

**The Rural Imperative of Food Safety:
Safeguard Farm-to-Table Supply Chains of Food and Agro-Products
A White Paper**

by

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I. Problem Statement

China and the U.S. are the two largest agricultural countries in the world. At distinct stages of development, the two complement each other in agricultural domains while advancing the well-beings of their people. The complement is conducted through trade, exchange, collaboration and other means. As China's growth rate continues steadily at 10% and the U.S. is on the verge of economic recovery, it is critical that both sides enhance this already robust co-evolutionary relationship. A need exemplified by the fact that China is in an unprecedented demand for commodities, especially the food and agro-products, while the U.S. is in a unique position to materialize on opportunity. For example, forecasts on China's import of wheat and soybeans for 2004 are 4 and 19 million tons respectively, in contrast to 0.45 and 4.32 millions in 1999.

Standing in the way of this rosy outlook, however, are issues and concerns pertaining to food safety and the public health implications. The situation is exacerbated by a common fear and weariness at global scale of peoples, societies and governments on the prospect of natural spawn-off, accidental release or deliberate use of biological agents after 9-11. The current safeguard regimes, national, regional or international, prove to be ineffective in fending off emerging agents as is highlighted by the on-going mad cow disease and avian flu. Reactionary bans by countries have not stopped the spread of epidemics. As a result, all stakeholders suffer, especially the ones associated with the agro- and food sectors.

Six deficiencies are identified. They are: 1) no holistic systems framework for integrative assessment and handling of food-borne disease agents and cases; 2) major deficiency in traceability on food and agro-products; 3) lack of timely and informed communication among stakeholders; 4) resistance to be forthcoming by parties with high stakes (mainly industries); 5) insufficient proactive international collaboration; and 6) inadequate or black box disposal and recovery plans.

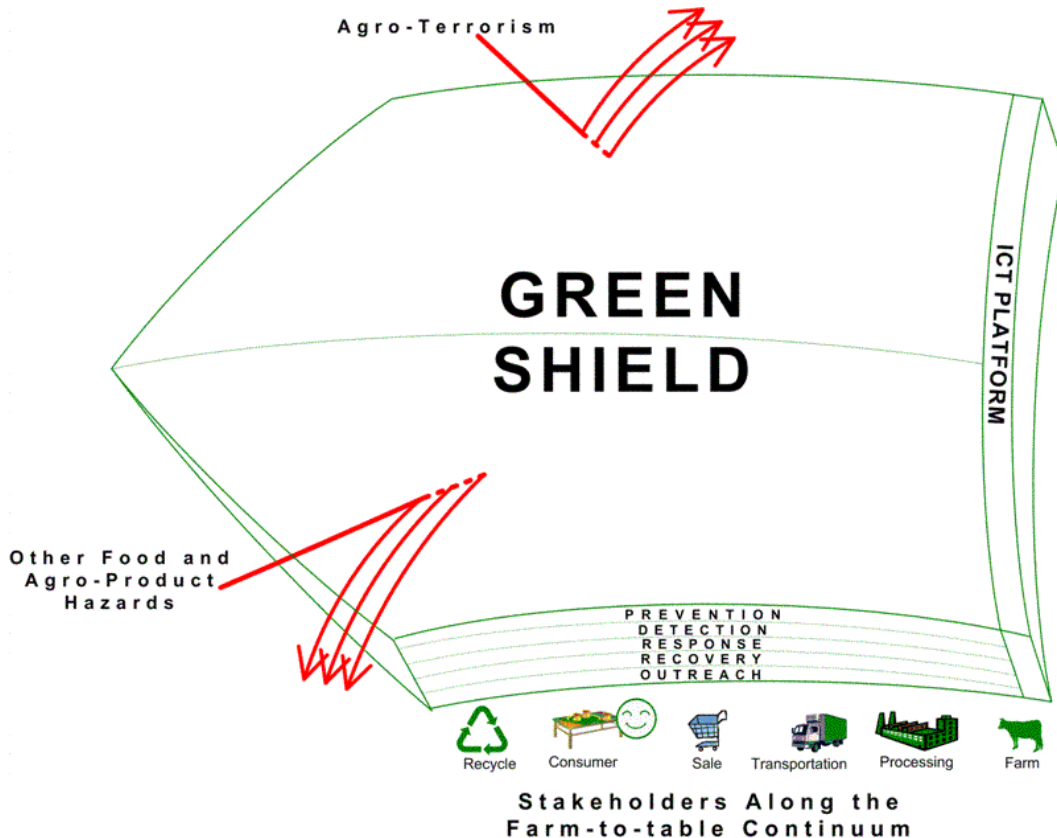
II. Green Shield: the solution that is beneficial to China, U.S. and the rest of the world

