Plenary Session 4
LEARNING FROM FOOD COMPANIES

Overview

An unparalleled opportunity exists to fortify foods to reduce micronutrient deficiencies throughout Asia. The wide prevalence and devastating impact of these deficiencies on individuals and nations is well documented. Official government nutrition plans of action specify micronutrient malnutrition as a priority area. Food production and processing is increasingly centralized while consumption patterns are shifting to more processed and packaged foods. However, while fortified products are available in every nation of Asia, they are generally not accessible or affordable to the majority of the population.

A number of factors work to constrain private investment in developing markets for fortified products. Many company managers are simply not aware of micronutrient malnutrition or that their product may provide a cost-effective fortification vehicle. Technologies of fortification may be new and product development or start-up costs relatively high. Distribution systems in rural and remote areas may be undeveloped, requiring some upgrading. Regulatory systems to enforce a level playing field and reward quality fortification are often not in place. Perhaps most important, public awareness of micronutrient malnutrition is low and consumer demand for fortified products is undeveloped. For private investors, these factors may mean high investment in development, distribution, and marketing as well as a relatively slow return. But working together, private companies and public institutions can find ways to share costs and risks and thereby lower many of these barriers to investment in fortified foods.

Raising awareness among managers is the first step. Sometimes this happens fortuitously as private companies actively scan for new opportunities. This was the case in 1992 when executives from Proctor and Gamble attended a presentation on vitamin A, iron, and iodine deficiencies at Cornell University. The result was a concerted effort to develop Nutri-Delight, a triple fortified drink. In other cases, companies became aware of micronutrient malnutrition as a result of focused communications from the public sector. In Viet Nam, a multisectoral committee including the National Institute of Nutrition (NIN), UNICEF, and Hoffmann-La Roche worked to raise awareness among private companies. Subsequently, the Bien Hoa Sugar Company took the lead in developing a vitamin A-fortified sugar, SugarA, which was successfully test marketed in early 2000. A mission from the Micronutrient Initiative first advocated the potential of sugar fortification to reduce the burden of vitamin A deficiencies to India's National Federation of Cooperative Sugar Factories (NFCSF). Today, relevant research and development are continuing.

Sharing expertise and resources during product development is another key strategy to reduce barriers. In Viet Nam, an alliance of private companies,

NIN, NGOs, and donor organizations have jointly developed an iron-fortified fish sauce as well as vitamin A-fortified sugar. In India, a collaboration of NFCSF and the Micronutrient Initiative established the stability and segregation parameters for vitamin A-fortified sugar; the Indian Government and sugar producers are collaborating to establish its industrial feasibility and efficacy. In Indonesia, the efforts of Gizindo to find a lower price point for their complementary food, *Vitadele*, were lent a hand by cost-cutting suggestions and a long-term contract from UNICEF. Although Proctor and Gamble have all the required technical expertise in product development, they worked with governments, NGOs, universities, and donor organizations on three continents to confirm the bioavailability and efficacy of Nutri-Delight.

Public-private sector collaboration in marketing may prove to be most crucial. There are a number of fortified products shown to be industrially feasible and efficacious. However, if they are not successfully marketed, the products will fail to provide any benefit. In Viet Nam, the Bien Hoa Sugar Company is proposing collaboration in a number of areas: distribution of fortified sugar through community health centers to expand availability in remote areas; joint public information campaigns to establish the benefits and safety of fortified sugar; low-interest public loans to lower the capital constraints; and after a successful test market in which the popularity of fortified sugar allowed many shopkeepers to raise the price, Ben Hoa looks to the government to enforce a "recommended retail price" and ensure affordability to the poor. Social marketing alliances were a key to Proctor and Gamble's initial test marketing of Nutri-Delight in the Philippines. The company worked with USAID, the Government of the Philippines, ADB, the Nutrition Center of the Philippines, and a range of internationally renowned scientists to communicate with a range of audiences including nutritionists, regulatory agencies, the wholesale and retail trade, and consumers.

