ACHIEVING FOOD SECURITY:
Private Sector Solutions for Global Development Challenges
SHAPE SUPPORTERS

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Amway

Dow

DSM

Sealed Air

U.S. CHAMBER OF COMMERCE FOUNDATION

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Food security is an urgent, global challenge. About 805 million people in the world do not currently have enough food to live productive and healthy lives. The reasons behind food insecurity are numerous, complex, and multi-faceted. Persistent poverty and undernourishment, combined with political and socio-economic realities, are the major underpinnings of food insecurity globally. Other major contributing factors include rapid population growth, production shortfalls, agriculture’s impacts on the environment, natural disasters, water insecurity, price volatility, and changing consumption patterns.

Producing double the amount of food for 9 billion people by 2050, while combating hunger and poverty, and using scarce resources and available land more efficiently in the face of global climate change, is one of the greatest challenges we face in the coming decades. We must think and act even more boldly and innovatively to accelerate viable solutions to more quickly achieve food security on a global scale.

At the U.S. Chamber of Commerce Foundation Corporate Citizenship Center, we showcase how companies are on the forefront of tackling the
Achieving Food Security: Private Sector Solutions for Global Development Challenges

Examples in this report include:

- **Amway:** Launched Nutrilite™ Power of 5 campaign to raise awareness of global malnutrition; and is collaborating with key stakeholders to make Nutrilite™ Little Bits™, a daily component of children’s diets, to help them live better lives.

- **The Dow Chemical Company:** Developing advances in flexible plastic packaging that help combat food waste by extending food freshness and minimizing spoilage, improving food safety, and offering convenience benefits to consumers.

- **DSM-North America:** Addressing hidden hunger through public and private partnerships that focus on raising awareness of the issue of hidden hunger; and participating in initiatives that combat micronutrient deficiency.

- **Sealed Air:** Applying and scaling innovative solutions in developing and developed nations to increase food safety, reduce spoilage, extend food freshness, reduce food costs, and reduce food waste.

In addition, we are pleased to include perspectives of some of the other leading organizations making substantive contributions to food and nutritional security in the United States and around the world, including the American Soybean Association, U.S. Agency for International Development (USAID), U.S. Chamber of Commerce, United Nations World Food Program USA, and The World Wildlife Fund.

We hope this report provides you with inspiration and fresh ideas for how your organization can help realize a world in which all people, at all times, have access to abundant, nutritious, safe, and affordable food that advances our prosperity while minimizing environmental harm. This vision is within reach—let’s seize it.
CHAPTER 1: AGRICULTURAL PRODUCTIVITY
By 2050, it is expected that the world’s food-production systems will need to support an estimated 9 billion people—with a shrinking base of agricultural land and limited natural water resources. As the profile of the planet’s population continues to change over time, we also expect additional strains on our global food supply due to increased protein needs—particularly in developing regions where we anticipate ongoing, rapid population growth. In the face of these changing global dynamics, we are challenged as an agricultural industry with the crucial task of feeding our growing world.

Creating a more sustainable food system requires solutions that span the boundaries of plant science and require collaboration across the value chain. At Dow AgroSciences, we are developing technologies at the intersection of these scientific disciplines with the goal of enabling farmers to expand food production, all while utilizing less of our limited natural resources.

Through collaborations with organizations such as the Brazilian Roundtable on Sustainable Livestock, Dow AgroSciences is putting these technologies to use to help reverse troubling environmental trends while helping to influence sustainable practices across the food value chain.

Weed infestation represents one obstacle to agricultural productivity by adversely impacting sustainable beef production. Weeds reduce the forage available for livestock, thus increasing the size of the land necessary for farming. In the past, this expansion has driven the deforestation of surrounding areas,
collectively resulting in lower carbon sequestration. In fact, in 2007, 68% of Paragominas—a large area of livestock production consisting of 1.2 million hectares—was devastated and topped the list in logging production in the Amazon.

Through the Sustainable Livestock initiative, Dow AgroSciences collaborated with key stakeholders in Brazil to develop a more sustainable beef and milk production system in the region. Dow AgroSciences’ range and pasture herbicide technology, ForeFront®, was used as one way to help increase livestock yield per hectare by eliminating weeds and promoting more nutritious grazing grasses. After implementing sustainable intensification farming practices on six model farms, together with other farming practices, today 90% of the deforested area is already experiencing regeneration, according to the Rural Environmental Register.

The practices put into place as part of this initiative are now being adjusted in other regions to drive continued progress on this critical global priority, for example the U.S. Roundtable for Sustainable Beef. Dow AgroSciences is also using its expertise to develop additional solutions to further increase agricultural productivity globally. Earlier this year, for instance, Dow AgroSciences announced its partnership with The Royal Barenbrug Group to expand capabilities in forage grasses with the purpose of increasing the number of animals raised per hectare.

Importantly, these are but examples of how crucial collaborations, together with science-based solutions, are enhancing sustainable practices across the food value chain. It is only through the ongoing work of our industry and the focus by companies such as Dow AgroSciences that we can continue this critical and timely work.
With mass urbanization around the world, the global demand for food is rapidly increasing while cultivatable land is decreasing. As a result, crop production needs to become more efficient and scalable. By the middle of the current century, the world population will reach 9 billion and the current food requirement will grow by 50%. To ensure the food security in developing nations, governments and farmers need holistic and scalable solutions for food production and crop management. Low-income farmers will face challenges on selection of crops, use of quality fertilizers, and pesticides, which will lead them to incur high production cost and supply chain management issues. To meet the challenges of producing more crops and changing crop patterns, farmers will be forced to use more fertilizers and pesticides, which might result in loss of the land fertility and increased health hazards to the consumers.

To address these challenges, Grameen Intel Social Business Ltd. (GISB) is working to boost cultivation by utilizing appropriate doses of seed, fertilizer, and pesticides. GISB has developed Information technology (IT)-based agricultural solutions, which will help the community by ensuring high productivity and health safety for the consumers without hampering soil fertility. GISB tries to address the hardship of market linkage for the “hard to reach” low-income farmers. To tackle this issue, GISB has developed an IT-based solution, which links both the producers and buyers.

