



2 Editorial: Where there's a will

The arguments for improving nutrition are overwhelming. So, what is holding back progress?

2 The cost of food enrichment

The annual investment to provide micronutrients is not only worthy (returns can exceed the costs by a factor of 15–30), but it is more or less fixed and independent of the intervention

4 Nutrition, food and development in Latin America

The Fifteenth Latin American Congress of Nutrition of the Latin American Nutrition Society (SLAN) attracted over 2000 participants from 26 countries

6 Global undernourishment getting worse

The State of Food Insecurity in the World 2009, published by FAO/WFP, concludes that structural problems of underinvestment are impeding progress towards the World Food Summit target and the first Millennium Development Goal

7 Scaling up micronutrient programs

This document from the Micronutrient Forum identifies the main issues affecting micronutrient program implementation, discusses the effectiveness and impact of various micronutrient interventions, and recommends actions to address existing problems

8 Synergizing nutrition efforts

The REACH partnership offers striking new opportunities to extend and accelerate efforts being made on the ground to address undernutrition

Feature:

The cost of food enrichment

The cost of food enrichment, as with all interventions in public health nutrition, is always of major concern. Economical feasibility is essential for the successful introduction of any program of this type. It must be remembered, however, that estimating the cost is no simple matter, because there are many ways to express it. Some of them may be confusing or lead to incorrect comparisons. In any case, it is important to have a clear understanding about how to interpret enrichment costs. With the following information we hope to provide some insights into the subject.

The cost analysis of food enrichment requires consideration of several parameters. The most important of these are the price of the fortificants (source of micronutrients) added, the type of food enriched and the amount consumed, the industrial scale on which enrichment is done, and the costs for packaging, marketing, enforcement and monitoring.

Nutrient costs usually negligible

Nutrients need to be added in amounts that bring total intakes close to the levels consistent with good health. This is usually between 40% and 200% of the Estimated Average Requirement (EAR) in order to provide enough nutrients with the usual diet. The reason for the 200% is to ensure that most individuals gain benefit, even those who consume the fortified food in small amounts.

The cost of most vitamins and minerals is low. The amount of iodine needed to enrich a year's supply of salt at 100% EAR, for example, costs only about US\$0.002 per adult. Enough vitamin B1, B2, B6, B12, folate, niacin and zinc to meet an adult's nutritional requirement for a year can be bought for US\$0.18. Depending on the type of fortificant used, vitamin A costs US\$0.04–0.09, whereas iron costs US\$0.06–0.19. Because higher amounts of vitamin C and calcium are needed to provide adequate levels, their annual costs are in the order of US\$0.35 and US\$1.00, respectively (Table 1).

Other costs, such as those for equipment, quality control and any special packaging that is needed, should be added, although they have only a small impact on the overall cost if fortification takes place under formal industry settings. This may not apply for rice fortification, however. The extrusion of simulated rice kernels or the coating of rice grains with a layer of micronutrients can cost at least as much as the fortificants used. Because of this, it is preferable to add multiple micronutrients to rice, because this has only a minimal impact on the overall cost.

In fact, the price of most fortificants is so low that very little can be saved by limiting the number added to a food. On the other hand, there are many good reasons for enriching a staple with multiple nutrients. For example,

vitamin C and vitamin A are important for absorption of iron in the intestine; vitamin A is needed for internal iron mobilization; adequate amounts of folate, vitamin B2, vitamin B6 and vitamin B12 are required for cell replication, including the synthesis of red blood cells; zinc, vitamin A, vitamin D and iodine are involved in gene modulation; vitamin B1, vitamin B2, niacin and vitamin B6 must be present for releasing the energy contained in food; vitamin E, vitamin C, beta-carotene and selenium are needed for protection against oxidative stress. In other words, for optimal health the diet must be enriched with all the essential nutritional factors that are deficient, and not only one or two.

Food intake affects fortification economics

Another way to express the cost of food enrichment is by the amount it increases the price of the food. This increase is related to the daily intake of the food. Thus, for example, if the average intake is 50 g/day, four times the amount of fortificant must be added to the food than when the intake is 200 g/day. Nevertheless, although it would cost four times as much to enrich a specific amount of the food when consumption of the food is 50 g/day instead of 200 g/day, the annual cost of the fortificants per person would be the same in both cases.

