outside the Codex mechanism. Following a major evaluation of the FAO/WHO administered Codex, Kenya has been selected as one of the countries to try out the revised guidelines. This Codex is crucial given the very high standards now demanded, especially by the developed countries for products coming from abroad, and from developing countries in particular. The changing nature of the market and trends in Western countries have a direct impact on Kenya's economy. But, more importantly, Codex Alimentarius has an important role in the area of health to ensure high-quality materials, whether

pharmaceuticals or food supplements, such as vitamins and minerals as well as processed food products. These products must meet international standards for the purpose of harmonizing quality for trade across countries. There are efforts to get the World Trade Organization (WTO) to incorporate food standards in its programs.

Putting traditional foods back on the table

To enhance food and nutrition security, the Rural Outreach Program (ROP), a national NGO based in Kenya, together with other organizations is involved in spearheading a biodiversity campaign. This encourages the utilization of indigenous plant resources by enhancing their production and availability, specifically in sub-Saharan Africa, as well as other parts of the world. The focus is mainly on African leafy vegetables among low-income groups as a source of micronutrients and income, mainly for women farmers and traders.

The International Plant Genetic Resource Institute (IPGRI) with the involvement of McGill University of Canada and Professor Tim Johns at IPGRI-Kenya, the Kenya Agricultural Research Institute (KARI), Kenya National Museums, Kenyan public universities and grassroots women's groups (particularly those affiliated to ROP) have worked tirelessly to ensure that African leafy vegetables are accepted as a critical resource in agricultural systems in this country and elsewhere. In the past two years (2003/2004), these organizations and institutions have successfully organized and hosted national forums on awareness of traditional foods. These efforts are complementary to current global focus on sustainable nutrition programs that rely on food materials found in localities of resource-poor communities. This clearly underscores the need to continue to promote food-based dietary guidelines.

The biodiversity approach to addressing malnutrition in Africa hopes to utilize once-ignored plant resources to help fight perennial food shortages, and especially hidden hunger, since these vegetables tend to be rich in micronutrients. For the last five years, the campaign has seen steady improvement in the production of indigenous vegetables on the continent. More importantly, the campaign has, in a way, redefined the image of these vegetables as a food item that has immense



A biodiversity program that encourages production and marketing of nutritious indigenous foods is helping to fight micronutrient malnutrition. Photo: Rural Outreach Program

nutritional and medicinal potential beyond the inferiority tag it had carried for many years following the introduction of exotic vegetables on the continent. Therefore, apart from production, the campaign has resulted in dramatically improved consumption of the vegetables, mainly in the urban areas among the elite (<http://www.ropkenya.org>).

The International Biodiversity Meeting in Chennai, India (April 18/19, 2005) provided an opportunity for IPGRI, ROP and other stakeholders to share with the international community the value and benefits, both economic and nutritional, from prudent utilization of biodiversity. I presented a paper jointly prepared by the Kenya Museums, IPGRI and ROP, providing a detailed countdown to the current position of African leafy vegetables in the broader framework of millennium development goals (MDGs), poverty alleviation and women's empowerment. The paper also projected the activities of IPGRI and partners in years ahead; a scenario that would bring on board other traditional foods that have the potential to improve the food situation in Africa and other equally affected areas of the world.

Nutritional aspects of disease

Kenya continues to battle the HIV pandemic with minimal success. Every day in 2002, an estimated 700 people in Kenya died of AIDS, where over half of its 32 million population live on less than one

dollar a day. One of every eight adult rural Kenyans and one of every five adult urban Kenyans is infected, bringing the number of people living with HIV/AIDS to over 3 million. Half are young men and women below 30 years of age. Almost a million children in Kenya have been orphaned due to AIDS (<http://www.theglobalfund.org/en>).

The rapid spread of HIV/AIDS has also been marked by a sudden surge of diseases such as tuberculosis and typhoid, which had in the past been contained. Malaria also continues to kill many people across the country, especially young children, and also causes miscarriages when it hits pregnant women. This has caused life expectancy in Kenya to drop from 65 to 46 years. This surely is not a rosy picture but is rather a tragedy that we must all try to manage. So, what does this have to do with us nutritionists, one might ask?

The increasing incidence of HIV/AIDS has ultimately affected the economic and social welfare of the people. Food security has been hard hit by the pandemic, since the most productive age category in society (the young) is the one most affected by the disease. The statistics bear witness to the devastation HIV/AIDS has dealt on households and communities resulting in economic vulnerability, comparable only to a state of war or a natural catastrophe.

An estimated 8.2 million cases of malaria are reported every year in Kenya (<http://www.who.int/disease-outbreak-www/>

pending/index.html). Malaria is responsible for the greatest number of consultations (30% of new cases in medical centers within the public health service) and is the most common reason for hospital admission (22,000 cases/year in public hospitals). Every day, malaria kills 72 children aged under five (<http://www.msf.org/source/downloads/2002/malaria/dossier.doc>). Malaria infections are known to increase during the rainy seasons, when farming activities are at their peak. In this respect, they have a direct bearing on people's productivity, as many hours are wasted due to sickness or caring for sick members of the household. The costs of treatment also diminish the availability of resources to improve agricultural production.

A new generation of diseases, the origin of which resonates much with changing lifestyles, looks very much determined to cause maximum damage to Kenya's health system. Diabetes, hypertension and cancer, previously known as 'diseases of the rich' are today affecting the poor as much as the well-to-do, and worse still, even very young children. This portends a calamity of immense proportions. Kenya, just like many other developing countries has absolutely no capacity to address the new and ever-changing global health patterns. Nutrition, at the moment, presents the most practical and realistic way for mitigating the seemingly awesome health challenges. But as it was ably mentioned in Vienna four years ago, nutrition as a health component is very much compromised by the run-away poverty so much evident in many sub-Saharan African countries.

Although infections are still a major problem in the country, Kenya has, in recent years, quietly suffered an increase in the prevalence of non-communicable diseases. Some of the major contributing

factors to this situation include poor eating habits, lack of physical exercise and late diagnosis of diseases due to ignorance and/or poverty. The result is that more and more Kenyans are suffering from diseases of the cardiovascular system, and of the muscles, bones and joints. The rise in non-communicable diseases before Kenya manages to control infections imposes a double burden on the country. It strains national health care systems and makes it challenging to deliver proper health services to people.

To reduce the disease burden in Kenya, attention must now focus on prevention. Poor feeding habits in early childhood have been known to influence health in adulthood. Kenyans should be encouraged to avoid "fast" foods thought to be responsible for poor health and obesity, and which can lead eventually to heart disease, arthritis and other complications. By avoiding obesity, the number of patients with bone and joint diseases seen today could be halved. Kenyans should therefore adopt more healthy dietary patterns – dietary diversity is crucial. Elements that make "fast" foods unhealthy to eat include too much sugar, too much and wrong types of fat and too much salt. Some of them are unsafe, because they are prepared unhygienically. Kenyans are also called upon to go easy on alcohol and tobacco. These are known causes of chronic diseases and contribute negatively to health. The healthcare system in Kenya uses up to 15% of its resources to treat diseases caused by smoking: over US \$107 million that could be put to better use!