GISB initiated a self-funded pilot project named “Project Harvest” in rural areas of Bangladesh to understand the effectiveness of these IT-based solutions. Project Harvest was launched in four
different locations of the country, where entrepreneurs got technological support from the company to render these services to the farmer bases. These initiatives resulted in up to 26% growth in production in most of the cases. There were also some locations where the production did not increase significantly but the production cost was lowered considerably due to the application of the appropriate dosage of fertilizer as recommended by GISB software. The cost was lowered by almost 17.7%.

The recommendations were provided to the farmers through sophisticated software logic that takes its information from the *Fertilizer Recommendation Guide*, published by the Bangladesh government authority. The software is customizable and can be replicated globally. This can open new avenues for the technology-based agricultural approaches. Currently, GISB operates in India, Cambodia, Nepal, and Bangladesh. The service can be accessed through lightweight mobile android devices as well as personal computers. The overall goal is to leverage technology solutions to create efficiencies and address these growing challenges in agriculture.
Businesses have been recycling paper, plastic, and metal for years. Now, food waste recycling, which is the process of converting food scraps into valuable new products, is gaining interest. Republic Services, an industry-leading provider of U.S. recycling and non-hazardous solid waste handling, plays an active role in this emerging opportunity. One of the five pillars of Republic’s sustainability initiative, Blue Planet™, is Materials Management. Within this pillar we strive to find the highest and best use of materials that are currently being discarded.

Recycling of food waste provides valuable cross-sector benefits to the agricultural and energy industries. Food waste recycling returns moisture, nutrients, and soil enhancements to agricultural, landscaping and gardening applications. In addition, these systems generate renewable energy and water, thereby contributing positively to the energy-water-food nexus. Today, food waste is the largest constituent of municipal solid waste sent to landfills, thus an ideal target for our Materials Management pillar. In fact, food, fiber, and green waste are the majority contributors to landfill methane emissions as they decompose. While there are satisfactory solutions for recycling of green waste and fiber (via composting and recycling), food waste is still a challenge. Thus, a food waste recycling solution contributes positively to the food security challenges of the coming decades by improving agricultural sustainability, while reducing greenhouse gas emissions.

Finding higher and better use of currently discarded materials requires innovation while taking advantage of emerging technology. Food waste recycling is no exception, and Republic is exploring cutting-edge composting and anaerobic digestion (AD) solutions in various markets.

**Composting**

As mentioned earlier, composting has been used for decades to recycle “green” or “yard” waste. When properly managed, composting can be a viable solution for food waste recycling. At our Pacific Region Compost facility just outside of Portland, Oregon, Republic Services processes roughly 9,000 tons of source-separated commercial and industrial food waste, combined with close to 110,000 tons of yard waste. This includes organics we collect from...
Zero Waste events at the Moda Center, home of the Portland Trailblazers. After composting is completed, we return moist, rich, organic soil amendment (compost) to local farmers and gardeners. We also return compost to the Moda Center for application on the grounds surrounding the facility.

**Anaerobic Digestion**

AD involves breaking down food waste in the absence of oxygen (as opposed to composting, which is aerobic). It has been used for decades in dedicated applications converting manure to fertilizer on farms and more recently for recycling waste at food processing plants. However, these applications involve consistent materials fed to the AD process. In commercial waste applications, the materials are highly variable. Thus, these applications are more challenging. In Orlando, Florida, Republic is collecting source-separated food waste from local theme parks, hotels, restaurants, and supermarkets for an AD system run by Harvest Power. Each year this system processes nearly 45,000 tons of food waste and 75,000 tons of other liquid wastes. This plant is able to generate seven MW of combined heat and power for nearby use, and 5,000 MT/yr granular fertilizer. Fertilizer made from an AD system is unique because it captures and recycles nutrients like phosphorous, potassium, nitrogen, and many other micronutrients from the food waste, which reduces the need for synthetic fertilizers produced from petrochemicals.

**Sustainability**

Both composting and AD offer the opportunity to provide valuable products for sustainable agriculture and land applications, while providing renewable energy and water, and avoiding methane emissions from food waste in landfills. Deploying these solutions requires changing internal processes, education, and behavior, as well as market development and overcoming technology commercialization barriers. In addition, strong partnerships between Republic and other leading sustainability-minded entities—like the Moda Center, Harvest Power, and the businesses that provide source-separated food waste—are key enablers. We believe that continued effort in these areas not only advances the state of the industry in reaching similar scalable, sustainable solutions for food waste, but also solves broader societal challenges associated with feeding a growing population.

**To learn more:**

Republic Services – [www.republicservices.com](http://www.republicservices.com)
Moda Center – [https://vimeo.com/118052715](https://vimeo.com/118052715)
Harvest Power – [www.harvestpower.com](http://www.harvestpower.com)
According to United Nations Food and Agriculture Organization statistics, three-quarters of the world’s 805 million hungry people live in rural areas and more than half of them are smallholder farmers or landless families dependent on farming for their survival. This is a cruel irony—what author and activist Roger Thurow calls “the horrible oxymoron of hungry farmers.”

Hunger persists among farmers, particularly in the developing world, not because food is insufficient but because incomes are. Poverty is the principal cause of hunger. That is why improving the incomes of the world’s smallholder farmers—transitioning them beyond subsistence into viable commercial enterprises—is one of the most effective means to improve food security globally.

For 150 years, Cargill has been engaged with farmers at all scales of production in the workings of the global food system. From our experience, the following factors are essential to enable farmers to improve their productivity and incomes: property rights; access to inputs, training, and markets; and off-farm income.

**Property Rights.** Cargill supports government efforts to clarify land tenure and property rights. To be motivated to reinvest in their farms, farmers must be able to own their own land and pledge it as collateral. Security of tenure is the basis for sustainable farming, which is, in turn, a driver of poverty reduction, rural development, and global food security. That is why Cargill supports adoption of the Voluntary Guidelines on Responsible Tenure of Land, Fisheries, and Forests. These guidelines outline practices that businesses and governments can abide by to help ensure that the land tenure rights of local people are protected.

**Access to Inputs, Training and Markets.** Farmers at all scales of production need access to the inputs required to produce a crop, training in best practices, and—just as important—access to markets where they can realize a fair price for their crops. In Mexico, a Cargill-sponsored program organized in conjunction with the Mexican Foundation for Rural Development is helping maize farmers get fertilizer, seeds, and harvesting equipment tailored to local needs. Through the program, farmers also get financing, training throughout the crop production cycle, and assistance in creating self-managed cooperatives that help them share resources and realize economies of scale. Through the first two years of the program, farmers saw their yields more than double on average.

