Plenary Session 2
REVIEWING SOME SUCCESSES

Overview

In the 1990s, food fortification emerged as an integral strategy to overcome micronutrient malnutrition in developing countries. The reach of fortified products expanded from narrow niche products for the advantaged few to mass-market products protecting wide populations from micronutrient deficiencies. In Asia today, fortified foods are more accessible and affordable than ever before. In large part this is the result of a four-part alliance of governments and international agencies; civic and community groups; research scientists and health professionals; and food producers and traders.

Since the early 1990s, when the World Summit for Children and the International Conference on Nutrition focused the international community on the goal of reducing the prevalence of micronutrient malnutrition, the global movement toward USI to control IDD has been remarkable for its speed and effectiveness. Progress has not been even across all regions of the world, but it has been widespread. In Latin America, where 89 percent of all households have access to adequately iodized salt, all nations have mandatory legislation to this effect; in 10 countries, more than 90 percent of the population consume iodized salt. In East and South Asia, iodized salt coverage ranges from 20 percent to more than 90 percent. Where households consume iodized salt, indicators of IDD are dropping dramatically. In the PRC, iodized salt coverage rose from 54 percent in 1995 to 93.8 percent in 1999, and the total goiter rate in children dropped concurrently from 20.4 percent to 8.8 percent. In Indonesia, as iodized salt coverage expanded, goiter in children decreased four-fold from more than 40 percent to about 10 percent.

Universal salt iodization of the 1990s will be long remembered as one of the most remarkable public heath successes of the twentieth century. However, the sustained elimination of IDD is a story for the future, not the past. Unlike achievements in the eradication of smallpox and soon of polio, IDD control programs cannot be scaled down. Eliminated in one generation, IDD will reappear in the next unless iodized salt is continuously supplied.

Over the past decade, progress in reaching wide populations in Asia with other crucial micronutrients like iron and vitamin A has been more modest. Asian societies are predominantly rice eating and technologies to fortify rice remain limited. Unlike Latin America, where micronutrient programs can capitalize on traditional and proven fortification vehicles like wheat flour, technologies for rice fortification, while developing, are not yet widely available. Nevertheless, as wheat flour consumption in Asia rises, nations as diverse as India, Indonesia, Fiji, and the Philippines have initiated programs for the fortification of wheat flour with iron, vitamin A, and other micronutrients. Other countries focus on adapting new technologies while utilizing a variety of food vehicles.

Researchers at India's National Nutrition Institute are among the world leaders in developing salt fortified with both iodine and iron.

In Thailand, there has been a range of voluntary fortification efforts, including a fish sauce with iodine, condensed milk with vitamin A, and triple fortification of instant noodles and dried bananas with iron, iodine, and vitamin A. While sugar consumption is not as high or as widespread in Asia as it is in Latin America, technology and capacity for fortification of sugar with vitamin A is being developed in India and Viet Nam.

The principle of multisectoral collaboration is fundamental to the success of food fortification to reduce micronutrient malnutrition. Public health problems will not be addressed by food producers or the private sector without guidance and incentive from governments. Likewise, governments are not always the most efficient producers and marketers of food products. Therefore, food fortification is a hybrid activity with components of public health and food production. It should come as no surprise that a common factor in the success of food fortification programs has been a strategy of partnership and alliance. Among the most important lessons learned in the Latin American fortification experience is the importance of including the public sector, private sector, academe, and consumers from the very beginning of the process.

The China National Salt Industry Corporation, the lead PRC national agency in iodization, worked closely with a range of key partners including the Ministry of Health, Ministry of Railways, Ministry of Transportation, industrial and commercial sectors, quality and technical sectors, and international organizations. Close coordination of central, provincial, prefectural, and municipal legal and enforcement instruments was also a key in bringing household-level iodized salt consumption in the PRC to more than 90 percent. In Thailand, the Committee on Cooperation of Government and Private Sectors in Solving Food and Nutrition Problems offers technical support, provides a platform for the discussion of regulatory issues, and offers new communication channels that can help food producers reach out to a wider spectrum of consumers. These channels include the outreach of the Ministry of Health as well as the visibility of and respect for Princess Mahachakri Sirindhorn. Throughout Asia, the collaboration of governments and international organizations with civic groups like Kiwanis International has been a key to success in IDD control.