Conclusion

The problem of malnutrition cannot be isolated from massive socio-economic distortions that face the African continent. The Millennium Development Goals are an apt outline of broad challenges

that continue to beset African countries, Kenya included. The efforts targeting malnutrition, therefore, must of necessity focus on basic requirements of the people, namely improved food production and access, provision of basic health facilities, improved housing and sanitation, access to safe water, and wealth creation at the family level. These by themselves are as important as addressing nutrition per se in national development. The lot of the poor continues to increase, as the face of poverty itself changes, and diminishes any sign of a middle class in Kenya. Government needs to lead the way by upholding good governance practice.

However, all is not lost. We must continue to hope that there soon will be a positive turnaround. African governments, my own included, must spend more efforts and resources towards poverty eradication and removal of the huge inequities. Efficient use of available resources, removal of trade barriers between African countries, strategic support for African farmers, and realization that a healthy nation can only come about when its people are well nourished, are all issues that individual governments must address because they go out begging for debt relief. Of course the international community too has major responsibilities, and should realize that ignoring Africa is not a viable option for them. With the coming of the 18th International Congress of Nutrition in Durban in September 2005, all indications are that the battle to improve the nutritional status of Africans still rages on. New strategies as well as more resources are required. – *Hon. Professor Ruth K. Oniang'o, Founder, Rural Outreach Program P.O Box 29086-00625, Nairobi, Kenya. Editor-in-Chief, African Journal of Food, Agriculture, Nutrition and Development (AJFAND). E-mail: oniango@iconnect.co.ke* ■

■ Feature:

Sub-Saharan countries show encouraging nutritional trends

Information on progress reports concerning the level of improvement in nutrition related programs, including intervention is needed in order to adequately

respond to problems of malnutrition. These reports are assessed on the basis of available country-level data, and may differ considerably within regions. When

such data are unreliable or not available, it becomes somehow tasking to come up with a cogent report. Invariably, the level of improvement in nutrition in West African

countries could be considered from the perspectives of individual awareness and institutional contributions to promotion of nutritional activities, the level of industrial involvement or support, and largely the political support. The level of support from both local and international non-governmental organizations in the development of nutritional activities has been commendable to certain extent.

The major nutritional problems of public health significance confronting West African countries include micronutrient deficiencies, undernutrition and weak political commitment to nutritional issues. Very few West African countries consider nutrition as a developmental issue. Therefore, uncoordinated attention has been given to programs related to nutrition. It is, however, relevant to mention some of the progress that has been recorded in the past few years.

Some bold steps taken

The data presented in Table 1 shows the prevalence of undernutrition in regions of Africa. The observed trend suggests that some improvements have been achieved over the years in terms of reduction in the level of undernourishment among children under five. It is envisaged that this steady decline in the level of undernourishment will be sustained if the political class continues to show genuine interest in nutritional issues, and private organizations also consider nutrition as one of the basic social responsibilities they have to support the society that made them.

Even before the advent of Millennium Development Goals (MDGs), some West African countries have taken bold steps to improve the nutritional status of their people, especially children under five. The high level of political involvement in tackling some childhood killer diseases through immunization and micronutrient supplementation has had a positive impact on children's nutritional status. In addition to this, community sensitization programs have been resuscitated to provide health education services for the people. These might have contributed to the little progress recorded during the period mentioned above. Most West African countries showed some measure of improvement in nutritional status. However, the level of progress was not uniform based on the fact that economic policies, population, level of advancement of social system and political reforms, among other things, are all different intervening variables affecting nutrition. In countries like Sierra Leone and Liberia, recent political unrest might have affected nutritional status negatively.

Notable efforts in the region

In **Sierra Leone**, officials from the Ministry of Health, Bureau of Standards, and others met with international donor agencies to deliberate on the way forward to resuscitate the IDD eradication program. This program suffered severely during the recent war, and officials are eager to restart it.

In **Côte d'Ivoire**, a national food fortification project designed to improve



The first widely consumed enriched food product in West Africa. This cooking oil, made from refined palm oil, has added vitamins A and E.

the health of at least 14 million people was launched mid-2005. The project is supported by the Global Alliance for Improved Nutrition (GAIN) with contributions from the private sector and contributions by the private sector and government in Côte d'Ivoire, and will be implemented by Helen Keller International, Côte d'Ivoire. Despite a difficult political situation, the project aims to deliver fortified vegetable oil and wheat flour to 80% of Côte d'Ivoire consumers, including poor and at-risk populations in all areas of the country within three years. The public-private-partnership is included in Côte d'Ivoire's national micronutrient deficiency control program and involves fortification of palm and cottonseed oils with vitamin A, and fortification of wheat flour with iron and folic acid.

Côte d'Ivoire is the sixth country to launch a national fortification program funded by GAIN. Neighboring Mali has also received a grant, and grants for Burkina Faso, Ghana and Nigeria have

Table 1: Prevalence of undernourishment in children 0-5 years

AFRICA REGION	1995			2000			2005		
	Underweight	Stunted	Wasted	Underweight	Stunted	Wasted	Underweight	Stunted	Wasted
Eastern	27.9	44.4	6.6	29.2	44.4	7.6	30.6	44.4	8.7
Central	26.9	40.0	7.0	26.1	37.8	9.1	25.3	35.8	11.9
Northern	10.9	24.4	4.7	9.7	21.7	6.2	8.6	19.1	8.0
Southern	13.9	25.0	3.7	13.7	24.6	4.9	13.6	24.3	6.6
Western	27.5	33.8	10.5	27.1	32.9	10.3	26.8	32.0	10.2

Source: WHO Global Database on Child Growth and Malnutrition 2003 (<http://www.who.int/nutgrowthdb/>); de Onis M, Blossmer M. 2003; de Onis M, Borghi et al. 2004.

been approved. The expansion of fortification programs across West Africa is important due to the high degree of cross-border trade in commodities such as vegetable oil.

Ghana has formed a multisectoral task force to contribute to the National Plan of Action for Food and Nutrition. It includes various ministries, research institutes, nongovernmental organizations (NGO), FAO, WHO and UNICEF. A micronutrient deficiency control program is established with subcommittees for iodine, vitamin A, and iron. There are now four regions covered by national intervention strategies. Programs are beginning for vitamin A supplementation of pregnant and lactating mothers using existing health facilities, home and school gardens to promote production and consumption of vitamin A-rich foods, drying of vitamin A-rich foods at the community level using women's groups, and legislation for food fortification. NGO programs distribute vitamin A capsules to children. A rapid assessment study in one of the districts found that providing vitamin A supplements along with immunization had minimal additional cost and presented a good opportunity for achieving significant vitamin A supplementation coverage. Iodized oil has been distributed in Upper East areas surveyed. Coverage of at-risk populations has increased from 10% to 30% for iodine, from 30% to 40% for iron, and from 20% to 30% for vitamin A. (OMNI fact sheet, Ghana).