To best remedy the deficiencies, a proactive approach is necessary. We contend that the China and the U.S., being the two largest agricultural stakeholders, should come together to lead in developing a safeguard regime. We coin it the Green Shield. Starting as a bi-national endeavor, a mutually verifiable and entrusted certification program can be built into the regime to ensure the quality of the program. Figure 1 depicts the conceptual diagram of such a safeguard system.

The proposed Green Shield program will not only enhance the safety and security of food and agro-product supply chains on a farm-to-table continuum, it will also greatly expedite the flow of commodities within and between the two countries. As this new paradigm is being established, the rest of the world communities may partake in the

continuing enhancement of the regime. Eventually the Green Shield can be expected to evolve to a globally endorsed and enacted protective shield.

Figure 1. The conceptual diagram of the Green Shield; It has five layers of protection ranging from prevention to outreach; these layers are integrated on a common Information and Communication Technology (ICT) Platform



III. Parallel and On-going Efforts

Two major on-going efforts are of great relevance to the prospect of realizing the Green Shield envisioned in this White Paper. They are the Green Commodity Flow Systems Platform Technical Demonstration Initiative and the Food and Agro-product Safety and Traceability Project.

The Green Commodity Flow Systems Platform Technical Demonstration Initiative

In July 2003, the China-US Joint Secretariat for Science and Technology Collaboration in Agriculture and Social Development (the Joint Secretariat) was established in Beijing. It was set up in accordance with an MOU between the Chinese Ministry of Science and Technology (MOST) and the Texas A&M University System (TAMUS). The Joint Secretariat is in the process of developing an initiative on the Technical Demonstration of Green Commodity Flow Systems Platform for priority.

The purpose of this initiative is to accelerate the flow of safe and quality foods and other agro-products in China and between China and its trade partners through the means of science and technology,. The goal is to develop an internationally acceptable green

commodity flow systems platform. This platform operates to provide critical safety, quality and efficacy services to stakeholders along food and agro-product supply chains. These services include: consultation, training, planning, capacity building, monitoring, detection, testing, auditing, accreditation and certification in the following domains:

1. Environmental toxins and biological pathogens;
2. Hazard Analysis of Critical Control Points (HACPP);
3. Traceability that incorporates barcode, RFID and other technologies; and
4. Information technology and communication (ICT) platform, and inventory and distribution management

This initiative will be business-led, market-driven with government-policy and financial supports. The resulting platform will be open to the public on a competitive basis to provide third-party services to support the flow of green commodities. To facilitate the implementation, a Technical Advisory Board (TAB) is in the process of being set up. It will consist of selected experts, specialists and stakeholder representatives, primarily from China and the U.S. Under its guidance and supervision, a coalition of service providers will be organized to operate the platform to serve participating stakeholders.

Planned for kick-off in April or May 2004, \$5 millions of start-up funds are being raised through the coordination of China Rural Technology Development Center, an MOST-affiliated NGO. This initiative aims to provide green and safe foods and other agro-products for the 2008 Beijing Olympics and the 2010 Shanghai Expo.