The lessons emerging from the fortification successes of the past decade spotlight the importance of involving all stakeholders, creating trust amongst public and private sectors, and creating a win-win situation. In Asia, future challenges will parallel those of other regions that have longer histories of fortification—Europe, North America, and more recently Latin America. For example, the challenges faced by salt iodization in the PRC are strikingly similar to issues faced in Latin America. These include low market penetration in remote areas, controlling low-cost contraband noniodized salt, and developing consistent quality assurance procedures. Like Latin America, as fortification of a number of commodities such as flour and sugar becomes more widespread in Asia, harmonization of fortification levels and analytical procedures to facilitate regional trade will emerge as key issues. Consolidation of progress and expansion into new products and populations will mark the successes of fortification in Asia during the first decade of the new millennium.

What Made Salt Iodization Successful in the People's Republic of China?

Mr. Lin Jiahua
Deputy General Manager
China National Salt Industry Corporation
Beijing, PRC

In the PRC, the coverage of salt containing 20 ppm or more of iodine increased from 54 percent in 1995 to 93.8 percent in 1999. Total goiter rate in children has been reduced from 20.4 percent to 8.8 percent during this period. Essentially, the PRC has reached the goal of USI. The PRC's serious commitment to USI began in 1991, when Premier Li Peng, in response to the World Summit for Children, signed the Declaration and Plan of Action of the PRC, which included the goal of eliminating IDD by 2000. National goals were set for reducing the number of children with enlarged thyroid to less than 5 percent and providing more than 90 percent of all households with adequately iodized salt.

The Government's Salt Iodization Project was launched during a high-level advocacy meeting convened by the State Council in 1993. The Project focuses on increasing the production of iodized salt through modernizing the salt industry and providing quality assurance and monitoring the salt distribution system. Currently there are 1,300 salt producers and distributors employing more than 400,000 personnel. The industry produces more than 28 million tons of salt annually, approximately 7 million tons of which are for human consumption or food use. Components of the Salt Iodization Project include legislation, management, process production, upgrading of facilities, marketing, social mobilization, and monitoring for quality assurance. The China National Salt Industry Corporation is designated as the lead agency in this effort, with support from a number of key partners including the Ministry of Health, Ministry of Railways, Ministry of Transportation, industrial and commercial sectors, quality and technical sectors, and international organizations.

To assure iodized salt supply and quality, three state laws decreed by the State Council, together with 34 provincial regulations, enabled the Government to strengthen the centralized management of the food salt monopoly from national and provincial to prefectural and county levels. Beyond controlled production through the state monopoly mechanism, the Project developed a number of strategies. Nationwide licensing for the wholesale and transport sectors ensures adequate distribution; an enforcement team of 25,000 persons assures that only legally produced salt reaches the market. There is direct cooperation among salt producers and local governments to move supplies of iodized salt directly to consumers. A key factor has been the upgrading of production and packaging facilities at 120 large-scale plants at a cost of US$100 million, including a US$27 million loan from the World Bank. As a result, production of iodized salt at these facilities has more than doubled since 1995.

While the nation as a whole has reached the goal of 90 percent iodized salt coverage, a number of areas are far below that goal. The challenge will be to achieve USI in poor and remote areas such as Tibet. Moreover, attention must be focused on controlling the flow of noniodized salt in specific areas where there is overproduction or easy access to raw salt. This includes the southern coastal provinces with sea-salt production and the western provinces with large lake deposits. Our goal for the future is to assure that these provinces that remain at high risk of IDD also achieve USI. ❐

Salt 2000: Prospects for Global Elimination of Iodine Deficiency Disorders

Dr. Glen F. Maberly
Director
Program against Micronutrient Malnutrition
Rollins School of Public Health, Emory University
Atlanta, USA

