

## Feeding Future Generations

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As members of the food system, we recognize the importance of global food security. Through our work from farm-to-fork, we have been exposed to the challenges that make that reality difficult.

Recently, The Farm Foundation, a 501(c)(3) public charity serving as a catalyst for sound public policy, asked industry experts to submit papers with innovative ways to think about and approach the growing issue of feeding future generations. The following article is based on the paper we submitted, with minor edits and updates.

### Background

The challenge of achieving global food security has been vexing governments, international food and health organizations, and humanitarians for decades. Billions of dollars have been spent in food assistance, infrastructure improvements, institutional capacity building, disaster relief and other efforts to improve global food security; that is, to improve the access and availability of a sufficient and safe food supply to all people of the world. Yet, it appears we are still decades away from achieving this goal.

Food insecurity of lower income groups is mainly due to poverty, and most food-insecure people live in rural areas. Growth in the agriculture and food-related sectors is therefore key to improving the food security of the poor. Successful long-term policies must lead to strategies fostering broad-based income growth that lift the purchasing power of the poor. Furthermore, compared to the existing body of research dedicated to increasing food production through greater crop yields and animal productivity, it appears there is relatively little research on cutting food loss and waste through rural infrastructure development. Consequently, government policies and programs in both developed and developing countries focus on subsidizing production, isolating farmers from market forces, restricting imports, and as we saw in 2008, instituting export bans during times of high prices.

Data and recent studies suggest there is enough food produced in the world to feed the global population. The United Nations Environment Program (UNEP) published a report in February 2009 titled, "Environment's Role in Averting Future Food Crises" (ERAFFC). Evidence in that report suggests that roughly 30% of the world's food supply is lost during and after harvest. The implication is that incremental improvements in how food is produced, distributed and disposed of can have a major impact on reducing world hunger.

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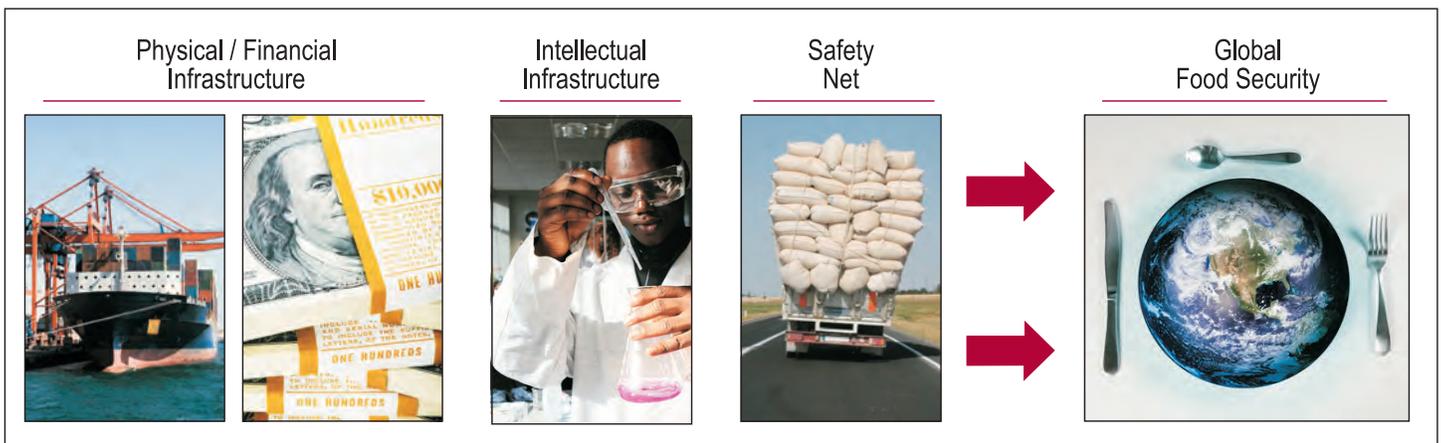
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Thus, access to food – not inadequate supply – is the major constraint to food security and is where the primary focus of future food policies and programs should be targeted. This is not to suggest that maintaining short-term safety nets or long-term institution building should be abandoned. On the contrary, global food security policy must proceed along three parallel tracks, but with more research and resources devoted to expanding and maintaining physical infrastructure. The tracks must be linked and complement each other rather than be implemented independently. Appropriate infrastructure development must not only reduce the amount of food lost, wasted and discarded, but also lead to job creation, increased purchasing power, and sustainable economic development in the poorest parts of the world.