The Food and Agro-product Safety and Traceability Project

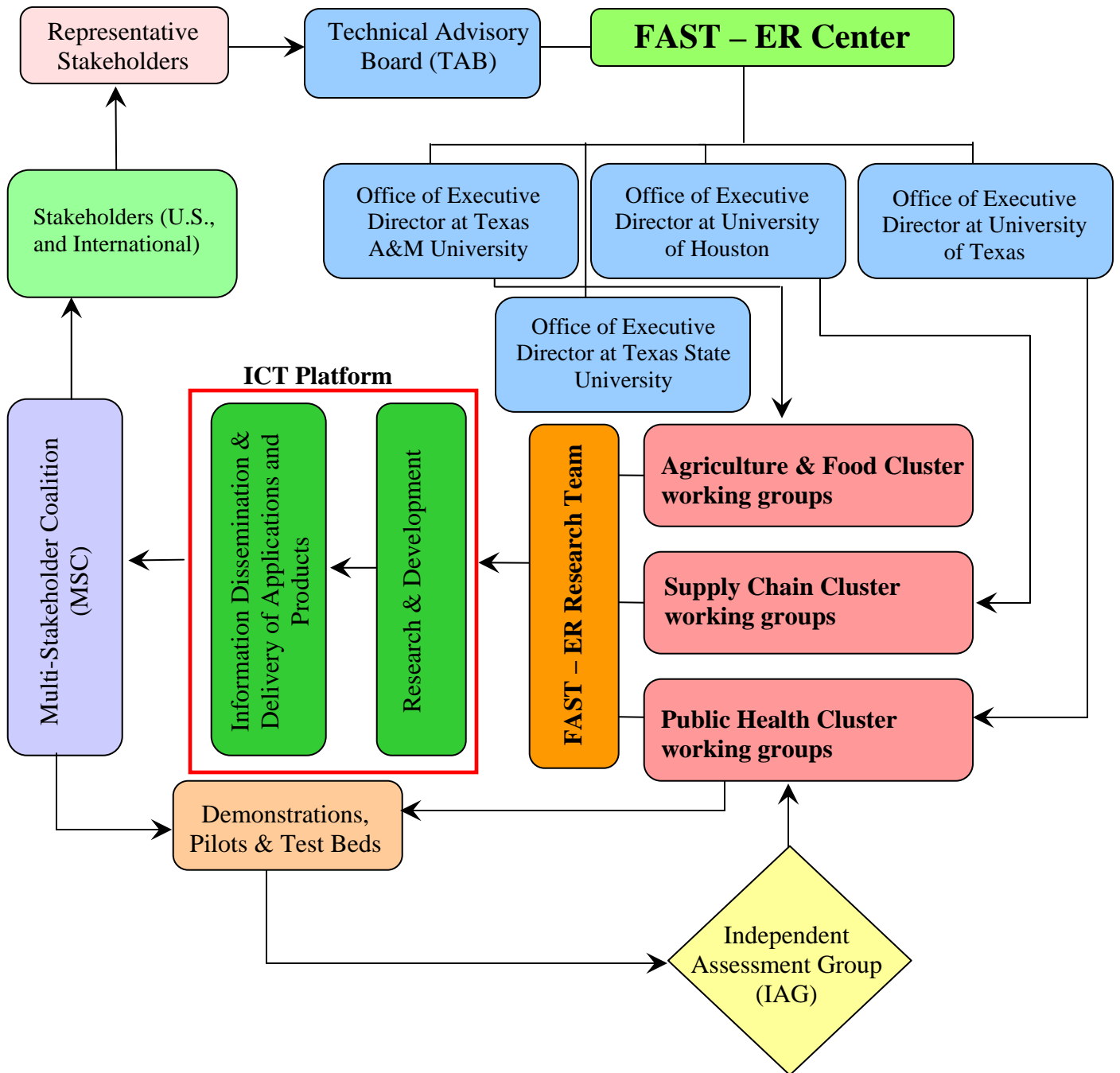
In February 2004, four state universities in Texas came together and submitted a joint proposal to the US Department of Homeland Security. It is titled “Establishing a Center of Excellence of Research for Food and Agro-product Safety and Traceability (FAST-ER Center) for the Development of Green Shield.” The four collaborators are Texas A&M University, University of Houston, University of Texas and Texas State University.

