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Strengthening Food Security in a Growing World

Global food production has been beset by significant challenges in recent years: the global economic slowdown, the rise of commodity costs, and, simultaneously, the increase in consumer demand for healthier and more sustainably produced goods. For the food industry, that last one is the biggest challenge. In the coming decades, amid worldwide economic volatility, 9 billion people will need more nutritious food products, and scarce environmental resources will need to be protected. Meanwhile, the reality of doing business in this new paradigm gets more and more challenging. Despite global change and economic upheaval, companies have to keep costs low, generate profits, and deliver value to shareholders so that their continued trust and support can drive long-term success. To meet these global challenges, businesses, governments, donors, and civil society must work in partnership to strengthen food security for a growing global population. As a planet and as an international business and political community, the future food security of millions depends on this enhanced coordination as never before.

Doing Business in a Volatile and Changing Environment

In 2011—for the first time in decades—the number of hungry people in the world increased from the previous year. The World Bank estimates that the doubling (or even greater increase) of food prices between 2006 and 2008 pushed 100 million people into poverty worldwide. Around the world, a billion people go hungry every day, and the situation has worsened in recent years due to rising food prices. These rising costs are due, at least in part, to increasing demand for energy-rich foods like meat and dairy in China, India, and other emerging markets, which then drives up grain feed and ingredient prices. Other factors contributing to increased food costs include unexpected weather events, such as droughts and floods in major food production regions of the world; a weaker dollar; and increasing speculation on commodities.

Simultaneously, and paradoxically, more than a billion people are overweight and at risk of developing chronic ailments like cardiovascular disease and diabetes. The transition from

Afghan farmers harvest their wheat crop in a field in the Shomali plains, about 30 kilometers north of Kabul on July 8, 2009. | AFP Photo: Shah Marai

traditional diets to a more "Western" diet higher in calories is partly responsible for the alarming increase of overweight and chronically ill people in developing countries.

The Food and Agriculture Organization of the United Nations (FAO) and many other institutions have warned that the state of the global economy and stresses from climate change are likely to keep the pressure on food production and lead to a great deal of volatility. For example, world food prices hit a record high in early 2011 but by the end of the year, prices had dropped considerably. The FAO said that strong yields in several commodities, combined with slowing demand and a stronger U.S. dollar, led to sharp drops in the international prices of cereals, sugar, and oils. The World Bank has stated that the decline in global food prices could be halted if weather patterns change, or if world oil prices rise, pushing up price volatility and demand for biofuels.

The people most at risk under volatile conditions are, of course, the poorest. Economic uncertainty, the rise of the biofuel industry, and the unpredictability of climate change are putting more and more people at risk. In 2011, 12 million people in the Horn of Africa were placed in critical danger, driven from their homes due to political instability and the impacts of a 10-year drought that has undermined their long-term food security.

There are many connected issues involved in global food security, including agriculture and nutrition. For example, human health depends heavily on the quantity and quality of nutrition, which depends on agricultural production. Agricultural production is dependent on fuel and environmental resources such as water and labor. Labor issues involve human rights and the critical role of women in agricultural production, as well as the importance of educating girls.

Sixty percent of the world's population now

lives in cities, and this increase in urbanization requires more convenience foods—ready-to-eat, packaged meals and healthy snacks—not just commodities like rice, wheat, and corn. This means more jobs for primary processors, product developers, distributors, and retailers. Walmart alone, as the world's largest retailer, employs 2.1 million people. Public-private partnerships are proving to have a positive influence in training and building capacity in developing countries. For example, Partners in Food Solutions (PFS), an innovative, hunger-fighting non-profit launched by General Mills, links the technical and business expertise of hundreds of volunteer employees to small and medium food processors in Africa. PFS aims to strengthen the food supply chain, raise living standards, and create market opportunities for smallholder farmers.

Despite all the world's advances in modern medicine and technology, hunger still kills more people than AIDS, malaria, and tuberculosis combined.

The most immediate impact that food companies can have on economic growth is through contract farming. Companies like Nestlé, PepsiCo, and Kraft work with hundreds of thousands of farmers worldwide to supply agricultural raw materials for their operations. In the countries that process those raw materials and produce finished goods, contract farming can provide jobs and create valuable opportunities for capacity development.