The following example compares the costs of enriching flour and salt with iron NaFeEDTA. To provide women of reproductive age who consume 200 g of flour daily (73 kg/year) with 100% EAR for iron, the fortification level would be 44 mg/kg, at an annual cost of US\$2.2/metric ton (MT = 1000 kg). At a price of US\$500/MT of flour, the increment in the price of the fortified flour would be 0.44%.

On the other hand, based on a daily intake of around 5 g salt (1.8 kg/year), and a fortification level of



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In spite of high-level commitments to reduce the global prevalence of malnutrition (see *Nutriview* 2009/4, page 8) and increasing efforts by aid organizations, the number of hungry people in the world continues to grow. In their latest progress report (this issue, page 6), the FAO and the WHO estimate that more than one-sixth of the world population were undernourished in 2009.

People who are malnourished don't only suffer personally, they also place an unnecessary burden on the economics of the country they live in. Poor physical and mental development lowers their ability to contribute effectively to productivity; excessive morbidity weighs heavily on the family budget and healthcare services.

The arguments for improving nutrition are overwhelming. So, what is holding back progress? Examples of successful programs, and support from experienced specialists are widely available. The required technology is relatively simple, and the costs are moderate. In fact, the return on investment is many times greater than the cost.

All that is needed is the desire to make a difference, and the decision to go ahead. *Where there's a will, there's a way!* – A. Bowley

1760 mg/kg, salt fortification would cost forty times as much (US\$88/MT) as flour fortification. At a price of US\$250/MT of salt, the increment in the price of the fortified salt would be 35.2%. This example illustrates why salt is not an adequate vehicle for this type of fortification. While the annual amount of fortificant, and therefore its cost to the consumer, is the same for both food vehicles, the lower consumption and basic price of salt make salt fortification with iron a less suitable alternative. This does not mean that salt cannot be fortified with iron, but it would have to be permanently subsidized, because producers and consumers may be unwilling to carry the extra cost.

Sometimes, when intakes of the food are low, it may be necessary to use a more bioavailable fortificant, which could also be more expensive, in order to supply a nutritionally relevant amount. This is the case with iron NaFeEDTA, which has a higher bioavailability than electrolytic iron, and can therefore be used at a lower level. It is important to point out here that it is preferable to develop a meaningful fortification program than to keep fortification costs down. An essential factor for a viable program is to select a staple food for fortification that can easily absorb the cost or to devise a strategy that covers the additional cost. Nevertheless, each situation should be analyzed separately in order to find the most viable and still beneficial alternative.

Account for sensorial compatibility

The above calculations for iron fortification are purely theoretical, because adding the proposed amounts of iron to flour or salt would change their sensorial and physical properties. This is why it is always important to confirm the technological compatibility of the fortificants with each food matrix and the resulting product. Using less iron could improve the chances of compatibility and lower the cost of the fortificant, but it might not meet the specified biological goal, as only a fraction of the EAR will be supplied. However, this iron fortification example illustrates that it might be necessary to enrich more than one food vehicle to provide the amounts of micronutrients needed to correct the prevailing gaps in intake. Nevertheless, fortified salt is a noteworthy exception as a source of iodine for most countries in the world. In most cases, it would be preferable to integrate several foods into a fortification program, rather than depending on a single staple.

Cost affected by industrial scale

To make the exercise even more comprehensive, one needs to understand that the price of the fortificants only reflects the overall cost of the program when the fortification

process takes place in a few large factories. Under these circumstances (economy of scale), the fortificant cost is 80–90% of the total. About 10% covers the cost of equipment acquisition and maintenance, labelling, advertising, quality control and assurance. Government costs for supervision, monitoring and evaluation might also be in the order of 10% of total costs. This low expenditure by the public sector makes food fortification an attractive strategy to deliver micronutrients to vulnerable populations.

If the fortification is implemented with hundreds of small operators, the ratio between fortificant costs and other costs is inverted, so that equipment, supervision and marketing might cost several times as much as the fortificants. This is why salt iodization programs have been estimated to cost US\$0.050/person, rather than just a little more than US\$0.002 as it is the cost of the added fortificant (see Table 1). Under these circumstances, food fortification might lose its advantage over other micronutrient interventions, regardless of the cost.