The key area of complementary foods presents some unique barriers to investment. While fortified complementary foods are available in most nations in Asia, the investment needed to expand those markets to include the less advantaged sectors faces a number of constraints. Among them, the UNICEF/WHO Code of Marketing Breastmilk Substitutes, while crucial to protecting the health of babies worldwide, creates an uncertain environment for well-intentioned companies considering expanding their capacity to produce and market complementary foods. A joint initiative among food companies and global and regional health organizations could work to develop a more industry-friendly investment environment.

Lowering the incremental costs of fortification is a key area for future collaboration. While a complementary food like Indonesia's *Vitadele* is well accepted by all consumers, the poor can simply not afford to purchase a formulated complementary food on a daily basis. Gizindo and UNICEF have jointly worked to lower costs, but many opportunities remain, particularly in the area of marketing and packaging costs. For the consumer, costs are relative, as indicated by the success of Nutri-Delight. Educating the consumer and raising demand was the first step. But ultimately the price had to be right for the consumer to prefer the product. In the Philippines, Proctor and Gamble's marketing stresses that Nutri-Delight is cheaper than swamp cabbage!

Manufacturing Complementary Foods in Indonesia: Current Constraints and Future Opportunities

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According to the recommendations of pediatricians as well as WHO's review of complementary feeding, industrially fortified complementary foods should be part of every child's daily diet. However, these are neither widely available nor affordable to the children of Asia. In Indonesia, production of fortified complementary foods has not increased during the past decade. The nation's capacity to produce them is only about one eighth of that needed to satisfy the needs of all children aged 6 months to 2 years. While studies have demonstrated their acceptability to children and mothers, affordability remains a barrier. In order to increase consumption, price must be reduced. Gizindo, along with UNICEF, has developed an acceptable and lower-cost formula called *Vitadele* by substituting milk powder with soybeans. Nevertheless, costs must be reduced further. It is not possible to further reduce the raw materials costs without affecting product quality. Opportunities for making *Vitadele* a more affordable product should focus on marketing and packaging costs.

Developing a more affordable fortified complementary food means increased investment. This has not been the case. A number of factors constrain investment in this vital area. First, start-up costs are usually higher in the production of infant foods than for snacks, noodles, or beverages; therefore, investment in the latter generally grows faster. Second, unlike food products consumed over a lifetime, complementary foods have a very short customer life-span. Marketing costs to create brand loyalty are very high per customer unit. Third, volume is inherently low since infant stomachs are small; therefore, portion sizes are small. Fourth, mothers are naturally conservative when purchasing foods for their babies and stick to "tried and true" rather than new products. Frankly, the WHO Code of Marketing Breastmilk Substitutes, no matter how well intentioned, has created an uncertain environment. With the potential for a range of negative reactions like a consumer boycott that might affect an entire product line, it is understandable that many companies are reluctant to invest in this area. Finally, there is the potential liability of product contamination due to unclean water or poor personal hygiene. Although preparation rather than the product itself may be the source, the fear of bad press drives many companies away from developing products for the economically disadvantaged.

Without new factors creating a more favorable balance of risks and benefits, rapid growth in production of fortified complementary foods is unlikely. In order to lower the current high barriers to entry, I would propose two areas of public-sector activity to create enabling market forces such as has been the case with iodized salt. The first step is fostering a more industry-friendly policy on the part of global and regional health organizations. A social marketing partnership could go a long way in reducing barriers and altering the risk-benefit ratio for the industry. This partnership might focus on expanding both supply and demand factors by increasing the number of children who are fed fortified complementary foods; and by shifting the use of complementary foods to the later part of infancy, thereby increasing the customer life-span (as well as keeping with a policy of supporting breastfeeding). ❐