## Three Policy Tracks Leading to Global Food Security



### ***Physical Infrastructure Development (PID) Track***

Material Infrastructure
<p><b>Public Goods</b></p> <ul style="list-style-type: none"> <li>■ Roads, railways, seaports and airports</li> <li>■ Dams</li> <li>■ Electric power generating facilities</li> <li>■ Free trade economic zones</li> <li>■ Schools and job training centers</li> <li>■ Communication networks</li> </ul> <p><b>Private Sector Assets</b></p> <ul style="list-style-type: none"> <li>■ Agriculture production and harvesting equipment</li> <li>■ Facilities for processing, packing and storing food</li> <li>■ Trucks and refrigerated containers</li> </ul>
Financial Infrastructure
<ul style="list-style-type: none"> <li>■ Grants, loans, insurance and tax credits for short-term agriculture production and for long-term investment in land and buildings</li> <li>■ Small business operating loans</li> <li>■ Investment tax and sales credit</li> </ul>

This policy track must be given the highest priority and be designed to stimulate sustainable economic development, especially in rural areas of developing countries. The key to sustainability is private sector investment. But first, public sector investment that reduces risk and creates an environment for reasonable rates of return is needed in the short and medium-term to facilitate the entry and profitability of business ventures. To have the greatest impact, public sector programs and initiatives must reduce food loss/waste in the short term while also stimulating job-creating private sector investments that replace and eliminate the need for continued public sector funding in the long term.

Physical infrastructure is defined here to include both material and financial infrastructure and assets.

**Material Infrastructure:** A simple, but not unrealistic scenario of how public sector investment policy can lead to sustainable economic development is illustrated by the following example. Public funds could be used in the construction of new and better roads to rural areas, a center for teaching young adults new job skills, and a port development project. This in turn facilitates private sector investment in a food-processing facility.

New construction jobs are created immediately while the infrastructure is being built or improved. Jobs for trainers and managers to operate and maintain the training center and food processing facility are created in the medium term. Students trained in the center are able to seek and occupy higher paying skilled and semi-skilled jobs in the food processing plant. The roads and modernized port improve the efficiency of farmers and food processors to move and maintain the quality of their products transported to urban areas where prices are generally higher. Imported food products are distributed more efficiently and at lower cost to underserved rural communities.

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The short-term result is that jobs are created and food losses are reduced. The long-term result is that education and technology are transferred, a more skilled labor force is developed, the income and purchasing power in the community is raised through the creation of new, higher paying jobs, and both food producers and consumers benefit from a more efficient food distribution system.

**Financial Infrastructure:** Material infrastructure development initiatives must be coupled with financial policies and programs that help reduce private sector investment risk and uncertainty about achieving profitable rates of return.

Risks are high and rates of return are questionable at best in developing countries where hunger is most prevalent. Government corruption, inadequate or unenforced laws and regulations, lack of a stable government or democratically elected leaders, and internal conflicts are often the rule rather than the exception. This combination of constraints not only severely limits private sector investment but also restricts food distribution and stable access to food by the most needy. However, these challenges can be addressed with policies that increase the availability of credit, create investment tax incentives, and establish government-backed, low interest long-term loans and grants.

In summary, public sector physical infrastructure investments, integrated with sound government-backed financial infrastructure – if properly planned, coordinated and executed – can facilitate and open the way for private sector investment crucial to the long-term sustainability of economic development and greater purchasing power in areas plagued by poverty and hunger.

**Intellectual Infrastructure Development (IID) Track**

Education and research along with science-based food safety and trade policies are critical to the medium and long-term sustainability of food security.

**Education & Research:** The United States has an extensive land grant University system that is unmatched in terms of both scale and depth of subject matter. The U.S. is well positioned to adopt policies that exploit this vast resource for purposes of stimulating even greater applied research and development for addressing domestic and global food production constraints. But greater research into technical advances for food processing, packaging, storage and transportation are perhaps even more important in improving access to food.