Universal principles, local solutions

In summary, it is important to remember that, although cost is an important factor for defining when a food fortification program is viable under free trade condi-

Table 1: Estimated fortificant costs in food fortification (to provide 100% EAR to women of reproductive age)

Micronutrient	Vehicle	Micronutrient in fortificant	Fortificant price	Loss	EAR ¹	Cost per person
		Proportion	US\$/kg	%	mg/day	US\$/year
Iodine	Salt	0.59	24.00	15	0.107	0.002
Vitamin B ₁	Flour	0.81	24.50	30	0.917	0.013
Vitamin B ₂	Flour	1.00	38.00	15	0.917	0.015
Vitamin B ₆	Flour	0.82	33.00	15	1.083	0.018
Folate ²	Flour	0.90	195.00	30	0.188	0.019
Zinc	Flour	0.80	6.75	0	8.2	0.025
Vitamin B ₁₂	Flour	0.001	42.00	15	0.002	0.035
Vitamin D	Flour	0.0025	37.00	30	0.005	0.035
Vitamin A	Oil	0.51	117.00	30	0.357	0.039
Niacin	Flour	0.99	11.50	10	10.8	0.050
Iron (electrolytic)	Flour	0.97	3.71	0	40.5	0.057
Vitamin A	Flour/sugar	0.075	40.00	30	0.357	0.090
Iron (NaFeDTA)	Flour	0.13	6.50	0	10.6	0.193
Vitamin C	Beverage	1.00	20.00	40	34.6	0.354
Calcium	Solid food	0.40	1.28	0	833	0.973

1. Estimated Average Requirement for women consuming diets with low mineral bioavailability.
2. EAR expressed in terms of folic acid. As Dietary Folate Equivalents (DFE), the EAR value for adult women is 0.32 mg/day. Folic acid is 70% more bioavailable than dietary folate.

tions, other factors must also be taken into consideration before deciding how much of which micronutrients to add, and what strategies should be used to finance the program. It is fine to estimate the “savings” linked to the reduction of pathologies associated with micronutrient deficiencies, but it is more important to fulfil the right of each individual to be able to benefit from the maximum use of her/his inherited potential. The annual investment to provide micronutrients is not only worthy (returns can exceed the costs by a factor of 15–30), but it is more or less fixed and independent of the intervention. The differences among interventions are related to the mechanisms by which they deliver the micronutrients. Mass fortification programs take advantage of already existing industries and marketing channels, but if they have limitations under free trade environments, then social and subsidized programs may be considered. As numerous organizations (such as World Bank, UNICEF, Micronutrient Initiative, Copenhagen Consensus) agree: “The control of vitamin and mineral deficiencies is one of the most extraordinary development-related scientific

advances of recent years. Probably no other technology available today offers as large an opportunity to improve lives and accelerate development at such low cost and in such a short time.”

If food fortification is not practical to implement because the food industry is inadequately developed, then preventive supplementation is a possible alternative. The secret of a successful nutritional program is to identify the strategies to reach wide sectors of the population for supplying the correct micronutrient amounts (neither too little nor too much), and specially to do so with reliability and with as little external financing and supervision as possible. The goal is to improve nutrition in order to promote good health everywhere, but the means depends on the conditions of each population. In other words, the principles (supplying the required amounts of micronutrients) are universal but the solutions (strategies of delivery) are local, and it is important to keep an open mind and good critical judgment to be able to recognize and use them.

Omar Dary

Conference report:

Nutrition, food and development in Latin America

The Fifteenth Latin American Congress of Nutrition of the Latin American Nutrition Society (SLAN), held at the Espacio Riesco Convention Center, Santiago de Chile from November 15–19, 2009, attracted over 2000 participants from 26 countries. Most of the delegates came from Brazil (36%), Chile (22%), Mexico (10%) and Argentina (6%), and Brazilian contributions made up almost two-thirds of the 2194 presentations and posters in the program. The program covered four main topics (public health, foods, clinical nutrition, basic nutrition), and was accompanied by eight satellite events. In addition, the Fifth Latin American Nutrition Leadership Program Workshop took 24 young nutrition professionals and students to a five-day training conclave in the foothills of the Andes.

Main sponsors of the event were the Ministry of Health of Chile, the University of Chile Medical School, the Institute of Nutrition and Food Technology (INTA), the Chilean Society of Nutrition and Food Science, the Chilean Association of Clinical Nutrition, the Chilean Society of Pediatrics, UN agencies (PAHO, UNICEF, WHO, FAO, WFP), the Latin American Federation for Parenteral and Enteral Nutrition (FELANPE) and the International Union of Nutritional Sciences (IUNS). Many other Chilean and international firms and associations also gave their support.