Agriculture's benefits to the national and global economy are many—not just food and health, but income, jobs, trade, and security, as well. The agricultural sector has always been the world's largest employer, with more than a billion people. A rapidly rising global population is placing increasing pressure on agriculture systems and, given the complex and interwoven issues, private and public sectors must work together to meet these challenges.

We need to boost agricultural productivity

Despite all the world's advances in modern medicine and technology, hunger still kills more people than AIDS, malaria, and tuberculosis combined. Around 25,000 people die each day of hunger, and one in every three children is malnourished, placing them at high risk to die from infectious diseases and often preventing them from partaking in educational opportunities to reach their potential. However, these numbers are dropping. Worldwide, the percentage of hungry people has dropped from 34% to 17% in the last 40 years. Food companies play a big role in lowering those numbers.

As food companies, we can thrive only if we have access to agricultural crops to make our products. Moreover, we can only thrive if our consumers are healthy enough to have productive jobs, earn wages, and buy our products. A solid agriculture base and good nutrition practices are integral to our very existence, which is one of the reasons why PepsiCo began with agriculture when it launched its business in India in the 1980s. PepsiCo worked directly with thousands of farmers in the state of Punjab, and other states, and transferred the company's best practices to improve the yields of tomatoes, chili peppers, and rice. The newly introduced tomato and chili varieties tripled the yield of these crops.

In China, PepsiCo has worked with local

potato farmers to develop thriving crops in the middle of the desert by sharing water-saving irrigation and crop-rotation methods and providing regular training on modern, environmentally sustainable technologies. The company benefits from the resulting increased production because we buy the output from these farms at competitive prices and farmers, in turn, are able to make a good living. We have found that this kind of business strengthens food value chains by providing higher-quality seed and microcredit to farmers, improving the affordability of fertilizer and the efficiency of irrigation systems, and by sourcing foods locally.

We must waste less food

We need to produce more food to feed a growing world population, but it is critical to note that more than half the food produced today is lost, wasted, or discarded. Our global food system needs to become much more efficient not just at production, but also at maximizing the use of what is produced.

Overall, the food wasted in the world every year is equivalent to the amount that Sub-Saharan Africa produces—220 million tons![1] In some developing countries, nearly 50% of the food produced on farms is lost post harvest due to poor storage facilities, inadequate transportation infrastructure, low food-processing capacity, and underdeveloped markets. There are deep-seated financial, managerial, and technical limitations in harvesting techniques, storage and cooling facilities in difficult climatic conditions, infrastructure, packaging, and marketing systems. For farmers, a reduction in food losses could have an immediate and significant positive impact on their livelihoods.

The food supply chains in developing countries need to be strengthened by encouraging small farmers to organize, diversify, and upscale their production and marketing. Investments in infrastructure, transportation, food industries, and packaging industries are also required. Both the public and private sectors have a role to play in achieving this. For example, a 2011 FAO study points to a need to invest in the food-packaging industry in developing countries. According to the report, many products exported to developed countries are already processed at the point of origin, and the demand for these to be packaged in retail-friendly form is on the rise. This is an opportunity for governments of developing countries to allow the packaging industry to grow through supportive policies and regulations.

Importance of "Processed" Food

The food industry plays a very important role in reducing the amount of food lost post harvest. This is done through the use of processing technology. "Processed" food may have acquired a poor reputation in the marketplace, but this reputation is undeserved. Fresh food is subject to tremendous loss and waste. A U.S. study reported by *New Scientist*, July 2011, aptly illustrates the point: U.S. consumers, by throwing out perfectly edible food, waste more energy each year than is generated from the oil and gas reserves along the U.S. coastline. According to the report, about 16% of the energy consumed in the United States is used to produce food, yet at least a quarter of it is wasted. Fresh produce and dairy foods have the worst records. Food waste can also artificially inflate the demand for raw materials, such as wheat or rice, driving up global prices to the disadvantage of the world's poorest people.