In Zambia, the government is encouraging the development of mini mills in part to ensure ready markets for locally grown maize. A Cargill mini mill in the eastern Zambian town of Chipata sources maize locally and produces meal from it right there, reducing transport and fuel costs and enabling Cargill to offer a competitively priced product. “By bringing these mills into rural areas where maize is produced, we provide a reliable market for local farmers while targeting high food costs and food insecurity,” said Lezanne van Zyl, Cargill’s country manager in Zambia. “In addition, the mills provide the local community with opportunities for employment and access to skills training. It’s a fine example of how a small facility can yield some pretty big results.”

**Off-Farm Income.** “It sounds counterintuitive, but off-farm income is critically important to agricultural development,” said Cargill Executive Chairman Greg Page. The first migrants from farms to cities often
send money back to their families. Those remittances can fund better farm inputs like seed and fertilizer, and provide capital for machinery, for example. The resulting improvement in productivity enables more people to leave the countryside for cities, where their incomes and diets tend to improve, boosting demand, trading, and prices for farm output. In short, farmers and farm output benefit when urban workers have incomes sufficient to purchase food at prices that encourage farmers to produce more.

In Honduras, Guatemala and Nicaragua, smallholder farmers are seeing their incomes increase through their involvement in a partnership between Cargill and CARE, a leading humanitarian organization fighting global poverty. While programs vary by country, the initiative provides training, skills development, and market access for farmers; educational opportunities and nutritional support for children; and access to social services, including health care and safe drinking water, for communities.

To learn more about how Cargill works with farmers all over the world to help improve their productivity and incomes, and to make the world more food secure, visit www.cargill.com/foodsecureworld/helping-farmers.
Among our core beliefs at General Mills is that food should make us all better; food nourishes lives and can bring us joy, food connects us to each other and to the earth.

As global food company, our business model of creating and serving food that people love is dependent upon the ongoing prosperity and productivity of farmers the world over. We know that when farmers have the knowledge and resources for their farms and families to thrive, the benefits accrue well beyond the individual and extend to the community and societal levels.

Consistent with these beliefs, and in support of our company commitment to sustainably source 100% of our 10 priority ingredients by 2020, we work closely with smallholder farmers in developing economies to address specific economic, environmental, technical and social challenges through our creating shared value strategy.

Using this shared value approach, General Mills and our partners work to ensure sustainable sourcing of raw ingredients and materials while boosting the incomes of smallholder farmers, improving food security for their families and raising the living standards in these communities.

One example of this model is our work with vanilla farmers in Madagascar. The country is the world’s leading producer of vanilla, and smallholder farmers in this country are the primary source of the premium vanilla used in our Häagen-Dazs ice cream. Over the past few years, our Häagen-Dazs team has established programs in three vanilla growing communities across the Sava region of Madagascar. The program includes teaching more than 900 growers enhanced horticultural practices as well as conducting trainings on how to cure the vanilla they grow—an expertise that helps farmers significantly increase their production and income. Farmer associations in these communities represent 900 growers and their 3,600 family members.

In parallel with this work to help farmers improve their practices and productivity, we also work to improve food security in the same communities. Most recently, we funded construction of a storage warehouse that provides local families with access to rice year-round, regardless of market availability.

Elsewhere in Africa and in other regions throughout the world, General Mills has programs aimed at empowering and supporting smallholder farmers – each one collaboratively developed with local partners and community members who bring invaluable insights on the most pressing needs of local farmers and their communities.
For example, in Mexico, broccoli and cauliflower growers in Irapuato are receiving no-interest loans from General Mills to adopt drip irrigation which saves both water and money.

Meanwhile in Ghana, we are helping cocoa-growing communities to establish farmer co-operatives. This program is part of a multi-year effort in partnership with CARE and Cargill to improve the food security and livelihoods of cocoa farmers by providing access to farm equipment, training to increase yield sustainability, and grants to expand youth education and improve community health.

Recognizing the transformative impact of our employee’s knowledge in food science, we invest funds and support the volunteerism of hundreds of our employees to advance the work of Partners in Food Solutions (PFS), a stand-alone non-profit that began as a program inside General Mills in 2008. Today, PFS is working with more than 40 African food processors on 140 different food projects in Kenya, Zambia, Ethiopia, Tanzania, and Malawi, helping local business to start, improve and expand, thereby improving regional food security. To date, Partners In Food Solutions has positively impacted more than 738,000 smallholder farmers and 4.4 million of their family members. Our work with PFS includes a five year goal to create or sustain viable markets for at least one million farmers and six million farmer family members.

Lastly, our Join My Village program (Ghana, Cote d’Ivoire, Malawi and India) has helped women to establish more than 650 village savings and loan associations (VSLAs), which enable groups of women to pool their savings to help one another start and expand farms or other small businesses. Since 2009, made possible through General Mills support have positively impacted more than 15,000 lives in Malawi, and are now being deployed in West Africa as an additional means of empowering cocoa-farming communities.
Cotton Micro-Irrigation

By Ajay Kakra, Director, Agri and Natural Resources, PricewaterhouseCoopers

This case study is referred to in the report, Collaboration: Preserving Water Through Partnering That Works.

The Problem
Cotton is one of the most important cash crops in the world; despite the development of synthetics, cotton remains one of the most important fibers. India is the second-largest producer of cotton globally. But cotton is one of the most water-consuming crops because of the frequent flood irrigation needed in its production. If flood irrigation is replaced by drip/micro-irrigation systems (MIS), water consumption can be reduced by as much as 50%. The adoption of MIS by Indian cotton farmers had for a long time been limited. So the challenge was to increase adoption of MIS by cotton farmers in India.

The Stakeholders
The following are the stakeholders in this challenge:

- The farmers themselves (as individuals and as groups and communities)
- The textile/furnishing brands selling cotton-based products in the global markets
- International developmental institutes
- MIS companies
- Financial institutions that fund/finance the procurement of MIS equipment by farmers
- Cotton-value-chain players (the ginners, spinners, traders, etc.)
- Non-governmental organizations (NGOs) and other not-for-profit organizations that work with the farmers on various issues
How Did They Collaborate to Address the Challenge?
First, they identified the key reasons for the low adoption rate by conducting a study to establish farmers’ understanding of the relevance of MIS systems in the cotton value chain.