Meeting opened by key personality

As this year’s congress coincided with the 60th anniversary of the Institute of Nutrition of Central America and

Panama (INCAP, which was inaugurated in Guatemala in September 1949), there was no one more fitting to open the meeting on the evening of November 14 than INCAP’s first Director, Nevin Scrimshaw. His keynote address, with the title: ‘Food and Nutrition Research in Latin America: Current and Future Challenges’, covered the history of nutrition on the continent, and paid respect to Latin American personalities who have contributed significantly to knowledge in the field. Even after leaving INCAP, Dr Scrimshaw has continued to have a strong influence in Latin America. As Head of the Department of Nutrition and Food Science at the Massachusetts Institute of Technology, he formed graduate professionals in the nutritional sciences, notably from Mexico, Chile, Brazil, Colombia and Argentina; others from the region benefitted from United Nations University (UNU) fellowships during the time when he led the Food and Nutrition Policy Program for that institution in the 1980s. Much important research and policy work from Latin America has been published during the period of his editorship of the Food and Nutrition Bulletin. After winning the World Food Prize in 1991, he invested the money into the work of the International Nutrition Foundation in Boston, which he had founded a decade earlier (see Nutriview 2009/4).



Nevin Scrimshaw delivered the keynote address

Overnutrition a growing threat

A central theme of the meeting was the growing obesity epidemic in the region, and much time was spent discussing intervention programs to prevent metabolic syndrome and reduce chronic disease mortality, as well as the latest controversial theories on the immunological etiology of obesity. Other sessions reviewed successful policies and interventions to improve nutrition in the Americas, the importance of breastfeeding, increasing intakes of fruit, fiber and micronutrients, and reducing sodium intake, the role of dietary antioxidants, functional foods and nutraceuticals, an update on the nutritional management of diarrhea and dyslipidemia. The challenges of the cohort studies on nutrition in Brazil, Guatemala and Chile were included in the symposia. These studies are not always designed in the beginning to gather the information that will be most pertinent later on, and they require a guarantee of long-term funding to exist and provide insights into ecological and behavior effects. Nevertheless, all studies show overweight and obesity emerging in children and adolescents from these longitudinal follow-ups, and some are able to relate the weight problems to factors of diet (maternal and child) in fetal and early life. There were also two presentations on the ecological concept of 'healthy cities', and how simple measures to enable bicycling, public parks and areas set aside on weekends for mass recreation, could assist in controlling weight gain in the generally sedentary confines of contemporary urban life.

The Pan American Health Organization (PAHO) promoted the region-wide adoption of the new WHO Growth Standards (<http://www.who.int/childgrowth/en>) and presented the new IMAPP (Intake Monitoring Assessment and Planning Program) software for collecting dietary data that is being developed for WHO by three notable professionals in public health nutrition, Lindsay Allen, Suzanne Murphy and Alicia Carriquiry.

Micronutrient deficiencies still on agenda

Issues related to micronutrient nutrition were also represented on the program. One debate focussed on the issues surrounding the monitoring of folic acid intakes by pregnant women consuming fortified flour, and the need to determine folic acid levels in population studies. Also of concern was the state of monitoring of the fortification of salt with iodine and the incidence of thyroiditis. Another symposium covered the topics of intestinal absorption of iron from heme-ring and ferritin molecule origins, as well as the use of a yeast system to study iron and copper metabolism. Another addressed the diagnostic biomarkers of zinc status, transport and signaling of the nutrients, and the role of zinc in human metabolic disorders. Noel Solomons (CeSSIAM, Guatemala) discussed old and new problems of evolution and adaptation in the metabolism of minerals, alluding to a long and tortuous history of distilling fact from fiction in the related research publications. What emerges as true is that iron is the most problematic of the trace elements. It is essential



Retiring SLAN President Eduardo Atalah (right), who presided over the 2009 congress, together with the new President, Manuel Hernández-Triana

to all, deficient in many, and dangerous in excessive amounts. It therefore remains a challenge to public health policy and programs. The need for mineral deficiencies to be addressed across all segments of the population was illustrated from the experimental work by Melinda Beck of the University of North Carolina, who showed the potential for innocent and innocuous viruses to mutate into virulent pathogens by passing through selenium-deficient animals. Any similar examples for human viruses could have calamitous epidemiological consequences. Because of the false starts and dead ends in the pursuit of useful knowledge on trace element nutrition, Dr Solomons urged humil-

Nominations for Rainer Gross Award 2010

The Hildegard Grunow Foundation invites applications/nominations for the Rainer Gross Prize: Recent Innovations in Nutrition and Health in Developing Societies. The Prize is endowed with US\$ 2500, and will be awarded biennially on the occasion of a large international nutrition-related meeting. The first award will be made in September 2010, during the II World Congress of Public Health Nutrition in Porto, Portugal (https://www.skyros-congressos.com/ni_congressos.asp?id=311; see also Nutriview 2009/4).