In the **Gambia**, new legislation has been drafted to enhance the IDD eradication program, and is now awaiting political clearance. All salt for household consumption is imported non-iodized from Senegal, although the salt consumed in that country is iodized. The key is to import iodized salt, and efforts are being made in that direction.

The Federal Ministry of Health in **Nigeria** has signaled readiness to request a proposal for a confirmation of progress report on its IDD eradication program, and this is being developed. Presently, all table salt in local and standard markets is iodized. There is already a legislation banning the sale of non-iodized salt in the market. The National Food and Drug Administration (NAFDAC) agency has been at the vanguard of sensitizing the public to the importance of consuming iodized salt. Vitamin A supplementation has been incorporated into the National

Immunization Days program. Some corporate organizations (e.g. Nestle) provide regular nutrition education programs on electronic media as part of their marketing strategy. The private sector has been actively involved with the food fortification process, including fortification of wheat flour and sugar with vitamin A, vitamin B1, niacin, riboflavin and iron. In addition, some states have reintroduced a program of free or highly subsidized school meals. The Education for All Program (EPA) is intensifying efforts to promote schooling for girls. This is expected to have a positive influence on nutritional status of future generations.

In **São Tome and Principe**, an overall goiter prevalence of 50% was recorded in 1993, while a 2001 evaluation found a 60% rate among schoolchildren. A law now exists to establish a program for prevention and control of IDD. Recent information confirms that 90% of available table salt is iodized. A clinical and biological evaluation is planned shortly.

In **Mali**, the "Doumouni Nafama" ("Healthy Foods" in the Bambara language) program aims to fortify edible cottonseed oil with vitamin A to overcome deficiency in women of reproductive age and young children. Because 70% of the oil consumed in Mali is cottonseed oil, and a single local producer supplies this, coverage of the target population is expected to increase (over a three-year period) from 25% to 70% for children and from 25% to 90% for women. More complex fortification of other foods will follow in the medium term.

Role of local/regional organizations

There has been some involvement of local/regional bodies in nutritional programs in West Africa. Following many years of investment from a number of partners and member countries to put nutrition at the center of the development agenda in West Africa, nutrition has been adopted by the West African Health Organization (WAHO), which covers the 15 countries of the Economic Community of West African States (ECOWAS), as one of the pillars of its programs. The ECOWAS region has more than 230 million inhabitants (over one fourth of Africa's population) and three working languages (English, French and Portuguese). The WAHO Assembly of Health Ministers in Bamako, Mali, in November 2000, adopted nutrition as one of the pillars of the organization, and voted a budget line to support future nutrition focal point meetings and nutrition programs. In order to garner increased political support for regional health and nutrition initiatives, the WAHO organized a "health fair" for the ECOWAS summit of Heads of State in Bamako. One of the major exhibits was a nutrition stand, organized by Helen Keller International and a number of other partners. The stand drew a number of comments and questions from the visiting Heads of State and their delegations.

The successful fusion of prior structures into the WAHO represents a major opportunity for increasing the visibility of nutrition programs throughout the region. The nutrition focal point meetings have proven invaluable in exchanging lessons learned, providing technical updates and



A typical rural market stall in West Africa. Photo: Helen Keller International

lobbying for nutrition programs. The WAHO, working under the direction of ECOWAS, will provide a means to ensure high-level political participation in nutrition initiatives. ECOWAS has already issued a directive on iodization of salt for human consumption in the region, and some years ago organized synchronized National Immunization Days (NIDs) to include vitamin A supplementation.

The New Partnership for Africa's Development Nutrition Strategy has initiated the process of food fortification approach to be adopted by the Comprehensive African Agricultural Development Program.

Involvement of international organizations

The International Plant Genetic Resources Institute (IPGRI) is currently developing



Better schooling for girls could have a positive influence on nutritional status of future generations.

a global strategy to incorporate greater consideration of nutrition into its programs on conservation and use of plant genetic resources (PGR). Through its mandate IPGRI works to advance the conservation and use of genetic diversity for the well-being of present and future generations. The Institute encourages, supports and undertakes activities to improve management of genetic resources worldwide so as to help eradicate poverty, increase food security and protect the environment. In addition to this, other bodies, including the International Institute of Tropical Agriculture (IITA) with headquarters in Nigeria and branches in other West African countries, and the Food and Agriculture Organization (FAO) have been promoting food production using modern technology to improve high breed crops, thereby enhancing food security.

In spite of the achievements recorded above, there are still more gaps to be filled. Presently, the concept of MDGs has provided the indicators, which serves as a road map for countries to follow in order to promote the nutritional status of the people. Consequently, West African countries became signatories to the MDGs concept and this is presently being used to improve nutrition. MDGs have reoriented West African governments to regard nutrition as a national developmental issue rather than a basic national discourse. Nutritional status as a key MDG indicator of poverty and hunger is an important first step in recognizing that policies, programs and processes to improve nutrition outcomes have a role to play in national development.

Conclusion

The present level of progress in nutrition activities in West Africa region spells the

need to link goals to means. Suggestions for improvement need to include:

- job creating opportunities
- strengthening governance and public accountability
- controlling the scourge of HIV/AIDS
- fostering macroeconomic growth and stability
- investment in food processing for value addition
- investment in pro-poor health policies and actions to raise labor productivity and nutrition security
- investment in agricultural productivity
- investment in human capacity, particularly through education of women, youth and farmers.

Owing to the present situation in West Africa, it is imperative to state that an acceleration of malnutrition reduction is needed to improve child nutrition, household food security and poverty reduction, especially for countries lagging behind in nutritional issues. Countries that have made some progress, even though very marginal, could still be geared up to accelerate progress. It is envisaged that incorporating nutrition into national development programs will be quite challenging because greater awareness of the substantive links between nutrition and other development issues will be required. On this basis, it is appropriate to move beyond the links between nutrition and the MDGs and to focus on how a nutrition perspective can strengthen key development mechanisms and instruments such as poverty reduction strategies, health sector reform, improved governance and human rights, and liberalization of trade. – *Tola Atinmo, and Oyewole Oyediran, Department of Human Nutrition, Faculty of Public Health, University of Ibadan, Nigeria* ■

■ Feature:

Partnership is key to food fortification success in Morocco

Micronutrient deficiencies affect more than 2 billion people in the world; most of them are in developing countries. In eighty of these countries, the diet is lacking

in micronutrients such as iron, vitamins A and D, iodine and folic acid [1].

One of these countries is Morocco, where recent studies by the Ministry of Health

and its partners have shown that iron deficiency affects 45% of pregnant women, 31% of women of reproductive age and 35% of children aged between 6 months

and 5 years [2]. Vitamin A deficiency affects 10% of women of reproductive age and 40.9% of children between 6 and 72 months (3.1% are severely deficient) [3, 4]. Iodine deficiency affects 22% of children between 6 and 12 years old [2]; 2.5% of children under 2 years show radiological evidence of rickets [5].