Although some symptoms of iodine deficiency, such as goiter and cretinism, have been known for centuries, the true nature and scope of IDD have only recently been understood. In 1994, WHO announced that "Iodine deficiency is the single greatest cause of preventable mental retardation in the world today." It has become clear that cretinism and goiter are simply the tip of the iceberg. When these are present, IDD affects the entire population in reduced intellectual performance, decreasing the population-wide IQ by up to 13 points. This new understanding of IDD led to a "Decade of Action" during the 1990s as nations pledged to make all efforts to eliminate iodine deficiency.

A global alliance has been formed to create enhanced programs to support the elimination of IDD. The four-part alliance comprises governments and international agencies, civic and community groups, research scientists and health professionals, and food producers and traders. Throughout the world, salt producers have joined the public sector in supporting USI. Worldwide, Kiwanis Clubs have raised more than US$28 million to support salt iodization and other IDD elimination programs. The global success rate in just 10 years has been astounding. In areas of the world where IDD was a public health problem in 1990, about 70 percent of households were consuming iodized salt in 1999, ranging from about 89 percent in Latin America to about 25 percent in Baltic countries and nations of the Commonwealth of Independent States. In East and South Asia, 79 percent and 65 percent, respectively, of households consume iodized salt. For the nations attending the Manila Forum, household use ranges from about 90 percent in the PRC to less than 20 percent in the Philippines. Concurrently, indicators of IDD are dropping. For example, as the proportion of households consuming iodized salt in Indonesia expanded to 65 percent, goiter in children dropped from nearly 40 percent to less than 10 percent.

What have been the elements of this truly significant global public health achievement? There has been a realization of distinct roles for the different sectors involved in USI. First, salt producers assure supply and access. The public health sector neither produces nor distributes salt. Second, governments must provide support to USI and monitor the situation. Although laws and regulations have been helpful in providing a legal framework for USI, salt iodization has expanded even though these laws are rarely enforced. Third, the social sector must be supportive and insist on national oversight. Finally, the public must understand and demand its right to iodized salt.

Salt 2000 is an alliance of public and private agencies working to consolidate progress made over the past decade. Salt 2000 will work to transform the momentum from a global campaign that has reached its much publicized goals to activities to sustain success by continuing to focus attention of policymakers on IDD; to maintain annual appropriations from governments; to motivate salt producers to reach all customers with quality iodized salt; and to encourage civic and scientific organizations to keep a watchful eye to ensure continued progress and to prevent a reversal of the achievements of the 1990s. ❐

Latin American Experiences in Fortifying Staple Foods: The Regional Approach

Dr. Herbert Weinstein
Weinstein Consulting International
Arlington, USA

Latin America was the first area in the developing world with a successful history of food fortification. Salt with iodine, sugar with vitamin A, and wheat and corn flours with iron and other vitamins are in use throughout the region. The concept of micronutrient fortification is well understood in Latin America and is supported by the private sector.

Legislation for iodized salt exists in all countries of the region, with required levels of iodine ranging from 23 to 100 ppm. Ten countries have more than 90 percent of households consuming iodized salt and 90 percent of the total population of the affected countries have access to iodized salt. While all countries of the region have a monitoring system for quality control of iodized salt, overall quality assurance and surveillance remain uncertain, particularly where small producers are concerned. Pending issues include low market penetration in areas where cultural preferences and weak distribution create barriers; transition from government-subsidized to market-based financing of iodization; control of low-cost contraband noniodized salt; and developing congruent levels of iodization as well as parallel parameters for quality-assurance procedures on a regional basis.