Our policy should encourage U.S. land grant universities to partner



with universities in developing countries to transfer education technology and expertise.

U.S. policy should support and provide more educational opportunities with scholarships, internships and grants for students in developing countries to pursue college degrees in technical areas such as food processing, distribution, and storage as well as business related degrees in management, economics, finance, entrepreneurship and marketing. Mandatory courses on how the rule of law, sanctity of contracts, and the inefficiencies caused by corruption impact foreign investment and economic development should also be required. Our policy should encourage U.S. land grant Universities to partner with Universities in developing countries to transfer education technology and expertise.

Policies and programs that stimulate the development of schools and training facilities at the local level in the rural communities of developing countries should also be considered. Young adults unable to attend college could learn a trade or other skills that will lead to higher paying jobs and greater purchasing power. Training investment incentives should be provided to U.S. educational institutions, but also to U.S. private sector companies that already have invested, or plan to invest, in a country where skilled and semi-skilled labor is needed.

Science-based Food Safety & Trade Policies: Recent FAO reports consistently identify trade liberalization as a critical goal that will increase access to food by the world's most needy people. Over the past four decades, developing countries' share of global agricultural imports increased from less than 20% to about 30% (FAO, 2005). Yet, eliminating hunger through food self-sufficiency and import substitution – accompanied by illegitimate trade barriers – is often a critical component of many countries' long-term food security policies. Our trade liberalization efforts should be reinvigorated, but must also recognize that safety nets for "inefficient" farmers are needed in the short-term when import protections are removed.

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### **Safety Net (SN) Track**

Policies and programs must facilitate greater efficiency in delivering food to meet short-term needs. This includes ongoing food assistance in developing countries suffering from chronic malnutrition and hunger, as well as emergency food assistance in times of crisis.

Chronic Challenges: Millions of people in Africa and Asia will continue to rely on donated food to supplement domestic production for many years to come. The good news is that a solid yet imperfect safety net structure already exists in the form of national and international government institutions, NGO's, and humanitarian organizations. However, the efficiency of transferring food and/or funding to the people who need it on a regular basis can be improved. Better coordination between donors is needed. Programs that provide funds or "food credits" to developing countries for the purchase of food should gradually replace programs that subsidize the inefficient transportation of large volumes of food and commodities when it is more cost effective to do so. Food assistance policies and programs tied to disposing of food surpluses in developed countries should be eliminated.

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**Crisis Preparedness:** The United States has the advanced technology and an extensive global footprint of military personnel and transportation resources to respond quickly to food crises. But more attention is needed in better preparing for crisis situations. The overwhelming communications, logistics and coordination challenges that have hampered the response to the devastating earthquake in Haiti is a case in point where having an international crisis management plan and protocol in place could have been beneficial to the relief effort. In cooperation with other governments and international organizations, U.S. crisis preparedness policies and programs should:

- ensure that adequate supplies of drinking water and shelf-stable food are stockpiled in key strategic/disaster prone locations around the world
- establish permanent and strategically located multi-national disaster relief teams
- improve the training and mobilization of disaster relief workers
- improve coordination between international organizations, NGO's, and military and civilian government officials by establishing comprehensive regional and global crisis management plans
- provide funding for improvements and investment in early warning systems and communications
- promote more research in developing shelf-stable food and small, solar powered stoves

## Conclusions

Of the three tracks described, Physical Infrastructure Development (PID) should be the number one priority and receive the greatest attention and resources. It would form the foundation and cornerstone of our global policy for food security without detracting from short-term safety net or long-term institutional building. In fact, the three tracks must be linked together to complement each other if maximum efficiency is to be achieved.

The Southeast Asian Food & Agricultural Science and Technology (SEAFAST) Center in Indonesia serves as a real life example of how the three policy tracks can be integrated. SEAFAST is a partnership between Texas A&M University (TAMU) and Institute Pertanian Bogor (IPB), Indonesia's premier agriculture University located in Bogor. The TAMU/IPB partnership and SEAFAST facility promote private sector development, food safety, and improvement of health & nutrition through research and the marketing and distribution of value-added food products. The Center also houses a state of the art distance-learning center used in educating IPB faculty, staff and students.