Building a working alliance

The Moroccan Ministry of Health, with its partners from the public and private sectors, and with technical and financial assistance from the United States Agency for International Development (USAID) and the World Health Organization (WHO), has developed an integrated strategy for micronutrient deficiency control. This includes fortification of staple foods, micronutrient supplementation of at-risk populations, nutritional education and reinforcement of health programs related to nutrition. The aim of the strategy is to reduce iron anaemia by one third and to eliminate vitamin A and D deficiencies by the year 2010. The current measures to achieve this include voluntary enrichment of flour with iron, voluntary enrichment of table oils with vitamins A and D3, and mandatory salt iodization.

To reinforce and sustain the national micronutrient deficiency control program, partners from the public and private sectors formed a National Fortification Alliance (NFA) under the patronage of the Ministry of Health. In 2002, the NFA, supported by the MOST project of USAID and the International Science and Technology Institute (ISTI), submitted a proposal to fund a fortification project through the Global Alliance for Improved Nutrition

(GAIN). In 2003, GAIN awarded Morocco a US\$ 2.92 million grant, which will allow the fortification goals to be achieved earlier (by the year 2007). Morocco (together with South Africa, Vietnam, China and Jordan) was among the first five countries to benefit from GAIN support.

In 2004, the Government of Morocco signed an agreement with the World Bank and UNICEF for the GAIN project management. Through this agreement, the Ministry of Health is responsible for overall program management and coordinating between the project partners, while UNICEF manages the financial aspects of the project.

Fortification of table oil

With the help of USAID and WHO, efforts geared towards oil fortification started in Morocco in 2001, within the framework of the Micronutrient Deficiency Control Program. Table oil was selected as a vehicle for fortification because of its widespread consumption by the Moroccan population (32 g/person daily) [6]. It is currently fortified with vitamin A as retinol palmitate (30 IU/g) and vitamin D3 (3 IU/g). These levels provide a third of the daily requirement of an adult male [8].

To lay the technical, regulatory, formative and communication foundations for the production, marketing and consumption of table oil in Morocco, the Ministry of Health mobilized its public and private partners [7]. The National Micronutrient Technical Committee conducted a feasibility study on oil fortification with vitamins A and D. It also drafted a technical report outlining the oil-fortification and quality-assurance processes, and

setting fortification norms and standards to ensure high quality and consumer security. With the participation of the Oil Producers Association, the Ministries of Health and Agriculture developed a decree for marketing fortified oil. The Ministry of Health, helped by USAID, developed a communication strategy and invited the civil society and local development agents to join in the effort to raise awareness in the population. Helen Keller International, a US NGO with offices in Morocco, developed and implemented innovative community communication approaches. Commercial Marketing Strategies, a USAID private communication project, created a media campaign.

A fortification logo “Sehha Wa Salama” (health and well being) was developed for the consumer to identify fortified products.



Promotional materials were developed and aired through the national TV and radio channels. Press articles about fortification were published in the national press. Similar efforts were made by oil producers to promote their own fortified products [7].

On February 5, 2004, the Moroccan Association of Oil Producers and the Ministries of Health and Agriculture signed a joint agreement for the marketing of fortified table oil. Currently, four oil producers, representing 90% of the market share, produce and market oils fortified with vitamins A and D.

The main aim within the GAIN project framework is to produce 210 000 tons of fortified oil according to quality standards and make it accessible to 57% of the population by the year 2007 [9]. To achieve this objective, oil producers will be technically able to produce and monitor oil fortified with vitamins A and D; oil fortification regulations will be developed, the Directorate of Fraud Control and the National Laboratories will be logistically and technically able to monitor and control the fortified oil. Demand for fortified oil will be created through a three-pronged communication campaign.

Research continues to guide the oil fortification project. Presently an efficacy trial measuring the impact of oil consumption in Morocco on the nutritional status of children at preschool age is underway



In Morocco, table oil, flour and salt are fortified.

(2005-2007). The efficacy trial will use deuterated vitamin A and will be conducted by the Ibn Tofail University in Kenitra and its partners the Ministry of Health, the Nutrition, Maternal and Child Health Group, the University of Davis California in the USA, ISTI and the IAEA.

Flour enrichment with iron and B vitamins

Efforts towards flour enrichment also started in 2001. Flour is widely consumed by the Moroccan population (365.75 g/person daily) [10]. In the framework of the National Strategy for Micronutrient Deficiency Control, the National Technical Committee developed a technical report describing the fortification process and quality assurance, and outlining the quality and security norms and standards for production and marketing. Elemental electrolytic iron is added to flour at a level of 45 mg/kg. It is incorporated in a premix providing 4.5 mg thiamin, 2.79 mg riboflavin, 36.18 mg niacin and 1.53 mg folic acid per kilogram flour. The technical report served as a basic document for the development of regulations by the Ministries of Health and Agriculture and the National Federation of Millers. The Ministry of Health, with technical support from USAID, has developed a communication strategy including media and social mobilization campaigns that are implemented twice yearly.

On May 8, 2002, the Ministry of Health and the National Federation of Millers signed an agreement for marketing flour fortified with iron. Presently ten large-capacity mills among 100 operational millers produce and sell iron-fortified flour. The objective set with GAIN is to produce almost 1.2 million tons of non-durum wheat flour fortified to quality standards and make it accessible to 56% of the population consuming industrial wheat flour (15 million potential consumers) by the year 2007 [9]. To achieve this objective, 40 millers will be technically able to produce and monitor flour enriched with iron; flour enrichment regulations will be developed, the Directorate of Fraud Control and the National Laboratories will be logistically and technically able to monitor and control iron fortified flour. Demand for enriched flour will be created through a three-pronged communication campaign. An impact study on the consumption of iron fortified flour will be implemented in 2007.

Salt iodization

Moroccans consume about 180 000 tons of salt annually. Annual national production (300 000 tons including salt for industrial use) largely satisfies consumer needs. Table salt is produced by 20 semi-industrial and informal private producers supported by the government and UNICEF through the National Program for Iodine Deficiency Control. These units are potentially able to provide iodized salt for 80–90% of the Moroccan population.

Morocco's iodine deficiency control program started in 1990. To ensure sustainability and success, salt iodization was made mandatory in December 1995. In 1996, UNICEF and the Ministry of Health supported salt producers by providing salt iodization equipment and fortificant, by developing regulations for marketing iodized salt and by conducting a national awareness campaign. The program was assessed in the year 2000, and showed that only 42% of the Moroccan population consumed iodized salt. Currently, to achieve universal consumption of iodized salt, the regulations of the national program have been amended, and the communication strategy reinforced. The level of iodine in the salt is 30mg/kg (± 10 mg/kg) as recommended by WHO/EMRO. The type of iodine used for salt fortification in Morocco is potassium iodate (KIO₃).

Conclusion

We have learned through international experience that fortification can succeed when a common vision and a strong will to fortify are shared among public and private sectors. The fortification process has an even greater chance of success when a few major companies provide total coverage for the whole country. This is the case in Morocco with oil fortification. Today, competition is already driving the market, and new oil producers are launching fortified products.