The key findings of the study were as follows:

- Cost of irrigation was 20% of total cost of cultivation (water is free; the cost is associated with pumping and transporting the water).
- Irrigated farms showed three times the amount of profit as compared with a non-irrigated farm.
- Drip irrigation was considered as one of the key measures for increasing the irrigated acreage with the same amount of water.
- The awareness of the farmers about the benefits of MIS was very high.
- The low adoption rate was driven by a lack of financial resources.

The next stage was to develop the access to finance projects that would enable farmers to adopt the MIS systems.

Impacts and Outcomes
In the pilot areas, about 300 farmers were given access to finance through support from regional NGOs throughout the borrowing process. Banks supported the project, pre-sanctioned the loans, and helped fast-track the lending process. The banks also provided lower rates of interest compared with regular loans, reduced margin and security requirements, and reduced the documentation requirements for the farmers.

In a drought year, when the sales of MIS systems declined in the pilot area the sales levels were sustained.

Enablers: What Helped the Collaboration Work Well?
- The team provided by PricewaterhouseCoopers was multi-disciplinary and had expertise in agricultural issues, technical knowledge of MIS systems, significant understanding of the banking sector, and a strong network within the financial sector.
- Diverse groups of stakeholders (banks, MIS companies, IFC, retail brands) supported the program.
- In India, the Reserve Bank of India has stipulated priority-sector lending norms for all commercial and state-owned banks. Under these norms, the banks have to undertake direct agriculture lending in order to fulfil the PSL norms.
Engaging Business in the Fight Against Hunger and Malnutrition

By Pamela Fessenden, Director, Office of Market and Partnership Innovations, U.S. Agency for International Development Bureau for Food Security

Today, 91% of financial flows from the United States to the developing world are from private sources, rather than official development assistance. There’s no question—the international development landscape has changed. To achieve sustainable solutions that will feed a growing population, we must engage the private sector in new and impactful ways.

We know that the path to global food security cannot be forged by governments alone, and that agriculture can be a powerful tool in spurring economic growth, which can make a big difference in reducing hunger and poverty. Through Feed the Future—the U.S. government’s global hunger and food security initiative led by the U.S. Agency for International Development (USAID) in partnership with 10 other federal bodies including the Department of Commerce—the United States is promoting an enabling environment for sustainable and inclusive growth in the agriculture sector. By engaging the private sector, we’re developing partnerships integral to core business strategies as well as global food security.

These strategic alliances leverage the tremendous market knowledge and business acumen of our private sector partners to

- Foster economic growth in emerging markets by commercializing new technologies;
- Help create enabling policy environments;
- Increase opportunities for investment, finance, and risk mitigation; and
- Improve market access and trade that can benefit smallholder farmers.

**Supporting Smallholders to Strengthen Supply Chains**

Such partnerships are already achieving impact for Latin American smallholder coffee growers, who are facing an estimated economic loss of more than $1 billion due to an outbreak of coffee leaf rust. In 2014, through Feed the Future, USAID entered into a partnership with non-profit agricultural lender Root Capital and leading coffee companies, including Cooperative Coffees, Equal Exchange, Keurig Green Mountain, and Starbucks, to create the Coffee Farmer Resilience Initiative and extend critical support to more than 40,000 coffee farmers in Latin America. Through a $1.8 million grant and a $15 million partial credit guarantee that shares the risk Root Capital faces, USAID and its partners are helping farmers stay on their farms, access much-needed loans to rehabilitate diseased fields, and continue earning income from coffee and other crops.

**Mobilizing Responsible Investment in Africa**

Through Feed the Future, the United States also contributes to the New Alliance for Food Security and Nutrition, a shared commitment among African governments, development partners, and the private sector for deepened private sector engagement around a shared set of goals to reduce hunger and malnutrition while lifting millions out of poverty. Launched in 2012, the New Alliance is a partnership matching policy reforms from its countries, targeted private sector investment, and the commitment of development partners to mobilize sustainable, responsible, and inclusive investment in African agriculture. The model is already paying off. To date, the New Alliance has expanded from 3 to 10...
African countries. In combination with investments facilitated through Grow Africa in 2 additional countries, New Alliance and Grow Africa have expanded from 45 to more than 200 African and international companies, and from $3.5 billion to over $10 billion in commitments, with $1.8 billion invested through the end of 2014.

Through these partnership models, Feed the Future is helping to reduce hunger, poverty, and malnutrition in vulnerable communities around the world. In 2013, we created 1,175 public-private partnerships, many of which included local farmer-owned businesses. New results from Feed the Future and a full range of U.S. government efforts to improve global food security will be issued this summer.

The number of hungry people in the world—795 million—has dropped by 100 million in the past decade in large part due to coordinated global efforts to eradicate hunger. Through U.S. leadership and partner collaboration, especially with the private sector, we will continue to foster sustainable growth in emerging markets, a fundamental component of reducing poverty, fighting hunger, and improving nutrition.
CHAPTER 3:
FOOD WASTE & PACKAGING
CHAPTER THREE: FOOD WASTE AND PACKAGING

Just Peachy

By Amanda Bauman, Senior Manager, Community Affairs, and Program Director, Campbell Soup Foundation

What do 850,000 pounds of peaches headed to landfill, a growing food insecure population in southern New Jersey, and the passion and skills of Campbell employees have in common? A perfect storm that resulted in the creation of Just Peachy.

In the fall of 2011, the Food Bank of South Jersey was facing a problem. The food-insecure population in southern New Jersey was growing. In the previous year, the Food Bank had distributed 2 million more pounds of food than planned, while simultaneously experiencing federal funding cuts. When they discovered a local farmers’ cooperative, Eastern ProPak, was dumping nearly 850,000 pounds of fresh peaches each season due to slight blemishes and being undersized, they had an idea—a peach of an idea.

The Food Bank team visited Campbell and presented a white paper. The idea was a simple one—save the unsaleable peaches from landfill and manufacture a peach salsa to sell at retail. The only issue was that the Food Bank lacked the expertise to develop a recipe, manufacture the salsa, and distribute it to retailers.