Nutritional Beverages with a Social Relevance

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A new multiple-fortified powdered beverage by Proctor and Gamble provides a model not only for product development as a process, but also for creation of alliances among the public and private sector to reduce "hidden hunger". Public-sector agencies have been involved in every step of the way. In 1992, Proctor and Gamble first heard about the significance and impact of iron, iodine, and vitamin A deficiencies during a presentation by Dr. Michael Latham of Cornell University. Next, the company identified and developed a technology that is stable, efficacious, and accepted by consumers: a formula in which the three micronutrients did not interact and thereby lose potency or damage product quality. Consumer testing showed that the taste was well accepted in a beverage we called Nutri-Delight. We then worked with Dr. Thomas Walter of the University of Chile, who compared the bioavailability of iron in Nutri-Delight versus Nutri-Delight with rice and a control with ferrous ascorbate in milk. This study demonstrated that iron in Nutri-Delight was absorbed more readily than any alternative including the heme iron in meat. Even Nutri-Delight taken with rice, a potent inhibitor of iron absorption, offered more bioavailable iron than milk fortified with ferrous ascorbate, or spinach, corn, or even fish.

The next stage was to show efficacy. Proctor and Gamble formed an alliance with the Micronutrient Initiative, Cornell University, UNICEF, and the Tanzania Food and Nutrition Center to undertake an efficacy trial. The results showed that children who consumed Nutri-Delight had greater gains in height and weight and in the reduction of goiter. In tests conducted in partnership with the Nutrition Center of the Philippines (NCP), children consuming the product showed gains in both mental ability and physical fitness.

The final phase of product development and the alliance-building process was probably the most crucial. For fortified products to succeed, a number of factors need to be in place including quality manufacturing, good distribution, affordable price, credible claims, and public awareness. Alliances to accomplish these social marketing objectives were put in place in Nutri-Delight's initial test market in the Philippines. Months before the launch, in cooperation with USAID, the Government of the Philippines, ADB, and a range of internationally renown scientists, a series of symposia were held for nutritionists. Pre-launch meetings with regulatory agencies were held to communicate that this product did not simply make a claim but offered proven benefits. Proctor and Gamble, along with our partners, conducted a series of one-on-one meetings with interested business groups to make them aware of micronutrient malnutrition and the solutions. Finally, at a series of media and press launches, our partners were there to support us.

Only after having made the various professional sectors aware of the importance of the product did the focus turn to consumer awareness. In cooperation with NCP and the Department of Health, a nutrition education program was developed, targeting both schools and communities. Beyond education, we had to communicate that the price was right. Our focus was that Nutri-Delight is less expensive than softdrinks, bottled water, or even swamp cabbage. More than 70 percent of households purchase 1-2 flavored drinks 5-6 times a week; why not purchase a competitive product that offers nutritional benefits?

Nutri-Delight is Proctor and Gamble's model for expansion into four countries in 2000. It has been a success for us. We also hope it can provide guidelines for food companies and public agencies working together in the war against hidden hunger. ❐

Fortified Sugar: A Potential Vehicle for Vitamin A Fortification in India

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We are proceeding in India with the fortification of sugar with vitamin A. Because there is no additional burden on health authorities, fortification of food is the least expensive approach to reducing micronutrient deficiencies. A fortification program will be most effective when the food is processed at a small number of sites, is consumed on a consistent basis by the at-risk groups, undergoes no change in taste and appearance, and has similar shelf life to the unfortified product.

Sugar is consumed by the entire population of India with little day-to-day variation. Tea, milk, and other beverages along with sweets and bakery products are the major sources of sugar intake. Various studies indicate a range of consumption among the poorer sectors of society where sugar is recognized as the cheapest source of energy. Studies indicate that consumption among the poor varies from 221 to 1,813 grams per week for a family of four. If this sugar could provide an additional 200-350 micrograms of vitamin A per day, it would make a great nutritional difference among key target groups such as pregnant and lactating women and children below three years of age.

Members of the National Federation of Cooperative Sugar Factories (NFCSF) account for nearly 60 percent of India's national sugar production. Cooperatives essentially belong to the millions of small sugarcane farmers who own their land but process their sugar at cooperative factories. These cooperative factories have access to the most remote parts of rural India. Our interest is not only the economic well-being of sugarcane farmers and factory workers but also the socioeconomic development and well-being of the surrounding population.