Challenges lie in areas where the informal sector is predominant or when the industry is disorganized or incapable of carrying the fortification costs. This is what we have experienced in Morocco with salt iodization. The sector is unstructured. Informal salt producers are too poor to afford the cost of fortification, and iodized salt did not benefit from any promotional efforts. However, the Ministry of Health and international organizations are still looking into ways to generalize iodized

salt coverage in the country. The situation with flour fortification is less challenging. Advocacy efforts have yielded positive results. The Ministry of Health is planning to reach higher authorities through advocacy to help millers achieve iron flour fortification despite the challenges [11]. – Hassan Aguentaou, *Laboratoire de Nutrition et Alimentation, Université Ibn Tofail, Kenitra, Morocco, Najat Sarhani, International Science and Technology Institute, Rabat, Morocco, Mustapha Mahfoudi, Ministry of Health, Directorate of Population, Rabat, Morocco (address for correspondence: aguentaou@yahoo.com)*. ■

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■ Feature:

Fortification in smaller mills: options for scale-up in Africa



Maize ready for milling

The significant load of micronutrient deficiencies repeatedly identified across Africa highlights the effects of the monotonous, starch-based African diet. Attempts to solve this problem through promoting behavior change towards more diversified diets have not resulted in significant and long-term sustainable improvements in nutritional status. Apart from the difficulty of improving dietary habits, these poor rural households do not have the means to access such products, and a recent study showed how few individuals in rural (and even urban) communities had consumed any meat in the past days and weeks [1].

These populations, unable to grow or purchase sufficient quantities of nutritious food, suffer the severe effects of micronutrient malnutrition and associated disorders. Those living in rural areas grow grains like maize, sorghum and millet on small plots of land. After harvesting, the grain is dried in the sun and ground to flour (also called “meal”) in a local hammer or disc mill. Milling on this small scale is usually done in batches of 3–20 kg, or the amount a household needs for one to fourteen days. The meal is cooked into a porridge, and often eaten without meat or vegetables.

The “small mills in the villages” challenge

Fortification of basic foods, especially cereal flours, through addition of a vitamin/mineral premix during milling is commonly used in developed countries

to enhance the nutrient quality of the diet. This strategy is also gradually extending into the market economy of developing Africa. However, approximately 65% of the population in sub-Saharan Africa lives outside of urban areas, where literally thousands of small hammer mills are spread throughout the countryside servicing local communities and usually receiving payment in kind. So any discussion on fortification in Africa inevitably brings the question: “but what about the small mills in the villages?”

To address the challenge of fortification at the small mill level, the Micronutrient Initiative (MI) has been involved in projects to understand the technical and operational feasibility of small-scale fortification. The goal is to establish fortification at small mills as one among the combination of interventions to combat the vitamin/mineral deficiencies in developing countries. With support from CIDA, and in collaboration with partners like UNICEF, CARE, World Vision, HKI and national governments, MI has attempted to understand the technology, challenges and possibilities surrounding small-scale fortification. Several pilot projects have examined the technical feasibility of fortification at hammer mills practising “service milling” [2]. One project in collaboration with the WFP and UNHCR tested fortification of food rations in a refugee camp setting [3]. It recommended that, to prepare premix blends, an intermediate step involving dilution of the vitamin/mineral premix concentrate will facilitate better

distribution of the micronutrients in the milled maize.

Small-scale fortification “value for money”

In 2003/2004, MI commissioned a review in several countries (Malawi, Zambia, Zimbabwe, South Africa, Mali) of the feasibility, constraints and opportunities, as well as options for scale-up and sustainability of integrating fortification with community milling of cereal flours [4]. The review did not address the issue of effectiveness of fortification itself; arguments for scale-up will therefore necessarily require consensus on the evidence. The conclusions were encouraging: the direct costs are surprisingly low (\$1/person/year) and well within the parameters considered “value for money”. The review identified some critical technical questions regarding the efficiency of blending under varying mixing systems and levels of predilution of the premix concentrate that still



Hammermill in action

need some further work. With increase in dilution the efficiency of blending is improved, but increases the cost of the premix. The key issue is therefore the maximum acceptable variation in nutrient levels within and between batches of fortified cereal flours that will guarantee safety and efficacy.

Key operational issues that pilot projects to date have not really been designed to address are related to the “scalability” and sustainability of fortification in small mills. It is important to ensure that the way nutrients are mixed/blended into the flour can be integrated into the prevailing milling system with few changes and little additional effort; it should require minimal capital investment and operating costs (making direct addition of premix into the hopper the most attractive option) and not result in long queues or waiting times.

A major challenge to moving beyond NGO/pilot-type projects are the costs of and mechanisms for supplying diluted premix to millers. Some encouraging information on consumer demand and willingness-to-pay also needs to be further tested. Probably the most critical question is how to ensure adequate quality (to make the fortified product both effective and safe with neither underdosing nor overdosing) under “routine” operating conditions.

Confirmation is still needed that simpler and cheaper methods for addition and use of more concentrated premix blends are acceptable; further work in this field should focus more on resolving operational questions related to scale-up. These need to be tested in large-scale field trials to show the feasibility of fortification in smaller mills. Testing would be more likely to yield useful results if carried out in a context where long-term programs with wide reach would stand a chance of being established. Two such contexts can be identified based on the work MI has done to date: community-level development programs where milling of foods is incorporated as a gender-sensitive and labour-saving technology, and business development programs targeting small and medium African mills with skills development and seed-funding that can establish them as viable businesses in partnership with development agencies.

Making small-scale fortification work

Community-level fortification can work within a supportive context where initial or even longer-term subsidies are provided as part of community development or food security projects. Access to affordable milling for the poorest women given the significant labour-saving impact especially in households affected by chronic illness should see this as a component; providing a perfect context within which fortification could be added at low cost. The government of Mali and its partners have facilitated the setup of milling “platforms” and are looking to expand them; and to which fortification could be added. Rehabilitation and development programs often see a period of transition where food assistance remains a component; including support to existing mills and helping them to fortify their products would significantly improve the nutritional benefit of such programs.

Off-the-shelf technologies for cereal fortification could quite easily be extended to intermediate-size commercial mills, for example those operating in provincial capital towns. Numbers are small enough to make capacity building and monitoring possible; marginal costs, while higher than in large mills due to reduced economies of scale, are still sustainable. It is especially argued that a decision by aid agencies to

mill and fortify food aid, especially that supplied through the increasingly accepted “home-grown” programs, could serve to cross-subsidize the establishment of long-term capacity with long-term benefits for the broader community. Partners engaged in business development activities in African communities and the private sector should work with development partners and aid agencies to encourage and support the transition between subsidized projects and programs and sustainable small-to-medium commercial mills that produce and sell value-added fortified products. – *Carol Marshall, Annie Wesley, Micronutrient Initiative, South Africa* ■

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Educating farmers at the mill

■ Feature:

GAIN sets new direction and places special emphasis on Africa

The Global Alliance for Improved Nutrition (GAIN) was established in 2002 as an alliance of donors, UN agencies, NGOs, civil society, private sector companies and research institutions working to reduce micronutrient deficiencies in developing countries through the implementation of national food fortification programs. GAIN has since awarded 23 grants worth US \$38 million, mainly to support the work of National Fortification Alliances comprising government, business and civil society partners.