That is where Campbell stepped in.

The idea was brought to the head of Campbell’s Pilot Plant and blossomed from there. A cross-functional team including Research and Development, Regulatory Affairs, Finance, Product Development, and Process Safety got together and developed a recipe, created a manufacturing process, and even garnered donations from 10 Campbell suppliers,
saving more than $26,000 in overhead costs. The team had a product on-shelf approximately 10 months after initial ideation.

Eastern ProPak provided the peaches for pennies on the pound to the Food Bank of South Jersey, saving some of the $80,000 in annual dumping fees and diverting the peaches from landfill. The Food Bank of South Jersey covered the costs of peach prepping and dicing. Campbell donated the manufacturing equipment and expertise. More than 100 Campbell employees donated hundreds of hours hand-labelling the product and preparing it for distribution. The Food Bank then picked up the product and got it in the hands of local southern New Jersey retailers for sale.

The results speak for themselves. In three years, nearly 160,000 jars have been produced, providing approximately $300,000 in revenue to the Food Bank of South Jersey to support its nine hunger relief programs. Eastern ProPak Farmers’ Cooperative diverted thousands of peaches from landfill and saved some of its annual dumping fees. Campbell employees were able to live the corporate purpose of “Real Food That Matters for Life’s Moments” by utilizing their skills to provide a sustainable revenue stream for the Food Bank of South Jersey.

But the effects of this program are felt well beyond the confines of southern New Jersey. The initiative has won numerous awards from Grocery Manufacturers’ Association, McDonalds, Mutual of America, and more. It has also been a catalyst for conversation with Feeding America on its replicability with other fresh produce.

As Val Traore, CEO of the Food Bank of South Jersey, puts it, “We’re hoping this becomes a catalyst for others in the community. This may be one small jar, but it is one giant step in the battle against hunger.”
Plastic Packaging Tackles Global Food Waste

By Jeff Wooster, Global Sustainability Director, Dow Packaging and Specialty Plastics, The Dow Chemical Company

In a world where more than 800 million people go hungry, the statistics surrounding food waste are incredibly hard to swallow.1 On a global scale, one-third of the food we produce, process, and distribute is never consumed.2 In the United States, food is second only to paper and paperboard in waste generation. We send, on average, 34 million tons of food to our landfills each year, or 19 pounds of food per person per month.3, 4 Dow experts in plastics technology are bringing innovations to flexible packaging that are helping food producers and consumers alike tackle the challenge of food waste, as well as its unintended consequences for the environment.

Farm to Waste: The Environmental Cost
In addition to food scarcity, the consequences of food waste include the unavoidable consumption of natural resources associated with food production, processing, and distribution, especially relative to land and water use, raw material and energy consumption, and greenhouse gas generation.

While groups addressing food waste are well aware of its impact on the human condition and our environment, few recognize the opportunities to improve the situation presented by advances in flexible plastic packaging. Compared with other types of packaging, it’s often lighter in weight, easier to transport, and less energy intensive to manufacture. For example, packaging juices and fruit drinks in plastic beverage pouches consumes half as much energy and generates 75% less greenhouse gas as compared with other packaging alternatives.5

Dow technology innovations like the Polyethylene (PE) Stand-Up Pouch not only contribute to less energy intensive packaging, but also make flexible packaging more appealing to consumers by enabling recycling in communities with existing PE film recycling streams. To further encourage awareness of the global food crisis and potential solutions,

Dow launched *Make It Last*, a campaign designed to educate consumers worldwide on how they can make a positive impact by conscientiously changing behavior in the supermarket and at home to make food last longer and help save the environment.

**Reducing Waste, Improving Nutrition**
At the heart of many food waste reduction efforts is the goal of promoting better nutrition. Dow and the plastics-packaging industry continue to broaden flexible packaging options to make healthy eating easier for individuals and families. Key advances include packaging for portion-controlled meals and snacks, and improvements in re-sealable packaging for bulk foods so contents can stay fresher for longer. These and other innovations in flexible packaging not only help people discard less food with right-size portions, but also can lengthen the life span of costly fresh fruits and vegetables.

Did you know that the advancement of plastic packaging technologies and films makes common foods we eat last longer—at times doubling original life span? Here are a few key examples:

- Non-perforated plastic bags help fruits like pears stay fresh up to 15 days when compared with unpackaged counterparts, which last only 7 days stored at room temperatures at your local grocer.  
- Green beans more than double their edible life span from 7 to 19 days when stored in non-perforated polyethylene film.  
- Active plastic packaging such as non-perforated highly gas-permeable films can help tropical fruits like mangoes increase their shelf life from 20 to 40 days and help them ripen at an optimal rate to decrease food loss. This extended life span for mangoes also provides potential logistic cost advantages because exporters can consider sea freight shipment, which is less costly and more energy efficient than air freight.  

Smart packaging is a realistic and proven solution in the fight against food waste, reducing solid waste, energy use, and greenhouse gas emission. Global market trends like increasing populations, rising middle-class incomes, and busy lifestyles continue to drive demand for high-performance plastic packaging that extends food freshness, improves product safety, and provides convenience benefits like easy storage, re-sealability and microwaveability.

Food waste is an issue that cannot be solved by industry or government alone. By working together, we can educate businesses, government officials, and consumers about the vital benefits of incorporating plastic packaging solutions to protect and extend the life of the global food supply and achieve measurable and meaningful environmental and economic benefits.

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Addressing global food security is one of our society’s most pressing challenges as we work to ensure global communities have access to safe, nutritious food while minimizing waste and environmental impacts. As part of our vision to create a better way for life, we are working at Sealed Air to develop and implement innovations to address food security challenges. Awareness of these challenges has increased dramatically in recent years as a result of significant media attention following a multitude of new research studies revealing startling trends:

- **Access:** Increasing population and consumption will require at least 50% more food by 2030, which must increasingly be distributed from all over the world.
- **Safety:** Increasing urbanization is expected to increase foodborne and waterborne diarrheal diseases, which kill about 2.2 million people annually.
- **Waste:** At least 40%, or nearly 1.3 billion tons each year, of the food we produce is never consumed, and this is increasing on a global basis.