1 Jenny Gustavsson, Christel Cederberg, and Ulf Sonesson, "Global Food Losses and Food Waste." Food and Agriculture Organization of the United Nations, 2011. http://www.fao.org/fileadmin/user_upload/ags/publications/GFL_web.pdf, accessed April 17, 2011.

In addition, "fresh" does not always mean "most nutritious." Food processing actually results in fewer fruits and vegetables rotting on the way to the market. With rising consumer incomes, urbanization, and the need for preservation and convenience, the food industry will play an expanding role in processing agricultural outputs into food products. The logistics and distribution capabilities of food companies give them an unparalleled worldwide reach into urban and, increasingly, rural markets. A recent paper published by researchers at the University of California, Davis, and PepsiCo shows that depending on the fruit or vegetable of interest, and its particular preservation needs and specific nutrients, "advanced" technologies may have a positive, neutral, or negative effect on nutrient retention. To address the impact of these technologies properly, studies on the impact of processing on nutrients need to view the entire farm-to-fork supply chain. This is an issue of great importance to consumers, and public and private support of well-designed research studies is essential to take nutrition research to the next level. Without this type of information it is impossible to determine which methods of preserving fruits and vegetables can best minimize nutrient losses and offer consumers safely preserved, nutritious fruit and vegetable products to consume at locations distant from production. It is time to start viewing processed food as value-added food.

We must not only produce more food, but also meet the nutrition needs of nine billion people

This brings us to the importance of providing consumers not just with enough food, but with good, nutritious food. Between the 1960s and 1990s, crop production in the world increased by 70% and per capita food consumption rose by 28%. However, the availability of sufficient calories is not the only way to measure the success of global food production. The food system should also be measured by nutrition and health benchmarks.

With a growing population, the world needs to produce more food that meets the nutritional needs of all people. The nutritional needs of children, aging adults, and urban populations in developing and developed countries are distinct. What people eat is as important as how much they eat. People who do not get the nutrition they need find their energy sapped, their cognitive ability diminished, and their economic potential reduced as they become more vulnerable to chronic disease.

At the World Food Prize in 2009, PepsiCo's CEO Indra Nooyi remarked that the world would have had an opportunity to align nutrition science with agriculture priorities had David Morley and Norman Borlaug crossed paths. Morley's research, starting in Nigeria back in the 1940s, has made us understand the need to monitor growth and food intake from a very young age. Norman Borlaug's Green Revolution has tripled yields in many parts of the world and probably saved a billion lives.

We need to take the opportunity to connect food production to nutrition and refocus on how agriculture affects health.

The recent report from the Chicago Council on Global Affairs, entitled "Bringing Agriculture to the Table: How Agriculture and Food Can Play a Role in Preventing Chronic Disease," highlights this point. According to the report, the agriculture and food system plays a significant role in the illness and early death that arise out of the imbalanced diets, empty calories, and overconsumption that are rampant in high- and middle-income countries and increasingly apparent in the nutrition and epidemiological transitions underway in developing countries.

This report describes the links between agriculture and health and demonstrates that

Abebaw Gesesse, a poultry farmer in Mojo, Ethiopia, received a $128,000 loan from Dashen Bank thanks to a guarantee facilitated by USAID's Development Credit Authority (DCA). USAID uses DCA to share risk with local banks, thus opening financing for underserved but credit-worthy borrowers.
Photo: Morgana Wingard

agriculture's long-term success in meeting and surpassing growing demand through greater production—though not yet in Africa—is a *necessary* but not sufficient response for modern societies. Long-term human and environmental health should also be goals of agriculture.

One way forward is to take the value-chain approach, building agricultural systems all the way from improved seeds and diverse crops to better storage, processing, and transport to reach consumers. Many companies that are largely vertically integrated have deep experience in value chains in developed markets, but establishing such value chains in developing countries is not straightforward. Supportive government policies and available capital and risk-reduction mechanisms from banks can help to lower the barrier to entry for multinational companies. Both public and private institutions should support activities such as the early successes of organizations like HarvestPlus, part of the Consultative Group on International Agricultural Research. HarvestPlus, with support from the Bill & Melinda Gates Foundation, has introduced the orange-fleshed sweet potato into countries in Africa. The orange color is due to the high beta-carotene content, which helps address vitamin A deficiency in malnourished people. Commercialization of such products could help to grow demand and drive adoption by consumers.

