

# Preface

Countries and their relevant government agencies, industries, and defense organizations have now recognized that the protection from deliberate contamination of the entire food supply chain, by terrorists or criminals, is absolutely essential for the safe delivery of food and ultimate food security. The NATO Public Diplomacy Division Science for Peace and Security Section (SPS) sponsored an Advanced Research Workshop on food safety and security against terrorist act or natural disaster. The workshop served its purpose for scientists from a wide span of countries to set a foundation for dealing with the global issue of advancing food security and safety. The three main objectives of the workshop held April 13–15, 2010, in Cairo, Egypt, were the following:

1. Allow scientists and industry experts from various countries to make a critical assessment of existing knowledge on food security and safety as defense against terrorist attacks.
2. Develop a strategy to counter the risks against food supply from terrorist acts or natural disasters.
3. Identify directions for future research and approaches to strengthen prevention and responses to food terrorism.

Food Security, which can be defined as having access to sufficient and safe food supplies, can be threatened by contamination at every level of the supply chain from initial food production and distribution through to the consumption of the food. In the initial section of the workshop, challenges to food safety and security were addressed to define the scope of the problems all nations face and to set the stage for dealing with contamination of the food supply by either environmental causes or deliberate interventions aimed at impacting both the physical health of a population and the economic health of a country. Leading experts defined threats from microorganisms as well as chemical and radiological toxic contaminants. Therefore, the participants then presented a series of papers to discuss and define preventative measures and strategies to help participants and readers of this book build a framework to help nations cope with diverse challenges to the complex global food system. Measurement of impact of intentional contamination can be made with risk or threat modeling programs, and these models can also be used to test the effectiveness of various proposed interventions. Preparation for dealing with a crisis in the food supply from both

governmental and food industry perspectives was a major theme in several of the papers presented. Prevention of contamination is certainly a major goal of any food safety or food defense program, and common methodologies may be employed. This can occur once both industry and supporting governmental agriculture and regulatory agencies come to recognize both the scope of the problems and the emerging set of tools from advanced technologies available to detect problems at early stages and then to employ effective means to eliminate potential problems. The lessons learned from the deliberate contamination of food protein ingredients with melamine point out the need for all countries to develop the ability to have data bases for food ingredients and to have food producers and shippers develop systems to trace the path of food ingredients in the logistics chain. Participants in the workshop felt that investments do need to be made to strengthen the food/agriculture infrastructure by implementing food security plans that would use principles set up by hazard/risk analyses with critical control points. The reduction of waste and spoilage in the food distribution chain could largely offset implementation costs.

Several presentations in the final session of the workshop dealt with emerging technologies to improve food safety and security. Improved methodologies for both detection of contaminants and control or inactivation of contaminants may help improve both food safety and security, but implementation on a systematic basis will require concerted efforts on the part of both industry and governments with the assistance from international agencies to communicate pathways for international collaborations. This is required to facilitate the most appropriate actions that both developed and developing nations should take to move into a mode of crisis prevention as well as preparation for better responses to crises that will still emerge. There were several specific recommendations that emerged from the workshop:

1. To establish a “Center of Excellence for Food Safety” affiliated with a local university in the Mediterranean area with links to similar centers in the United States or NATO partner countries.
2. To create an active international networking body from academia, the food industry, and government agencies to support national food safety and defense planning and research. Some existing international professional societies working in conjunction with the World Health Organization and the United Nations Food and Agriculture Organization could facilitate such an undertaking by linking information technology resources.
3. To develop a strategy to increase the awareness of food protection and defense for the general populace as well as those in agriculture and the food industry with the help of those international agencies. It can be stated that some rather simple changes instituted at the local producer level can mitigate the need for more extensive changes higher up the food chain.

This workshop did set in place some means to consider for improving lines of communication among different countries by helping identify a number of different resources. The published proceedings will serve as one such resource, but the human resources brought together in this workshop also need to continue to reach out to others to grow both the awareness of the need to protect the food production

enterprise and also to communicate some of the tools useful to improve the delivery of safe food products around the world.

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