### Challenges Become Opportunities

We are at a crossroads for balancing sustainable business, caring for the environment, and feeding the world’s people adequately and safely. Dire statistics are a call to action to work together to implement and scale best practices and innovative solutions. Challenges become sources of opportunity and provide a sense of purpose. Sealed Air and other leading companies are now including food security in their corporate sustainability goals, and are partnering with both governmental and non-governmental organizations to drive collective action.

### What Can Be Done? What Actions and Initiatives Can Companies Take to Address Food Insecurity?

To begin with, it is important to understand the underlying causes of, and match solutions to, the greatest needs. There are vast differences between developed and developing countries. Developing countries lack the infrastructure to adequately distribute, preserve, and store food. In developed countries, many of our challenges are associated with consumer buying and consumption behaviors.

#### Innovations for Developing Countries

We are working to apply many of the same solutions that have been implemented in developed countries to developing countries to increase efficiency and safety, reduce spoilage, and decrease the cost of food:

- **Keep it cold, keep it safe.** Establishing and maintaining a cold chain is essential for preventing the premature spoilage of perishable foods. Refrigerated warehouses, processing facilities, and transportation are essential infrastructure requirements to reduce spoilage of produce, dairy, and meats.
- **Combat spoilage at the start.** Controlling the growth of harmful bacteria is essential to ensure food quality as well as prevent the spread of foodborne illnesses. Use of sanitizers, maintaining clean surfaces, and food safety monitoring are critical during food processing.
- **Seal in freshness.** Packaging plays an essential role in protecting perishable food products during distribution while also reducing potential for cross-contamination during storage. By using sealed, hermetic packaging, food quality can be maintained and waste prevented.
Innovations for Developed Countries
We are introducing a number of innovations to developed markets—where consumer behaviors lead to increased food insecurity—to address food safety, waste, and availability:

• **Size for what is needed.** Simply matching how food is made available to households, in proper quantities, can help reduce over-purchasing and make food more accessible, particularly for increasingly smaller households. Buying food in portions or in prepared meals reduces waste and can help foods stay fresh until opened.

• **Extend freshness life.** Through use of packaging technologies such as modified atmosphere packaging, the freshness and safety of many perishable foods such as meats, produce, and bakery items can be significantly extended without the use of preservatives or additives. Giving consumers more time to consume perishable products helps reduce in-home food waste.

• **Make food systems smarter.** Expanding use of information technology in our daily lives can help manage how we purchase, store, and consume food. Knowledge-enabled solutions based on use of smart devices, sensors, and analytics will overcome issues such as food date labeling, inventory management, and storage conditions, leading to a safer, more efficient food chain.

By addressing the causes of food insecurity and working collaboratively to apply and scale innovations, we will be able to feed the world nutritiously, safely, and sustainably while minimizing environmental, social, and economic impacts. At Sealed Air, we call this “creating a better way for life.”
CHAPTER 4: HUNGER AND NUTRITION
Helen Reeves says her youngest daughter is healthier and learns more quickly than her older siblings. The Liberian mother recognizes why.

During the first thousand days of her daughter’s life—which are key to a child’s lifelong development and learning—Helen and her youngest were part of a health-and-nutrition education program featuring a new food made by 80 women in two Liberian factories.

The American Soybean Association’s World Initiative for Soy in Human Health (WISHH) Program pioneered the use of U.S. soy flour in one of West Africa’s most widely eaten foods, gari. Through a U.S. Agency for International Development project with OIC International, WISHH used U.S. soy flour from Cargill and CHS to bring the nutritional benefits of soy protein to Liberian children while creating local jobs and introducing fish-feeding practices using food waste from the factories.

According to the International Institute of Tropical Agriculture, nearly every person in Africa receives an estimated 37% of dietary energy from cassava, the main ingredient in gari.

While rich in carbohydrates, gari is poor in protein. The more nutritious soy-micronutrient–fortified gari contains about 80% gari, 18.4% soy flour, and the rest a vitamin premix.

Many developing countries face the same challenge as Liberia—local crops and foods simply don’t offer the protein that is needed by humans, livestock, and aquaculture. According to the U.S. Department of Agriculture, developing countries will account for 81% of the projected increased global consumption of meats and 83% of protein-rich oilseeds like soybeans in 2013–2022.
U.S. soybean farmers saw this trend coming. In 2000, they launched WISHH as their means to partner with U.S. businesses as well as developing country entrepreneurs who are on the front lines of agricultural value chains that nourish communities and countries.

The circular economy to unleash business value and reduce environmental impact presents an exciting concept for global agricultural value chains. It is already at work in the U.S. soybean industry. DSM offers natural enzymes for soybean processing. The protein-rich soybean meal portion of the bean (80%) is in demand for programs like those that WISHH leads as well as for the global food and feed marketplace. An abundant supply of soybean oil (approximately 20%) becomes available for cooking and also can be used to make cleaner-burning biodiesel fuel. Used cooking oil is converted to biodiesel. As a result, diesel equipment, like that manufactured by Caterpillar, runs more sustainably.
CHAPTER FOUR: HUNGER AND NUTRITION

Amway Expertise Improves Childhood Nutrition Globally

By Jeff Terry, Global Head, Corporate Social Responsibility, Amway

More than 3.1 million children age five and younger die each year of malnutrition, according to the World Health Organization.

At Amway, we find this to be unacceptable, so we are taking on the issue of childhood malnutrition to help children, families, and community members live better lives. We are optimistic that our fight against malnutrition can have far-reaching impact. According to The Lancet, proper nutrition is important to the development of both individuals and nations. It is estimated that a lack of adequate nourishment can reduce a nation’s economic advancement by at least 8% because of loss related to productivity, cognition, and reduced schooling.

Everyone needs proper nutrition to achieve their full potential. However, many people—especially children—are not getting the vitamins and minerals they need. This causes a wide range of health and developmental problems, yet it is a preventable problem.

Making a Commitment

As the world’s number one selling vitamins and dietary supplements brand,¹ Nutrilite™ products are backed by 80 years of science and research. This expertise puts Amway in a unique position to understand and address nutrition issues such as childhood malnutrition.

After extensive analysis, scientists at Amway developed Nutrilite™ Little Bits™ to give malnourished children ages five and younger the essential nutrients they need to grow and develop a healthier brain and body. Loaded with 15 essential vitamins and minerals, Nutrilite™ Little Bits™ is the first micronutrient supplement for malnutrition enhanced with plant ingredients,² and has been developed to align with World Health Organization guidelines.