National fortification programs have been established in 14 countries and are projected to deliver fortified food to

450 million people over three years, 293 million of whom are at risk of vitamin and mineral deficiencies. These programs focus on providing iron, vitamin A and multi-micronutrients to deficient populations via food vehicles that range from soy sauce and wheat flour in China, to sugar and wheat flour in Dominican Republic. A comprehensive framework for measuring impact is being put in place, with baseline studies and indicators to measure coverage, utilization, biological impact, cognitive development, school performance and productivity.

The grants provided to date by GAIN in different parts of the world have stimu-

lated commitment by the food industry to invest \$353 million in food fortification and generated significant visibility and interest. As GAIN enters its third year of existence, special emphasis is being placed on Africa.

The challenge for Africa

More than half of all Africans, including many who consume sufficient calories and protein, lack minute quantities of critical vitamins and minerals, according to a Global Progress Report on Vitamin and Mineral Deficiency prepared by the Micronutrient Initiative and UNICEF [1]. The report estimated that over 350 million women and children in Africa suffer from deficiencies in iron, vitamin A and folic acid.

Every year, 600'000 African children under five years of age die from common preventable childhood diseases as a consequence of vitamin A deficiency. Death during childbirth of more than 16'000 women each year is attributed to their anemic condition, and more than 2 million African newborns are at high risk of death just prior to, or after, birth as a consequence of their mother's anemia. Some evidence suggests that maternal mortality could be reduced by 40% with good vitamin A nutrition [2].

Currently, in 40 African countries, depressed productivity due to iron deficiency anemia among adults has been estimated at nearly \$1.5 billion annually. Impaired cognitive development and lower school performance of today's children will lower adult productivity and earnings by an additional \$500 million annually.

The recently published Report of the Commission for Africa, chaired by British Prime Minister Tony Blair, stated that "reducing vitamin and mineral deficiency, through supplements and fortification, has minimal costs with big impact". It estimated that an annual US\$0.2 billion investment by donors for five years would give comprehensive protection against vitamin and mineral deficiency for up to 380 million African women and children at risk [3].

In response to these challenges, GAIN has proposed a Special Initiative on Food Fortification for Africa focussing on the following areas.



Mali is one of several African countries to have been awarded a GAIN grant for fortification of vegetable cooking oil with vitamin A. GAIN hopes to rapidly scale up the number of national fortification programs in Africa from eight to as many as forty-seven. Photo: Françoise Chomé, Global Alliance for Improved Nutrition.



A modern mill in Morocco equipped with microfeeders for wheat flour fortification. Projected new investment in medium to large scale food processing across Africa provides an historic opportunity for expansion of fortification efforts. Photo: Tim Higham, Global Alliance for Improved Nutrition.

Scaling up national food fortification programs

When GAIN was established, it was anticipated that it would be difficult to stimulate interest in the development of national food fortification programs in Africa. However, from the outset GAIN received, and continues to receive, the greatest demand for grants from Africa. This interest is expected to continue to expand with the projected growth over the next decade of more than 165 million urban consumers in sub-Saharan Africa, who usually rely on commercially processed foods.

For the foreseeable future, the emphasis will continue to be directed at large scale fortification of staple foods. Small scale fortification may be feasible in a limited number of settings, for example, where development platforms that can subsidize

key inputs, such as the provision and distribution of premix, already exist. However, the absence of proven economic models would make it difficult to expand small scale food fortification efforts beyond pilot programs.

GAIN has allocated funding of \$20 million to eight national fortification programs on the African continent, as well as providing small enabling grants to Cape Verde, Cote d'Ivoire, Mali and Niger. A summary of grants awarded to date for national programs in Africa is presented in Table 1.

Over the next seven years, GAIN will seek to invest up to \$90 million to provide additional grants for another 47 African countries. This investment will concentrate on enabling multisectoral national fortification alliances, creating effective food and nutrition policies, and build-

ing an enabling market environment for fortification. It would include capacity building of public regulatory institutions, social marketing, and nutrition surveillance.

An African business alliance for food fortification

The unique feature of food fortification as a health intervention is that it is delivered outside the traditional health sector, directly to the consumer, through the food industry itself. Its exceptional cost-effectiveness has been noted in reports by the World Bank, the Copenhagen Consensus Panel, the UN Millennium Project and the Commission for Africa.

GAIN's current country programs cost an average of 27 US cents per person per year to deliver. Analysis shows that these grants are stimulating an investment in food fortification by industry at a ratio of 1:10. To further encourage private sector commitment, GAIN will facilitate and support an African Business Alliance for Food Fortification (ABAFF) within its new Business and Consumer Programs.

The Alliance will bring together leading food companies—product suppliers, consumer goods manufacturers, packaging and retailing companies—in regional and national networks to facilitate the sharing of models and best business practices, and to promote food fortification programs across the continent. The ABAFF will also identify and support operational partnerships on a country or project basis, concentrating on technical assistance, capacity building, learning and advocacy-based joint initiatives. This initiative links to a global business alliance for food fortification that is supported by GAIN and the World Bank Institute.

At the same time, GAIN is developing partnerships in Africa with specific companies based on corporate social responsibility and 'bottom of the pyramid' marketing principles. Examples include Tetra Pak's planned school feeding program with the Government of Nigeria, Danone's marketing of a fortified product in Soweto and vulnerable communities in South Africa, and Seaboard's African flour fortification initiatives in Southern Africa. GAIN will continue to develop and expand these partnerships to assist the private sector in reaching those populations in Africa most at risk of vitamin and mineral deficiencies.

Most of the costs associated with ABAFF

and private sector partnerships will be absorbed by the private sector. Nevertheless, GAIN will seek to provide seed funding and technical assistance support of up to \$10 million for these activities over the next seven years.

This industry-based approach complements the approach to food fortification contained within the New Partnership for Africa's Development (NEPAD) Nutrition Strategy, adopted by the Comprehensive African Agricultural Development Program and prepared with the assistance of the Micronutrient Initiative.

Targeting industry by sector

The NEPAD nutrition strategy targets the wheat flour, maize meal and vegetable oil sectors, recognizing that large scale investments at the level of industry sectors could accelerate the pace of food fortification in Africa.

In South Africa, fortification of maize meal is mandatory. If this were extended to large and medium scale mills throughout sub-Saharan Africa, 62 million consumers would be reached annually. In North Africa, bread is widely consumed by all sectors of the population. Large mills, which cater for an estimated 80% of the market, could reach more than 145 million consumers. In sub-Saharan Africa, where flour consumption is less widespread but has grown by more than 40% in the past 10 years, fortified flour products could deliver enhanced vitamin and mineral nutrition to as many as 100 million consumers. At the same time, there are enormous

opportunities to expand the fortification of vegetable oils. These are processed at large and medium scale facilities, where the addition of vitamin A is technically simple. Using current distribution systems, fortified vegetable oil could reach almost 500 million people.