Two proposed foundation tasks are: 1) form and operate a FAST –ER Center infrastructure and, 2) develop and deploy a supporting ICT platform. In the framework of the center and the ICT platform, the team plans to engage in the development and deployment of systems products, solutions, packages, resources pools and expertise pools for each of the five layers of food supply defense system as envisioned by the Homeland Security Department. The five layers are: prevention, detection, response, recovery and outreach.

Main thrusts of the proposal are derived from the Green Commodity Flow Systems with adjustments deemed appropriate to meet the grantor’s requirements. For example, essence on the ideas of TAB and the stakeholder coalition is included in the conceptualization of the center. Enhanced are the incorporation of four offices of executive directors (OED) to coordinate pertinent working groups, and the setup of an Independent Assessment Group for objective evaluation of the research performance. Figure 2 depicts the structure and the lifecycle approach for A&D of the proposed center.

This proposal is pending with a total budget of \$15 millions for a project period of 3 years. The collaborators are currently contemplating joint pursuits of other funding opportunities, including with the USDA in the next Federal fiscal year in the fall.

Figure 2. Structure and Operation of FAST-ER Center and Its R&D Life Cycle



IV. Near Term Focus of Collaboration on Food and Agro-product Safety and Traceability under the China-US Working Committee in Natural Sciences

In light of the compatible nature of the two on-going and parallel projects, it will be useful for food safety related initiatives under the China-US Working Committee in Natural Sciences to be allied with them.

On this premise, the near term focus of pertinent work should include the following:

1. In conjunction with other roundtables of the International Conference on China-US Relations, the Food Safety Chair is to coordinate with interested parties to help set in motion the organizational task toward the early establishment of the China-US Working Committee in Natural Sciences;
2. As the Food Safety Roundtable has already established tractions on tangible projects and likely funding opportunities, the Chair is to take the lead to coordinate with interested parties to help develop and participate in the operating mechanism of the food safety component of the Working Committee. This is to be done by formalizing an appropriate team structure under the acronym of FAST or Food and Agro-product Safety and Traceability; candidate structures include, but not limited to: (FAST) task force, (FAST) subcommittee, or (FAST) development program; the Food Safety Chair is to lead and manage this team structure;
3. To be cohesive, the FAST team's efforts are to be synergic to the two projects described in Section III with a focus on the following tasks:
 - a. Under the umbrella of Green Shield, promote all pertinent activities and endeavors along the farm-to-table continuum and across the five layers of prevention, detection, response, recovery and outreach;
 - b. Promote the eventual establishment of a FAST-ER Center with equitable partnership arrangement; and
 - c. Promote the approach of lifecycle R&D, business orientation and multiple –stakeholder participation of all FAST initiatives;
4. The (FAST) team independently, and in coordination with other components of the Working Committee, is to proactively seek funding support from likely sponsors, including, but not limited to, Texas A&M University, China's Natural Science Foundation, USDA, FDA, private sectors and strategic philanthropies;
5. In anticipation of active involvement in the projects described in section III as they materialize, the FAST team is to ready itself with advanced preparations; the preparatory work includes, but is not limited to, continuing development and refinement of concept papers and project documentation pertaining to FAST framework; continued structuring and positioning of the managerial infrastructures such as TAB, service provider and stakeholder coalitions; and continued detailing of the specifications of methodologies and technologies conducive for the implementation of FAST initiatives; and
6. In addition to the anticipation of involvement in projects described in section III, the FAST team is to actively engage in the write-up of additional plans and proposals for the continuing pursuit of grants.