Nutrilite™ Little Bits™ is available exclusively through the Nutrilite™ Power of 5 Campaign distribution system and has already benefited thousands of children in Brazil, the Dominican Republic, Guatemala, Haiti, Mexico, Panama, Vietnam, South Africa, and Zambia. Future expansion will target Colombia, Costa Rica, El Salvador, Indonesia, Honduras, and Venezuela. The goal is to support 20,000 children by the end of 2015.

The Nutrilite™ Power of 5 Campaign

Backed by a worldwide network of Amway business owners, employees, and customers, Amway has launched the Nutrilite™ Power of 5 Campaign to raise awareness of malnutrition as we work together toward a global solution. This program supports CARE and local non-governmental organizations as they make Nutrilite™ Little Bits™ a daily part of children’s diets in areas where the groups are actively involved.

¹ Euromonitor International Limited, Euromonitor.com/amway
² ORC International
educating, providing food, and conducting follow-up assessments to be sure children are thriving.

Our goal is to provide Nutrilite™ Little Bits™ to thousands of children in at least 15 countries by 2016.

**Studies Show Promise**
In partnership with the National Institute of Nutrition and Medicine in Mexico and a local non-governmental organization, children six months to five years old were given daily supplementation of Nutrilite™ Little Bits™ along with food provisions, regular health assessments, and nutrition education as part of a six-month clinical study.

Results showed major improvements in the children's health.

The study found a 93% reduction in iron deficiency anemia, a 40% reduction in stunting (reduced height and weight based on age), as well as improvements in weight. Caregivers reported that throughout the study, the children had increasingly better levels of activity and were more playful, more communicative, and more interested in learning.

**New Meta-Analysis Tracks the Double Burden of Malnutrition Around the World**
Amway also supported a worldwide research project led by the Global Alliance for Improved Nutrition to learn more about the double burden (undernourishment and overweight/obesity) impact of malnutrition in low-, middle-, and high-income countries. Undernourishment and overweight/obesity are both directly related to a lack of proper nutrition early in life and cause long-term health problems.

The result of the project is a new education and advocacy tool (http://mamap.io/map) that shows the impact of malnutrition in more than 30 countries around the world. Support of this Malnutrition Mapping Project is part of Amway's commitment to the Scaling Up Nutrition (SUN) Business Network, a United Nations effort to engage multiple sectors to work together to support SUN country national nutrition strategies.

For additional information or to join us in the fight against childhood malnutrition, visit powerof5.nutrilite.com.
America’s Hidden Hunger Crisis

By Lauren R. Dondarski, Legal Counsel, Legal and Government Affairs, DSM-North America

Royal DSM, a Dutch-headquartered, publicly traded company, is a life sciences and materials sciences leader that creates solutions to nourish, protect, and improve lives. Its American-based subsidiary, DSM Nutritional Products, is a leading supplier of vitamins, carotenoids, and other fine chemicals to the feed, food, pharmaceutical, and personal care industries.

DSM believes that good nutrition is an important requirement for physical and mental development, and a key factor for unlocking the human potential in every man, woman, and child. The elimination of malnutrition is a global responsibility that DSM supports wholeheartedly.

Despite all of the advances in medicine, science, and technology, some 805 million people (about 1 in 9) have insufficient food to lead a healthy, active life. This means that these people do not get all of the vitamins and nutrients that their bodies need to function well. While most people think of malnutrition as being an issue only in developing countries, the truth is that this is highly prevalent in the United States as well. DSM, along with its partners, is focused on helping eradicate such micronutrient deficiencies, often dubbed “hidden hunger.”

Hidden hunger is a lack or loss of dietary quality resulting in vitamin and mineral deficiencies that diminish, among other things, health and cognition.
In the United States, it is often not a lack of food itself that causes hidden hunger but lack of healthy, nutritious food. In other words, a well-fed population is not necessarily a well-nourished population. While people may eat enough calories to live, their diets may fail to provide sufficient levels of crucial vitamins and minerals that allow them to be physically and mentally healthy.

Availability and price can make healthy eating a challenge for many families, especially those living in urban environments. It is estimated that about 50% of American children are not getting the Food and Drug Administration’s recommended daily intake of the most important vitamins and minerals. The impact of this deficiency can be felt for decades, given its effect on a child’s development, as the period from conception until two years of age irreversibly shapes a child’s health and intellectual ability. Left unaddressed, hidden hunger can rob children of their full intellectual and physical potential. Ultimately, this leads to a double economic burden of massive health costs and significantly reduced productivity.

DSM is committed to raising awareness of the issue of hidden hunger and participates in many initiatives to combat micronutrient deficiency. DSM works with public and private partnerships such as the United Nations World Food Programme, World Vision, Partners in Food Solutions, U.S. Agency for International Development, Sight & Life, Vitamin Angels, GAIN, and Global Health Corps to address the problem of hidden hunger and develop tailored solutions.

DSM has partnered with Global Health Corps and their CEO, Barbara Bush, to develop an initiative that will address micronutrient deficiency in low-income communities. DSM has funded two Global Health Corps fellows to work in Newark, New Jersey, at the Boys and Girls Club and at Covenant House to support efforts to fight hidden hunger. These fellowships are helping raise awareness about hidden hunger and delivering solutions to address micronutrient deficiency. The fellows interact daily with members of the community to facilitate overall health and wellness and educate them on healthy food choices.

DSM will continue to commit time, resources, and expertise to combat hidden hunger not only in the developing world, but here at home. Hidden hunger is a crisis that is needless and preventable, and with the help of Global Health Corps and other partners, we are one step closer to ensuring that every American has access to nutritious, healthy food.
Why U.S. Companies Will Be the Key to Solving Hunger

By Rick Leach, President and CEO of World Food Program USA

A non-profit organization that builds U.S. support for the mission of the United Nations World Food Programme, the world’s largest humanitarian agency fighting hunger.