NFCSF, with the support of the Micronutrient Initiative, began to explore the feasibility of sugar fortification in 1997. Given the fortification level used in Central American countries like Guatemala, where per capita sugar consumption is twice that of India, we suggested that a level for India of 15 mg/kg would be both safe and effective. The estimated cost is US$1.26 per 100 kg at a fortification level of 15 mg /kg. At 12 mg /kg, the cost would drop to US$1.15 per 100 kg. We believe the cost will be further reduced when vitamin A is manufactured domestically. In India, where 40 percent of sugar production is mandated to be sold through a Public Distribution System at a price below the cost of production, the ability of producers to recoup the added cost of fortification will be a key issue.

Recently, a government working group under the Chairmanship of the Joint Secretary, Ministry of Food, recommended a pilot-plant study at the Shirpur S.S.K plant in Maharashtra. The Government has approved a US$100,000 grant-in-aid from the Sugar Development Fund. Additionally, a dosing machine will be provided by the Micronutrient Initiative, and vitamin A will be provided by Roche Scientific Company, India. The fortified sugar will be given to health agencies for distribution among the poor and a study will be undertaken by the National Institute of Nutrition, comparing vitamin A status before and after consumption. On the basis of these findings, the Government of India will make a decision on the fortification of sugar. ❐

Sugar: A Vehicle for Fortification with Vitamin A in Viet Nam

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In Viet Nam, VAD has been addressed mainly through a supplementation program implemented by the Ministry of Health and UNICEF. In recent years, it has been recognized that fortification is necessary for the sustainability of our strategy to overcome VAD. With the exception of rice, consumption of staple foods is variable and irregular. Sugar and salt were seen as the most suitable vehicles for vitamin A. The technology for vitamin A fortification of sugar is established and proven. The average daily consumption of sugar in Viet Nam is 11 grams per day. At a level of 50 IU vitamin A per gram, consumption of 27 grams of sugar represents the Vietnamese RDA for children 1-9 years old.

A multisectoral working group was convened to consider sugar fortification. UNICEF was a key partner, with experience in sugar fortification in Central America. Also included was the National Institute of Nutrition, the lead agency appointed by the Government of Viet Nam to coordinate programs to eliminate micronutrient deficiencies; the Bien Hoa Sugar Company, a private company with the vision to take a key leadership role for the benefit of the community; and Hoffmann-La Roche, Ltd., which is providing technical, material, and marketing support. Discussions among these partners began in 1997 soon after the International Vitamin A Consultative Group meeting in Guatemala where sugar fortification was highlighted. By 1999, successful pilot production was implemented. In 2000, sugar fortified at 50 IU/g was successfully test marketed under the brand name SugarA.

As the program expands, several factors need to be considered. First, in areas where access to sugar is limited, community health centers may play an important role in distribution. Second, in segments of the population where sugar is not popular or there is a perception that it may be unhealthy, some educational and promotional efforts may be needed. Third, given the low level of fortification, intake is generally regarded as safe. Finally, there are several regulatory issues. Currently no specific provisions exist for registration or quality assurance of the product. The newly established Food Administration Department of the Ministry of Health may be responsible for facilitating product registration and enforcing a quality assurance framework. Since SugarA has proved quite popular and some shopkeepers have used this as an opportunity to raise the price, it may also be necessary to enforce a "recommended retail price". Once momentum is gained, the Government may consider a national mandatory fortification of all table sugar.

While pilot-scale production has been successfully implemented by the Bien Hoa Sugar Company, full-scale production with premixer, in-line blender, and larger quantities of vitamin A will require additional capital investment. Inexpensive loans to finance this broader stage of fortification would be useful. Additionally, since there is virtually no experience in Viet Nam with plant layout and design for sugar fortification, sponsorship for a study-tour of full-scale facilities, such as those in Guatemala, and other technical assistance will be needed. As the scale of sugar fortification expands, additional partners will be needed, including the ministries of trade, industry, and education and training, as well as provincial health departments. ❐