Rainer Gross, Chief of Nutrition at UNICEF from 2002 until his death in September 2006, was known as a tireless advocate who would not let the world forget about the ongoing 'silent emergency' of undernutrition and its complex causes. The Hildegard Grunow Foundation created the Prize to honour his memory, and remember his unique approach to innovation in concepts and research in critical, but novel areas of inquiry, with a view to bettering the nutrition and health of the less fortunate.

The Prize is awarded in recognition of the merits of those who continue the generation and pursuit of innovative ideas and projects in nutrition and health in developing societies. At the award ceremony, the awardee will lecture on the work being recognized, and invited to write a review article to be published in a prestigious nutritional journal. Applications/nominations for the Prize must be submitted in writing (address: Hildegard-Grunow-Foundation; Clemenstr. 27, D-80803 Munich, Germany) or using the submission form on the web site (<http://hgrunowfoundation.org/rainer-gross-award>), where further details of the nomination process can also be found. Deadline is June 1, 2010.

ity on the part of researchers, and healthy skepticism among the readership of the nutrition literature.

Lluís Serra-Majem (University of Las Palmas, Gran Canaria) presented the results of the 'enKid' Study, a Spanish survey among 2–24 year-olds. Javier Aranceta-Bartrina (President of the Spanish Society of Community Nutrition) spoke about the 'Perseus Project' of Spain's Ministry of Health. Both investigators also disseminated information on the Mediterranean Diet Study (PREDIMED) conducted among Spanish schoolchildren. Ibrahim Elmadfa (Vienna Institute of Nutrition, and IUNS President 2010–2014) discussed the nutrition situation in Europe, concluding that obesity was rising in part due to the absence of fruits and vegetables in the diet.

Elections and prizes

A significant event on November 18 was the launch of the textbook: 'Impacto del crecimiento y desarrollo temprano sobre la salud y bienestar de la población - Perspectivas y reflexiones desde el Cono Sur' (Impact of early growth and development on health and welfare of the population: Perspectives and reflections from the Southern Cone) by Ricardo Uauy, Esteban Camuerra and David Barker. Written on the initiative of the Danone International Institute, it presents novel evidence concerning the impact of fetal and early childhood growth on the development of obesity, glucose

intolerance and chronic diseases in adulthood. (available in Spanish from: <http://www.institutodanoneconosur.org/publicaciones.aspx>).

At the business meeting of SLAN on the same day, Manuel Hernández-Triana (Havana, Cuba) assumed the presidency of the society for the next three years. María Nieves García-Casal (Venezuelan Institute for Scientific Research) became the Vice-President/President-Elect, ready to assume leadership of the Society at the next Congress, scheduled for Havana in 2012.

Later that evening, the W.K. Kellogg Institute for Food and Nutrition Research presented the 5th Latin American Prize to students and professional researchers in nutrition. From a record number of 25 papers submitted in each group, the jury awarded the student prize to Sophie Dram (Faculty of Medicine, University of San Paulo, Brazil) with the research paper: 'Influence of gene polymorphisms on the risk profile for metabolic syndrome and weight loss in obese children and adolescents'. In the professional category, the prize was awarded to Marco Antonio Beinn (School of Nursing and Nutrition, Federal University of Minas Gerais, Brazil) for his work: 'A randomized trial of the efficacy of iron-fortified rice Ultra Rice® in infants and children'. Olga Patricia García Obregón (Faculty of Natural Sciences, University Autónoma de Queretaro, Mexico) was runner-up with her contribution: 'Bioavailability of zinc in biofortified wheat'.