SEAFAST was created using proceeds from the sale of non-fat dry milk (NFDM) donated to TAMU in 2005 under USDA's Section 416(b) food assistance program. The NFDM was processed into liquid milk (some of which was distributed to Indonesian elementary school children under a subsidized school-feeding program) by Indonesian milk processors and the funds were used to renovate and build new classrooms, laboratories and a distance-learning center on the IPB campus. The SEAFAST project utilized proceeds from food assistance (SN Track) to build infrastructure (PID Track) for conducting research, transferring food processing technology to the private sector, and educating University students and faculty (IID Track).

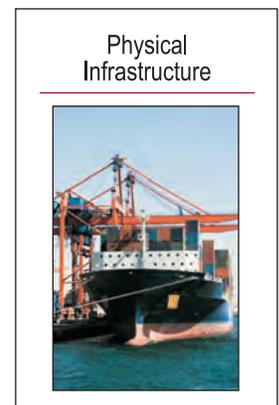
In summary, adoption and integration of the three policy tracks:

- directly impacts FAO estimates that 30% of the food produced in the world is lost, wasted or discarded due to inefficiency in the human-managed food chain and recognizes that:
  - enough food is already being produced on a global basis
  - investment & improvements in global food production will not necessarily have a significant impact on food security as long as the food chain delivery system is broken
  - greater investment in physical infrastructure that leads to relatively small improvements in the food chain system could lead to relatively large improvements in food security & poverty reduction
  - public sector programs emanating from PID policy, must be custom tailored to fit the specific opportunities or constraints in each country or region (multiple tools are needed in the tool box)
- recognizes the need for private sector investment to achieve stable and sustainable food security by:
  - facilitating and creating an environment where (temporary) public sector investment will decline over time as (permanent) private sector investment takes over
  - acknowledging the need for a public and private sector partnership to jointly establish and reach common food security investment goals
  - acknowledging that government-backed financial incentives are necessary to facilitate private sector investment in high risk, low return enterprises and locations
- stimulates solutions that can positively impact food security in all time frames (short, medium & long term)
- addresses both the access and availability sides of the food security equation

## Summary of Recommendations

### Physical Infrastructure Development

1. Devote more public sector research and investment to programs that help finance and facilitate private sector investment in physical infrastructure that creates non-farm jobs, improves farmers' access to urban markets, and increases rural community access to imported food. U.S. program resources for the PID track should exceed the combined total of resources devoted to the IID and SN tracks.
2. Create a public/private sector partnership program (modeled after USDA's Foreign Market Development [Cooperator] program) that provides grants to relevant associations to work with their members and the U.S. Government in developing strategies and implementing activities to facilitate private sector investments in developing countries for food processing, cold storage, and other related infrastructure development.



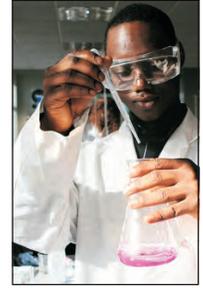
## Intellectual Infrastructure Development

1. Establish incentives and programs for U.S. land grant Universities to partner with Universities in developing countries (modeled after the SEAFast Center).
2. Mitigate government corruption and unscientific trade restrictions by establishing qualification criteria for countries to participate in U.S. PID investment and credit programs.
3. Develop new programs that subsidize training in skilled & semi-skilled jobs for rural residents in developing countries.
4. Exert leadership to reinvigorate WTO trade liberalization negotiations.

## Safety Net

1. Exercise leadership to improve the coordination and efficient delivery of food assistance to African and Asian countries faced with chronic food insecurity.
2. Lead other governments, international organizations, and NGO's in the development of comprehensive regional/global crisis management plans.
3. "De-link" food assistance from domestic surplus reduction policies/programs and consider making some food aid donations in the form of cash rather than in-kind when it is more efficient to do so.

### Intellectual Infrastructure



### Safety Net



To discuss this topic further or learn more about The Hale Group & SIAM Professionals' capabilities and expertise, please contact us at:



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