An even more recent report by the Chicago Council, entitled "Girls Grow: A Vital Force in Rural Economies," explicitly describes the need to empower adolescent girls to prepare them for their significant role in society—and at the nexus of agriculture, health, and environment. Women represent 70% of the labor force in agriculture.

Adolescent girls and women are the key to fully realizing the productive potential of agriculture, and the report suggests that if women were given the same access to productive resources as men, the results could be significant. Women's agricultural yields could increase by 20% to 30%, and the number of undernourished people could be reduced by 12% to 17%. The findings are completely in accord with the Girl Effect, the movement that shines a spotlight on the unique potential of adolescent girls to end poverty for themselves and the world. It was created by the Nike Foundation, NoVo Foundation, United Nations Foundation, and Coalition for Adolescent Girls. Most importantly, helping a woman farmer to increase her productivity is good for her family: When women and girls earn income, they reinvest 90% of it into their families.

PepsiCo's nutrition team has developed iron-fortified products for low-income consumers in India. The products are specifically aimed at reaching young women and girls so that their health and productivity—and that of their children—can be increased. Results, though still early, are positive.

Major food and beverage companies with deep links to agriculture continue to build their commitment to nutrition and public health. Ferrero, General Mills, Grupo Bimbo, Kellogg's, Kraft Foods, Mars, Nestlé, PepsiCo, the Coca-Cola Company, and Unilever formed the International Food and Beverage Alliance (IFBA) to work toward public health goals in food re-formulation, consumer information, responsible marketing, promotion of healthy lifestyles, and public-private partnerships. Although the top 10 soft drink companies account for half of global sales, the top 10 packaged food companies account for only a small proportion of market share with most individual companies contributing less than 3.3% each.

Major multinational companies need to be joined by the myriad small and medium enterprises in developing and implementing programs to improve the health of the public, globally. Without full participation of these companies, the impact of commitments made by IFBA members and other major multinational food and beverage companies will remain limited. PepsiCo is beginning to bridge the divide by launching a process to share salt-reduction technology with small and medium enterprises. Governments and civil society can also act by developing public policies and messages that enable both the formal and informal food sectors to shift to ingredients and practices that support public health. International organizations such as the World Health Organization and the FAO can also work together to coordinate their priorities in support of food production as well as health improvement.

Business and economic growth cannot thrive without investing in people. Running a sustainable business means responding to the needs of consumers. Long-term sustainability for the business world translates to keeping costs low and keeping growth steady. It takes courage and patience to keep focus on long-term sustainability.

Investment in agriculture, especially with smallholder farmers, is crucial to the long-term viability of the world's food supply, as well as to help improve the nutritional status of the very poorest individuals. Business could strengthen food value chains by providing higher-quality seed and microcredit to farmers, improving the affordability of fertilizer and efficiency of irrigation systems, and by shifting to rely more on local sourcing of foods.

We have to do all this while using fewer resources

In October 2011, the world's population reached 7 billion, just over a decade after passing the

6-billion milestone. With increased population comes increased demand on resources such as water, land, and fuel. Businesses, like people, need natural resources to survive and flourish. Water scarcity is one of the biggest threats to economic development, particularly for the agriculture sector, which is responsible for 70% of the world's freshwater use. Around 1.2 billion people live in areas of physical scarcity, and 500 million people are approaching this situation. Another 1.6 billion people, or almost one-quarter of the world's population, face economic water shortage (where countries lack the necessary infrastructure to take water from rivers and aquifers). There is enough fresh water to sustain the world's population, but it is distributed unevenly; and much of it is wasted, polluted, and unsustainably managed. It is an obligation of everyone—companies, governments, NGOs, and individuals—to use such natural resources responsibly.

PepsiCo helps conserve global water supplies, especially in water-stressed areas, and provides access to safe water. To do this, we have committed to improving our water use efficiency by 20% per unit of production by 2015, striving for positive water impact in our operations in water-distressed areas, and providing access to safe water to 3 million people by the end of 2015. Back in 2009, we were also the first company of our size to recognize water as a human right. As one example, PepsiCo has worked with local scientists in India to implement a drip irrigation technique that reduces the use of water in paddy fields while saving crops and generating income for farmers. This isn't simply the right thing to do. This is a matter of business efficiency and long-term survival.