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Review:

Global undernourishment getting worse

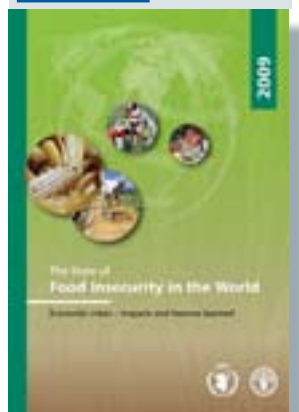
The State of Food Insecurity in the World 2009 is the tenth FAO progress report on world hunger since the 1996 World Food Summit. Published jointly by the FAO and the World Food Programme, this report presents the latest statistics on global undernourishment, and concludes that structural problems of underinvestment are impeding progress towards the World Food Summit target and the first Millennium Development Goal.

The report describes the processes by which the economic crisis has affected developing countries, and presents a series of case studies that show how the poor are struggling to cope with the dual nature of this crisis that has been imposed on them. The crisis is due not only to increases in prices of agricultural inputs necessary for food production leading to higher prices, but also is due to the effect of the financial crisis in rich countries affecting employment opportunities and family incomes in poorer countries. This is different from previous crises experienced by developing countries, because it has a global span affecting all regions simultaneously. In addition it comes on top of already strained coping mechanisms. Moreover, because developing countries today are more integrated into the global economy than in past decades, they are more vulnerable to the downturns.

A billion hungry mouths

The FAO estimates that 1.02 billion people worldwide were undernourished in 2009. This represents more "hungry people" than at any time since 1970, and a worsening of the unsatisfactory progress present even before the present economic crisis. The report documents the increase in food insecurity resulting from reduced access to food energy by the poor, due to high domestic food prices, lower incomes and increasing unemployment, rather than to poor harvests. It fails to incorporate the nutritional impact of lost dietary diversity, as people shift from nutrient-rich protective foods to basic staples, in order to preserve energy intakes. In trying to cope with the growing burden, poor people have to reduce their spending on food and other essential items such as education and health care. Thus, they lose the already limited supply of animal foods, legumes, pulses, vegetables and fruits. Although these coping mechanisms were strained during the food price crisis of previous years, the poor are now forced to draw on their meager assets even more deeply. Reducing dietary quality in favor of energy-rich, micronutrient-poor basic staple foods creates poverty traps and negatively affects longer-term food security, thus compromising the achievement of the UN Millennium Development

The State of Food Insecurity in the World 2009. Food and Agriculture Organization of the United Nations, Rome, Italy. A PDF file of this document (in English, French, Spanish, Chinese, Arabic or Russian) can be accessed at: http://www.fao.org/catalog/bulletin/13_09.htm



Goals. As a result, malnutrition in all its forms will rise and infant mortality will likely increase.

Agricultural investment needed

The authors recommend a 'twin-track approach' that combines investment in long-term development and urgent short-term stop-gap assistance as an effective way to address growing hunger and malnutrition in the world. They insist that investment in agriculture is essential, because a healthy agricultural sector can provide an economic and employment buffer in times of crisis, especially in poorer countries. Increased investment in agriculture can help to reduce the number of undernourished, as shown by the successful efforts of the 1970s and 1980s. Due attention must also be given to developing the rural non-farm sector, another key pathway out of poverty and food insecurity, in parallel with agriculture.

Safety-net interventions should address the immediate impact on vulnerable groups, in particular securing micronutrient supply in populations already with a

high prevalence of deficiency, while also providing sustainable solutions to the underlying problems. This will contribute in enabling recipients to graduate more rapidly from the short-term support programs. Safety nets must also improve access to credits, modern inputs and new technologies. They should, therefore, be well integrated with broader social and nutritional assistance programs. The urban and rural poor, in particular, will need help, as they were hurt severely by the food crisis and are now most likely to suffer because of the economic crisis.

Hunger was increasing even before the food and economic crises; this suggests that the measures in place were clearly insufficient, and that securing the right to food remains the cornerstone in eradicating hunger and food insecurity. To overcome hunger and malnutrition, food-insecure populations need control over resources, access to opportunities, and improved governance at the international, national and local levels.

Ricardo Uauy, A. Bowley

Review:

Scaling up micronutrient programs

The report, *Scaling up Micronutrient Programs: What Works and What Needs More Work?* published by the Micronutrient Forum in August 2009, summarizes the consensus findings of a group of stakeholders who met at the UNICEF Innocenti Research Centre in Florence, Italy, in September 2008. This fifty-page document identifies nine of the main issues affecting micronutrient program implementation, discusses the effectiveness and impact of various micronutrient interventions, and recommends actions to address existing problems.