An estimated investment of \$84 million could potentially stimulate fortification in Africa across much of the wheat flour, maize meal and vegetable oil processing sectors. GAIN will work with NEPAD and alliance partners to raise resources to promote this industrial sector focus approach to stimulate fortification. This approach will complement GAIN's national fortification program focus, which is its primary area of concentration and where most of GAIN's investments will be directed.

After more than a decade of public-private collaboration, two-thirds of African households consume iodized salt. In addition to having limited access, the remaining one third of households are disproportionately rural, poor and at risk of iodine deficiency disorders. Investments are needed in capacity building, public education and strengthening systems for potassium iodate procurement, regulating small producers and towards targeting key salt exporting countries. GAIN will actively build forward and backward linkages so that national food fortification programs include salt iodization, and will assist alliance partners in mobilizing resources to provide additional access to iodized salt.

Supporting new innovations in food fortification

Analysis of current production and consumption trends in Africa suggests that fortifying commonly consumed foods such as cassava flour, sugar, salt and rice is needed to reach significant vulnerable populations.

Commercial cassava fortification with multiple vitamins and minerals has been implemented in Indonesia and pilot trials in Nigeria indicate feasibility and consumer acceptance. In Zambia and Nigeria sugar is currently being fortified with vitamin A but further research is needed on applicability to other sugar crystal sizes on the African market, and to understand consumption patterns among the poor and young. The potential to double fortify salt (with iron and iodine) seems great, but further investment in product and policy development is needed. Adapting emerging rice fortification technology for the growing market for rice, stimulated by the New Rice for Africa Initiative, holds much promise.

GAIN will also work with its alliance partners to establish pilot programs and generate new resources to support these new innovations.

Next steps

GAIN seeks to expand its programs in Africa by significantly increasing the number of grants awarded to national food fortification efforts. Already, Eritrea, Malawi, Niger, Senegal, Sudan, and Uganda have formed National Fortification

Table 1 : Large grants awarded for national programs in Africa

Country	Food fortified	Main fortificants	Projected total population (in millions) reached three years after program start
Burkina Faso	Cottonseed oil	Vitamin A	8.6
Cote d'Ivoire	Palm oil, cottonseed oil, wheat flour	Vitamin A, iron, folic acid	14.4
Ghana	Vegetable oil, wheat flour	Vitamin A, iron	19.9
Mali	Cottonseed oil	Vitamin A	7.7
Morocco	Vegetable oil, wheat flour	Iron, vitamin A, B vitamins	17.4
Nigeria	Salt, sugar, vegetable oil, wheat flour, maize flour	Iodine, vitamin A, iron	86.8
South Africa	Wheat flour, maize flour	Iron, folic acid, vitamins A+B	30.0
Zambia	Maize flour	Vitamin A, B vitamins, folic acid, iron, zinc	5.6

Alliances and are preparing requests for funding proposals in response to GAIN's recent call for expressions of interest.

The first annual forum of an African Business Alliance for Food Fortification is being considered for the end of this year. Proposed at a special World Economic Forum workshop on hunger in Cape Town in June 2005, the alliance will catalyze and support efforts by African food companies and Africa-based multinationals to reach poor populations with fortified food.

A joint GAIN-NEPAD Senior Nutrition Advisor, based in the NEPAD Secretariat in South Africa, is being appointed to build capacity to develop and implement these strategies. Technical assistance is also planned for the Commonwealth Regional Health Secretariat to support expansion of fortification initiatives in Eastern and Southern Africa.

GAIN has earmarked \$35 million as seed funding to support various programs linked to the Special Initiative on

Food Fortification for Africa. Additional resources will be sought to continue development of the Africa program over the next seven years, both through direct funding to GAIN and joint fund raising with GAIN's alliance partners.

The major challenge will be to develop an integrated program for Africa to address vitamin and mineral deficiencies that cover not only food fortification, but other food based approaches and supplementation. The most promising avenue for the development of this integrated program is the strategic planning process underway within the 'Wakefield Coalition' an informal group of development and donor agencies working to establish a sector-wide plan for the next ten years to end vitamin and mineral deficiencies (members currently include GAIN, USAID, WFP, World Bank, WHO, UNICEF, FAO, CDC (US), MI, HKI, MOST and Harvest Plus). This planning initiative will engage with NEPAD as well as other African institutions and stakeholders to develop

a clear strategy and program covering all partner agencies, including a plan to mobilize the required resources. GAIN will work with its alliance partners over the coming year to develop this integrated program.

If we take up this challenge now, the control of vitamin and mineral deficiency could be hailed as a major and measurable achievement for the people of Africa in just a few years' time. — *Marc Van Ameringen, Interim Executive Director, Global Alliance for Improved Nutrition, Geneva, Switzerland* ■

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■ Comment:

Keeping up the momentum: the next four years

In recent years the International Union of Nutritional Sciences (IUNS), in conjunction with the UN University and other international partners, has focused much of its efforts on Africa. The fact that we are holding this ICN in Durban, South Africa is a clear product of the emphasis placed by IUNS in this region. The year 2005 brings a step that is long overdue: The first ICN in Africa in over half a century of IUNS existence. I see the next four years as an opportunity to further advance the work of the past two IUNS Presidencies in which I shared responsibility, first as a council member under Barbara Underwood, then as President-Elect under Mark Wahlqvist.

The fact is, whether we like it or not, IUNS will and should be measured by what it does for the most severely affected regions of the world; the ones that have the least human and material resources to address food and nutrition problems. Today, Africa represents the biggest chal-

lenge for IUNS (the only truly global nutrition union) and all others concerned with improving nutrition. Based on current trends, nutrition problems in most sub-Saharan countries are not only not improving—they are getting worse. It is clear by now that unless some dramatic actions are taken the UN Millennium Development Goals (MDGs) will not be met. In fact, the situation for many countries will be worst by 2010.

This could lead us to think we have failed, or even worse, that there is no sense in continuing to spend our limited energy and resources in Africa. My view is exactly the opposite. We need more decisive actions, we need to challenge ourselves and our African colleagues, and address the need for change in our actions; either in the way we do things or in the intensity of our efforts. More of the same will certainly not do. The children and women of Africa, who suffer the most, deserve something better. We

owe it to them and to ourselves to come up with more effective solutions and faster results.

I do not have an instant solution to this complex problem. However, I want to place IUNS, in partnership with others that share our values and our vision, in direct support of those organizations in the front line who fight against hunger, malnutrition, HIV/AIDS and other forms of oppression. It is essential that Africans lead the way, although others can certainly help. Our job is to strengthen local capacity to address the pressing problems of human survival and malnutrition in Africa. We, as IUNS, need to contribute in empowering Africans in their efforts; we need to support them in training and applied research, and advocate for more vigorous actions both in the region and globally. Moreover, we need to challenge the international organizations that have primary responsibility for technical and humanitarian assistance. At the same

time we must support them in taking effective action, mobilizing regional and national contributions towards effective solutions to this chronic crisis. Undoubtedly more resources for immediate action are needed. But just as important, in parallel, we need to strengthen the local operational and applied research capacity to implement or develop innovative solutions that will work.