Today in Guatemala, El Salvador, and Honduras, legislation requires that all sugar for human consumption be fortified with retinol. In Guatemala and El Salvador, the coverage is 96-97 percent and in Honduras, more than 82 percent. Sugar fortification is beginning in several other nations. However, negotiating region-wide standards for sugar fortification is proving difficult. If the Latin American success in sugar fortification is to be replicated in other regions, several issues must be addressed. The physical characteristics of sugar vary widely around the world and since the fortification process depends on these properties, technology has to be improved and redefined. The final cost of the fortified product remains a barrier. This cost is ultimately dependent on the efficiency of the process and the shelf life and distribution characteristics of the finished product. Therefore, improvements in technology such as those being researched at the Nutrition Institute of Central America and Panama will be crucial.

Of 19 major countries, 13 have mandatory legislation for the fortification of wheat flour. The rest have either voluntary regulations or agreements with producers. Levels for iron vary from restoration levels of 28-33 mg/kg to fortification levels of 55-65 mg/kg. Efforts to fortify a variety of products from corn, a widely consumed staple, are underway. In Venezuela, where fortified precooked corn flour has been fortified since 1992, surveys indicate that iron intake among the poor has increased by 25 percent. Amongst the major issues pending is the harmonization of fortification at levels that provide a public health benefit as well as facilitate trade in the region. Monitoring and surveillance remain the weak points.

Among the most important lessons learned in the Latin American fortification experience is the need to include the public sector, private sector, academe, and consumers from the very beginning of the process. Involving all stakeholders means that all key players take ownership of the project. Creating trust amongst this multisectoral group has been shown to have an incredible return on the investment, and in fortification efforts this is easy to accomplish because of the win-win situation created. ❐

Food Fortification in Thailand: Public and Private Perspectives

Dr. Sangsom Sinawat
Director of Nutrition, Ministry of Health
Nonthaburi, Thailand, and
Ms. Sumonrut Kamolchote
Deputy Manager, Thai President Food Co. Ltd.
Chonburi, Thailand

Thailand focuses on improving the nutritional status of the nation through diverse strategies of food fortification, supplementation, dietary diversification, and mass-communication campaigns to increase awareness of healthy behavior. Food fortification is the most efficient and economical strategy to tackle problems such as PEM, IDD, VAD, and IDA. The regulations of the Thai Food and Drug Administration allow for both mandatory and voluntary fortification. Accordingly, efforts have focused on mandatory USI as well as a range of voluntary efforts including fortifying fish sauce with iodine, condensed milk with vitamin A, and triple fortification of instant noodles and dried bananas with iron, iodine, and vitamin A.

Population-wide nutritional problems cannot be solved by the public sector alone. Likewise, these problems will usually not be addressed by the private sector without guidance and support from governments. Therefore, in 1994, the Government of Thailand along with private companies and the academe created a multisectoral alliance through the Committee on Cooperation of Government and Private Sectors in Solving Food and Nutrition Problems. The Committee provides technical support for private food companies in product development, offering access to the expertise of academic institutions such as the Institute of Nutrition at Mahidol University (INMU). In addition to offering a platform to discuss regulatory issues, the Committee provides a new channel for food producers to reach target populations with information and fortified products.

The Committee began collaborative development of triple-fortified instant noodles in 1995. These are now readily available, acceptable, and affordable by all population segments. The seasoning sachet was selected as the fortificant carrier for two reasons. First, this avoids applying strong heat, which can destroy some of the vitamins and cause some interaction among the micronutrients. Second, additions to the seasoning packets can be achieved with few equipment modifications and therefore minimal capital investment. Technical barriers such as color change were overcome by joint efforts of private companies and INMU. To reduce costs, the Committee obtained a reduction in the tax levied on the premix. Because of the open communications in the Committee, noodle companies understood that the 1-percent increase in product cost was more than offset by the benefits to their consumers and their public image.

Product marketing was a collaborative effort of the Ministry of Public Health and the producers. The launching was made part of the celebration of the Golden Jubilee of the King's accession to the throne. Products have the active support from HRH Princess Mahachakri Sirindhorn who met publicly with producers and sampled the fortified noodles. Today, all brands of instant noodles in Thailand are fortified. Six million packets are sold daily, significantly increasing micronutrient intake among the target population. The project illustrates the win-win potential of public-private sector collaboration. ❐