Impediments to progress

The main issues affecting progress in micronutrient programs are listed as:

1. Lack of leadership to coordinate priority setting, advocacy and action.
2. Ineffective communication between stakeholder groups.
3. Misaligned/competing approaches at global and country levels.
4. Inadequate engagement with broader initiatives.
5. Private-sector resources not fully implemented.
6. Country teams lack guidance and empowerment.
7. Weak program monitoring, evaluation and documentation of performance.
8. Lack of funds for achieving goals.
9. Limited funding for implementation research.

Effective interventions

The report classifies interventions according to the strength of evidence for their efficacy and impact. It

lists preschool vitamin A supplementation and mass fortification as the interventions with the strongest evidence of effective implementation and impact at large scale. More evidence is needed to confirm the value of iron fortification programs and of maternal supplementation with iron and folic acid. Home-based fortification, zinc treatment for diarrhea, and poverty reduction strategies are the newly emerging micronutrient interventions that hold promise, but lack implementation experience at large scale.

Call to action

The report provides concrete recommendations ("call to action") on how the micronutrient community can begin to fill these large gaps and improve the effective implementation of efficacious interventions at scale.

1. Advocate for a global leadership group or mechanism.
2. Enhance communication among stakeholder groups.
3. Create mechanisms that promote and reward productive collaboration.
4. Design and implement a proactive strategy to strengthen linkages.
5. Create new opportunities to advance regular public-private sector collaboration.
6. Develop guidance to help country teams.
7. Develop in-country capacity to design and implement strategic systems.
8. Mobilize funds for large-scale micronutrient interventions.

Klemm RDW, Harvey PWJ, Wainwright E, et al. *Micronutrient Programs: What Works and What Needs More Work? A Report of the 2008 Innocenti Process*. August 2009, Micronutrient Forum, Washington, DC. To read the report, download other technical resources and learn more about the 2008 Innocenti Process go to: www.micronutrientforum.org/innocenti



9. Increase funds for implementation research to improve understanding of the best ways to design, manage, implement and finance micronutrient programs at scale.

The report concludes that, while scientific discoveries continue to reveal more about the biology of

micronutrient deficiencies and ways to prevent them, a large gap remains in putting existing knowledge into effective action. The call to action in this report provides a way forward and a clear set of recommendations for all stakeholders on how to tackle this important challenge.

A. Bowley

Feature:

Synergizing nutrition efforts

In December 2009, REACH (the Renewed Efforts Against Childhood Hunger and Undernutrition initiative) announced its updated web site and published the first online issue of the REACH Bulletin.

REACH is a partnership of organizations from the private and public sectors, civil society, academia, foundations and governments. Its solution-oriented approach starts with an overall objective based on children's needs, and focuses on how each partner can contribute to a common, government-led solution. While REACH builds on partners' existing work, it represents a shift from current ways of cooperating. With partners' combined influence at the local, regional and global levels, REACH provides a potentially powerful platform to raise awareness about the problem of undernutrition and suitable solutions.

REACH partners are committed to working together to ensure that a set of effective interventions is delivered at scale. They share an acknowledged leadership, an interest to build common advocacy approaches, and a willingness to advocate common points of agreement and messages about child hunger and undernutrition. This collaboration is fundamentally important in order to deliver the range of interventions and services to the same people at the same time that is needed to achieve a measurable impact.

REACH offers a country-led approach to scale up proven and effective interventions through coordinated action under the leadership of national governments. This solution-focused multistakeholder platform involving governments, the United Nations, civil society and the private sector, aims to accelerate progress to halve the prevalence of underweight among under-fives by 2015 (Millennium Development Goal 1, Target 3). As a starting point for country scale-up planning, efforts focus on five priority areas (breastfeeding/complementary feeding, micronutrient intake, parasite control and diarrhea, treatment of severe acute malnutrition, and household food security). Interventions are customized to the specific country situation.

Thus, the REACH partnership offers striking new opportunities to extend and accelerate efforts being made on the ground to address undernutrition, enabling known and effective solutions to be deployed collectively on a wider scale in the most-affected countries and communities. The REACH interagency team invites others to join this effort (contact: hq.reach@wfp.org). For more information please see the REACH web site (www.reach-partnership.org).

A PDF file of the REACH brochure can be accessed at: http://www.reach-partnership.org/c/document_library/get_file?uuid=fbbe8e00-ba03-4fc0-864b-77511eb73253&groupId=94591



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