IUNS is ready to strengthen its work in Africa, especially if the national and regional societies are willing to lead the way. These efforts can be assisted from abroad, but the force, the muscle, the heart and the soul of the effort needs to come from within the continent. The emerging next generation of African nutrition leaders, in part trained with the support of IUNS/UNU, the global

expansion of the European Nutrition Leadership Training Program and others, need to lead this crusade of mass salvation and construct a new reality for Africa in the coming decades. IUNS will be there to support their efforts. – *Ricardo Uauy, President Elect, International Union of Nutritional Sciences (uauy@uchile.cl)* ■

Below are updated versions of the vision, mission and values of IUNS, and some of the challenges it currently faces. These will orient my work as IUNS President in the next four years. Feel free to express your opinions and criticisms of IUNS activities. I welcome your constructive proposals of what should be done.

Vision: To live a life without malnutrition is a fundamental human right. The persistence of malnutrition, especially among children and mothers, in this world of plenty is immoral. Nutrition improvement anywhere in the world is not charity but a societal and individual right. It is our responsibility as a true global nutrition scientist community to find effective ways to promote investment for better livelihoods and to avoid future unnecessary social and economic burdens linked to malnutrition in all its forms. With collective efforts at the international, national and community levels, ending malnutrition is both a credible and achievable goal (1).

Mission: To promote advancement in nutrition science, research and development through international cooperation at the global level (2).

Values: The actions that we take and the manner we proceed in our work as IUNS should reflect the values that we share:

- Be truly global

- Scientific excellence in our work
- All nations as equal members
- Invest in and empower our future leaders
- Accountable to our stakeholders
- Transparent in our actions
- Place public interest first
- Partnership with others

Challenges: In the first decade of this century IUNS is challenged to:

- provide scientific and moral leadership to address global nutrition and food problems, mobilizing the nutrition scientists nationally, regionally and at the international level, in order to create the conditions necessary for sustained action to secure the right to safe and nutritious food for all.
- be a truly global union. This means that more leadership needs to come from Africa, Asia and Latin America. To respond to this challenge we will need to provide the best of our young nutrition scientists an opportunity to become our future leaders. We will need to work closely with regional and national nutrition societies to respond to this challenge.
- integrate the social, environmental and human rights dimensions of nutrition and food issues more closely with the scientific biological focus characteristic of our present work. This will require that we all become more aware of and sensitive to global social

and environmental changes and their impact on the nutrition and health of humankind.

- integrate the many views under-represented in the global debate on the science and practice of nutrition. Leaders from China, India and other parts of Asia need to join Africans and Latin Americans, and those from the industrialized world, in raising awareness, demanding and leading actions to eliminate malnutrition in all its forms as a constraint on human and social development.
- support the training of the next generation of nutrition scientists as leaders in both the science of nutrition and its practice in food and nutrition policies and programs, as advocates, communicators and as agents of change, in order to respond to the challenges facing us, sustain the achievement of the IUNS mission and realize our shared vision.

1. Adapted from James WPT, Smitasiri S, Ul Haq M, Tagwiyeri J, Norum K, Uauy R, Swaminathan MS. Ending malnutrition by 2020 - An agenda for change in the millennium. WHO Food and Nutrition Bulletin 2000; 21S: 1S-76S.
2. IUNS Statutes and Rules of Procedure (As revised and adopted by the General Assembly at its meeting on 22 August 1989) <http://www.iuns.org>

National food fortification programs in Africa (status September 2005)

Country	Program*		Vitamins and minerals added
Burkina Faso	Cottonseed oil	(P)	A
Côte d'Ivoire	Wheat	(P)	Folic acid, iron
	Edible oils	(P)	A
Ghana	Wheat	(V)	A, B1, B2, B6, B12, folic acid, niacin, iron, zinc
	Edible oils	(V)	A
Guinea	Wheat	(V)	B1, B2, folic acid, niacin, iron
Kenya	Maize	(P)	A, B1, B2, B6, folic acid, niacin, iron, zinc
	Edible oils	(P)	A
Lesotho	Wheat	(V)	A, B1, B2, B6, folic acid, niacin, iron, zinc
	Maize	(V)	A, B1, B2, B6, folic acid, niacin, iron, zinc
Malawi	Maize	(V)	A, B1, B2, B6, B12, folic acid, niacin, iron, zinc
	Sugar	(V)	A
Mali	Cottonseed oil	(V)	A
Morocco	Wheat	(M)	B1, B2, folic acid, niacin, iron
	Edible oils	(V)	A, D
Namibia	Maize	(V)	A, B1, B2, B6, folic acid, niacin, iron, zinc
Nigeria	Wheat	(M)	A, B1, B2, niacin, iron
	Maize	(M)	A
	Edible oils	(M)	A
	Sugar	(M)	A
South Africa	Wheat	(M)	A, B1, B2, B6, folic acid, niacin, iron, zinc
	Maize	(M)	A, B1, B2, B6, folic, niacin, iron, zinc acid
Sudan	Wheat	(V)	Folic acid, iron
Uganda	Wheat	(P)	A, B1, B2, B6, folic acid, niacin, iron, zinc
	Maize	(V)	A, B1, B2, B6, folic acid, niacin, iron, zinc
	Edible oils	(P)	A
	Sugar	(P)	A
Zambia	Wheat	(V)	B1, B2, niacin
	Maize	(V)	A, B1, B2, B6, folic acid, niacin, iron, zinc
	Sugar	(M)	A

* (M) = mandatory; (V) = voluntary; (P) = pending

In August 2004, 14 African countries had implemented a national salt iodization program, while 12 countries had a partial program (ICCIDD: http://www.people.virginia.edu/~7Ejtd/iccidd/mi/regions/africa_detail.htm).

British Medical Journal theme issue on Africa

In October 2005 the BMJ will publish a theme issue "by, for, and about" Africa, to deal exclusively with the region's problems and, more importantly, offer solutions. Following the model of its South Asian issue last year, the theme issue will be a diverse mix of papers, debate pieces, editorials, and reviews, and will discuss a wide range of health challenges such as HIV/AIDS, tuberculosis, malaria, violence against women, and maternal and child health, as well as emerging challenges such as cardiovascular disease and diabetes. It will consider the political economy of health, including progress toward achieving the millennium development goals; health systems issues such as human resources development and retention; and the contributions made by traditional health systems and approaches. Of particular interest is original research conducted in Africa, and the discussion by health professionals from the region of issues that are common to all. With this issue, the BMJ wants to tackle the historical, political, social, economic, and cultural dimensions of health, not only telling stories of Africa's problems, but also of its potential: "Stories are important because we read a lot about how Africa is dying and despairing but not about how Africa is living and developing."

The issue will be launched at a meeting in Durban on 3–5 October. For further information, please contact Dr Jocalyn Clark associate editor, BMJ (jjclark@bmj.com).