World Food Program USA was established in part to mobilize U.S. businesses big and small to support the lifesaving mission of the United Nations World Food Programme (WFP), the world’s largest humanitarian agency. In many ways, WFP embodies America’s greatest ideals: generosity, equality, and hard work. Access to nutritious food makes the American Dream possible. Without it, we could not enjoy life, liberty, and the pursuit of happiness. In fact, WFP was first created at the urging of U.S. leaders like President John F. Kennedy and Dwight D. Eisenhower. CBS journalist Scott Pelley called WFP “one of the best ideas that America ever had,” and I couldn’t agree more. But I believe WFP’s future—indeed the entire future of our efforts to alleviate hunger—will be shaped by smart collaborations between the private and public sectors. Even today, WFP’s approach to disaster relief involves multiple partners working together, including leading U.S. companies like Cargill, Caterpillar, and Pepsi.

Many of WFP USA’s corporate supporters go beyond financial support. Companies that lend their expertise, resources, and employees—in addition to funds—prove to be the most innovative and effective partners. The global science and materials company DSM, for example, worked with WFP nutritionists and logisticians to refine the nutritional quality of the agency’s ready-to-eat foods and helped WFP create biodegradable packaging in which to deliver it. MasterCard supported the launch of the agency’s innovative electronic voucher program, which feeds hungry families while boosting local economies and reducing shipping costs for traditional food assistance. Google, meanwhile, is working with WFP to enhance the agency’s mobile Vulnerability Assessment Mapping
unit, which utilizes Africa’s digital infrastructure by tracking hunger hot spots in remote communities using basic SMS technology.

In West Africa, WFP has benefited from the support of UPS—the largest delivery company in the world—to help deliver aid workers and supplies, including medicine, equipment, and food assistance, to communities and families devastated by the Ebola outbreak. Without this collaboration, containing one of the world’s deadliest viruses would have been impossible. UPS also provides technical assistance that improves WFP’s entire operation, from supply chain management to enhanced tracking systems. The company even trains its employees to be a part of its Logistics Emergency Team, which is ready to deploy alongside WFP when disaster strikes.

As the world’s largest hunger relief agency, WFP crosses the toughest terrain to reach hungry families in need. Each year, the agency assists some 80 million people in 82 countries who are struggling to survive conflict, drought, disease, natural disaster, and chronic poverty. Right now, 1 in 9 people worldwide will go to bed hungry tonight—that’s almost 800 million people worldwide, or nearly three times the size of the U.S. population.

But hunger is a solvable problem. Over the past 25 years, the number of hungry people worldwide has fallen by 200 million even as the global population has grown by nearly 2 billion. None of this would be possible without WFP’s work and the support of our private partners.
CHAPTER 5: SUSTAINABLE AGRICULTURE
What Is “Sustainable Agriculture”? 

By Anna Wildeman, Policy Counsel, Environment & Agriculture, U.S. Chamber of Commerce

It depends on whom you ask. For some, sustainable agriculture means locally grown or organic meat and produce; for others, it is a marketing strategy and a driver to develop niche products with a high profit margin. Many people view the use of genetic engineering in seed and crop production as a model of innovation and an essential tool for long-term agricultural sustainability on a global scale; while others maintain a starkly opposite view. The way businesses, consumers, and regulators define and address “sustainability” within agriculture and our food systems over the next decade will have a significant effect on domestic and global food production, the economy, and public health.

Without a doubt, the concept of “sustainability” in agriculture must include the ability for our domestic food system to remain in the business of feeding the consumer, while also enhancing conservation and maintaining the efficient use of natural resources—soil, water, air. American agriculture must remain a viable industry, as it represents hundreds of billions
Achieving Food Security: Private Sector Solutions for Global Development Challenges

...of dollars in the economy annually. Economics aside, domestic food production and food security must be considered national security issues to ensure that food is available in this country to feed our population. As far as natural resource use is concerned, modern farmers and food processors have incredible advantages over their counterparts of just a decade ago. The evolution of technology, including the development of precision agriculture tools, has helped farmers to better understand soil behavior and fertility, water use, and crop need, and to facilitate the most effective planting, cultivation, and harvest practices.

Despite the necessity of domestic food production and the significant advances made in science, technology, and resource use, American agriculture continues to be a target for activist lawsuits and ever-increasing regulatory controls. These issues are compounded by the growing social, educational, and physical disconnection from the food producer to the average consumer.

At the end of the day, this country and its consumers need an “all of the above” approach to food production—one that embraces technology, allows for efficient use of natural resources, takes advantage of all the benefits that economies of scale can bring to the production process, and acknowledges that small production models can effectively serve niche markets. Over the next year, the U.S. Chamber of Commerce and the Environment & Agriculture Committee will continue exploring the relationship of agriculture and sustainability, technology, and policy education, and we welcome our member companies to participate in this very important dialogue.
Since 2008, we have seen two global food price shocks—the result of disruptions to supply and demand driven by drought, unusual weather, and increased consumption. These events have highlighted the interconnected nature of the global food system as well as its fragility in the face of volatile weather patterns, constraints on natural resources in traditional growing regions, and our ability to meet increased demand. These crises are playing out in places such as California and Brazil, where demands for energy and water, agriculture, and urban populations are in stiff competition. And as we look ahead 20 years with these events in mind, we’re confronted with a few key questions: Are today’s breadbaskets going to be tomorrow’s? Do we have the natural resources base to maintain food production in these regions? And if not, what are the alternatives?

From the perspective of food companies, the food price shocks and supply variability should raise concerns not only around the environmental and social factors that are largely beyond their control, but also around supply security, which should be within their control. Most companies, however, have
limited visibility on their supply chains and, as a result, lack the awareness to know where their agricultural commodities were produced and the risks and pressures these commodities might be encountering. Supply chains have essentially been outsourced and are only transactional, and little information regarding origination is available. Companies may dominate their manufacturing and marketing, but when it comes to supply chains for their raw materials, many companies are blind.

This is especially concerning when one considers that a food company’s expenditures on agricultural commodities may be three times that of their marketing budgets. Yet invisible supply chains pose serious risks to companies’ reputations and trustworthiness.

At WWF, we have spent the past eight years helping global brands understand the risks that are embedded in their supply chains—risks that come with negative environmental impacts, such as clearing forests, polluting rivers, or using harmful chemicals. Then, we work together to identify and mitigate these risks by building transparent supply chains that include sustainable food producers.

WWF wants companies to produce food in a way that doesn’t harm the environment; food companies need predictable and transparent supply chains. Together, we can work to meet both objectives.