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Workshop Aims To Protect Asia-Pacific Region's Food Supply from Deliberate Contamination

By Linda Habenstreit

Since Sept. 11, 2001, the threat of food borne terrorism has emerged as an increasingly important issue facing the United States and other countries. Leading security experts have warned that food supplies present an attractive target for terrorism due to the open nature of the food and agriculture system from production through food manufacturing, processing, and distribution.

For example, ingredients used in food processing come from many sources, both domestic and foreign. When these ingredients are processed in large batches, biological, chemical, physical, or radiological contamination could be easily introduced and rapidly and widely distributed.



Attendees listen intently to food defense workshop presentations.

Photos by Lydia W. Smith, FAS Office of Capacity Building and Development

Food Defense, Food Security, and Food Safety Are Not Synonymous

While food safety, food security, and food defense are important issues in their own right, they are not synonymous. Food defense is the protection of food products from intentional contamination by biological, chemical, physical, or radiological agents.

Food safety is the protection of food products from unintentional contamination by biological or chemical agents. Food security, according to the FAO (Food and Agriculture Organization of the United Nations), means that all people, at all times, have access to sufficient, safe, and nutritious food to meet their dietary needs and preferences for an active, healthy life.

In addition, food products typically change hands numerous times along the supply chain. At each transition point, opportunity exists for deliberate contamination. Perishable food products present a special hazard. Because they are quickly distributed and consumed, large numbers of people could become ill before intentional contamination is detected.

APEC Members Work To Address Vulnerabilities

APEC (Asia-Pacific Economic Cooperation)—a forum of 21 economies on both sides of the Pacific—accounts

for about 40 percent of world population, almost 50 percent of world trade, nearly 60 percent of global gross domestic product and, by some measures, nearly 70 percent of world economic growth in recent years.

Fellow APEC members Australia, Brunei, Canada, Chile, China, Hong Kong, Indonesia, Japan, Malaysia, Mexico, New Zealand, Papua New Guinea, Peru, the Philippines, Russia, Singapore, South Korea, Chinese Taipei, Thailand, and Vietnam buy two-thirds of all U.S. exports and supply the United States with two-thirds of its imports. The APEC economies buy three-quarters of U.S. agricultural exports, making them important customers for U.S. farmers, ranchers, processors, and exporters.

Because APEC economies account for much of the world's agricultural trade, food borne terrorism threatens not only the health and economic security of APEC members, but the entire world.

United States Spearheads Workshop

With considerable expertise in addressing the security of the domestic food and agricultural supply chain and recognizing its global interconnectivity, the United States is working with international partners within APEC to build and enhance regional and global capacity to reduce the risk of food borne terrorism.

In November 2006, USDA, the U.S. Department of State and HHS (U.S. Department of Health and Human Services) sponsored a food borne terrorism prevention and mitigation workshop for APEC economies as a first step in broader, ongoing APEC work on food defense.

The goal of the workshop was to provide technical assistance and training to attendees from APEC economies



Alexander Arvizu, deputy chief of Mission, U.S. Embassy, Bangkok, speaks at workshop.

on defending against food borne terrorism. The workshop provided information on vulnerability assessment tools and participants shared strategies on how to mitigate risk of intentional acts of terrorism to the food supply.

USDA's Foreign Agricultural Service obtained funding for the workshop from the State Department and USDA's Emerging Markets Program, which helps improve market access and develop or promote U.S. agricultural exports through cost-sharing with eligible applicants.

USDA's Food Safety and Inspection Service and HHS' Food and Drug Administration provided faculty for the workshop and offered their expertise in conducting vulnerability assessments.

Food Defense Workshop for APEC Economies Held

On Nov. 1-3, 2006, the United States, along with co-host Thailand and co-sponsors Australia and Chile, held the first-ever, APEC-sanctioned workshop "Mitigating the Terrorist Threat to the APEC Food Supply" in Bangkok, Thailand, in support of the U.S.-initiated APEC Food Defense Initiative.

The workshop brought together policymakers, technical experts, and public- and private-sector stakeholders from 17 APEC economies, including



Private sector experts give their perspectives on food defense. Left to right: Dr. Chanchai Waimaleongora-ek, vice president, Charoen Pokphand Foods Public Company Ltd., Thailand; James A. McWhirter, senior security manager, Asia Pacific, Kraft Foods Singapore; and Jason Dale, director, Group Supply Chain, Fonterra Cooperative Group Ltd., New Zealand.