The Way Forward Is Partnership

Whether one calls it Performance with Purpose, or Creating Shared Value, or Social Enterprise, the purpose of a successful business should be not only to make money for investors, but also to deliver value to society. That value is through the goods and services that the company provides and by the responsible conduct that it adopts in its operations. Food companies are increasingly offering low-cost, nutritious products to underserved, low-income populations. We face the same challenge that social enterprises face: Can they generate enough revenue and attract enough investment to cover their costs and grow their activities?

The social value of providing poor people with affordable health and hygiene products or nutritious foods is enormous, but the cost of private funding often outweighs the monetary return. Companies and investors will need to experiment with innovative, blended business models that allow profits to be reused to expand the company's reach, improve the quality of the product or service it provides, and design methods to lower the cost of the product or service. But we need the support and partnership of the public sector to make those business models successful.

With support from governments, NGOs, and civil society, food companies will be able to deliver value to underserved communities worldwide. For companies, this means assuring that our actions support financial goals, but also human and environmental health. For governments, it means assuring adequate and comprehensive policies and incentives for companies to operate effectively and deliver goods and services to underserved consumers. For NGOs, this means helping governments and the private sector respect and protect consumers and natural resources while supporting economic development. For individuals, it means doing what you can on a personal level to respect producers, consumers, and natural resources.

This approach has started to work in Ethiopia, where PepsiCo, the World Food

Programme (WFP), USAID, the Government of Ethiopia, and local businesses have come together. Within just a year, we have demonstrated agricultural best practices to improve the yield of chickpeas in Ethiopia and have established the groundwork to launch a chickpea-based relief nutrition product for hungry children. WFP and the Prime Minister of Ethiopia provided the impetus for the initiative, USAID provided the technical advice, and PepsiCo, Omega Farms, the Ethiopian Institute of Agricultural Research, and the Ministry of Agriculture provided the hands-on technical expertise to deliver success.

In another example, in 2011, PepsiCo entered into a landmark partnership with Inter-American Development Bank (IDB), the largest multilateral provider of development financing for Latin America and the Caribbean, to spur social and economic growth in 26 countries across Latin America and the Caribbean.

The partnership's inaugural project was launched in Mexico with an agriculture initiative that seeks to significantly expand commercial sunflower production. The project is to create a sustainable market for sunflowers—a once-thriving commercial crop that has diminished in recent years—while providing loans and a source of income for some 650 Mexican farmers and their families. For PepsiCo, the sunflowers will provide a source of heart-healthy high-oleic sunflower oil for cooking potato chips, biscuits, nuts, and other snacks that PepsiCo produces in Mexico under the Sabritas and Gamesa-Quaker brands.

As part of the sunflower production program, PepsiCo has committed to purchase 100% of the crop, for an estimated $52 million over seven years. Additionally, PepsiCo will support management of the Mexican sunflower crop and will provide technical training to the small farmers. Financial partner Agrofinanzas, an institution specializing in supply chain finance, will make available microloans to provide the farmers working capital. The IDB, through its Opportunities for the Majority Initiative, will provide Agrofinanzas a partial credit guarantee for up to $5 million.

A farmer admires the size of a cacao bean. Small farmers in this region of Ecuador used to export very little processed chocolate. Now, with the help of a USAID partnership, their cacao is processed in Ecuador and shipped to markets worldwide.
Photo: Satre Comunicaciones 2006

The five-year partnership between PepsiCo and the IDB will mark the first time a private-sector organization has participated in the IDB's innovative regional trust funds for development activities.

We firmly believe that if the efficiency, competitiveness, and dynamism of business can be harnessed to deal with specific social problems, surely we can make significant improvements in global health and nutrition. But for this to happen, all players—private sector, public sector, civil society, and consumers—need to change in some ways. The private sector and investors need to become more comfortable with blended business models, governments need to deploy mechanisms that reduce risk for companies, and civil society needs to support these efforts through positive messaging.

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