CARVER + Shock Method Assesses Food Sector Vulnerabilities

One strategy discussed at the workshop—the CARVER + Shock method—is a tool used by the military to prioritize offensive targets that has been adapted for the food sector. It allows the user to assess and determine the most vulnerable points in a system or infrastructure, much like an attacker would. The user can then focus resources on protecting these points.

CARVER is an acronym for the attributes used to evaluate the attractiveness of a target for attack:

Criticality—impact of an attack on public health and the economy

Accessibility—ability to physically enter and leave a target undetected

Recuperability—food system’s ability to recover from attack

Vulnerability—ease of attacking a target

Effect—amount of direct loss to a target from the attack, measured by loss of productivity

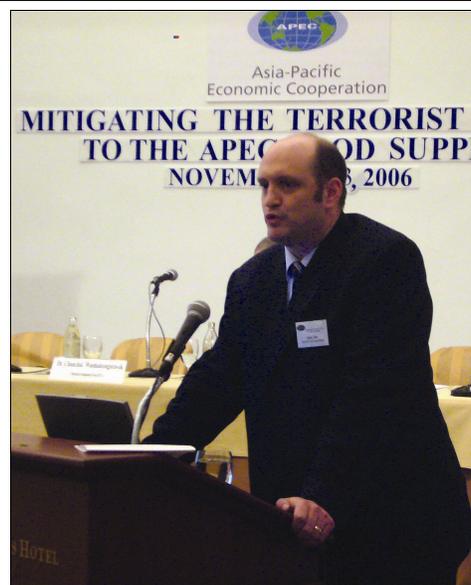
Recognizability—ease of identifying the target

A seventh attribute in the modified CARVER tool—**shock**—assesses the public health, economic, and psychological impact of an attack, or the shock value of a target.

Each point in a food processing system is ranked for each attribute according to its attractiveness on a scale from one to ten. Conditions associated with low attractiveness or low vulnerability are assigned low values, while conditions associated with high attractiveness or high vulnerability are assigned high values. The total is summed across the 10 attributes. Scoring the various elements of a food sector’s infrastructure for each of the CARVER + Shock attributes help identify where an attack on that infrastructure is most likely to occur.



Panelists at close of workshop. Left to right: Sri-anant Wanasen, researcher, National Center for Genetic Engineering and Biotechnology, Thailand; Dr. Warapa Mahakarncahnakul, lecturer, Department of Food Science and Technology, Kasetsart University, Thailand; Dr. Natalia Comella, U.S. Department of State; Isabelle Benoliel, principal advisor to European Commission director general; and Suboonya Hutangkabodee, senior advisor, Thailand Ministry of Public Health.



Jason Dale, director, Group Supply Chain, Fonterra Cooperative Group Ltd., provides his insights.

Australia, Chile, China, Indonesia, Japan, Korea, Malaysia, Mexico, New Zealand, Peru, Philippines, Russia, Singapore, Chinese Taipei, Thailand, the United States, and Vietnam.

Food defense experts shared strategies to prevent attacks and mitigate the impact of an attack on the food supply chain. Attendees participated in exercises using state-of-the-art prevention and mitigation techniques. Eight APEC economies provided overviews of their regulatory and oversight agencies, vulnerability assessment strategies, risk communication, and regulations.

Participants recommended that APEC economies:

- engage in open and transparent discussions in key government sectors, including agriculture, health, trade, domestic law enforcement, and intelligence, and
- encourage frequent collaboration between their public and private sectors and with developing and emerging APEC economies to build their capacity to reduce risk and mitigate the potential of a food borne terrorist attack.

At the Nov. 18-19, 2006, APEC Leaders' Meeting in Hanoi, Vietnam, the United States highlighted these food defense efforts. All 21 APEC leaders committed to continued work on protecting the food supply from deliberate contamination by developing APEC-supported best practices or recommendations.

More workshops and events on this topic are expected in the future. ■

For more information about the U.S. food defense initiative in APEC, contact Steven Beasley in the FAS Office of Capacity Building and Development. E-mail: Steven.Beasley@usda.gov

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