



**Asia-Pacific
Economic Cooperation**

**Work of Research of Project of
“Enhanced Capacity Building for Food Safety Risk
Assessment in Asia-Pacific”**

P. R. China

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Produced by

Beijing Bionovo Medicine Development Co.

6F,Block C,TianLaixuan Mansion, No. 39 North Shuangliu Street,
Chaoyang District, Beijing, P.R.China,

Tel: (8610) 65773066-212

Email: caolixia2012@163.com

For

Asia Pacific Economic Cooperation Secretariat

35 Heng Mui Keng Terrace

Singapore 119616

Tel: (65)68919 600

Fax: (65)68919 690

Email: info@apec.org

Website: www.apec.org

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I. Background

Food safety is not only a vital public health issue but also a global priority that needs to be addressed. Much of food safety problems can be traced to how we achieved gains in food production over the past few decades. It is an important issue, and equally important that of the food quantity and access related issues, that hinder achieving food security for millions in the world in general and the Asia-Pacific in specific. Not like some developed economies in Europe and North America, the risk assessment capacity, assessment method and institutional setup among the Asia-Pacific counterparts, especially the developing ones varied tremendously. Most developing economies in the Asia-Pacific region severely lack the capacity to develop and implement safety standards and regulations. This is indicated by the fact that only 34% of developing economies have participated in the Codex Alimentarius Commission meetings, that is 10% less than the participation level from developed economies.

The 2007 APEC Leaders' Declaration agreed to "develop a more robust approach to strengthening food and consumer product safety standards, using a scientific risk-based approach". Meanwhile, development of risk based food control systems, technical skills and human resource capacity in risk assessment, information-sharing and communication networks are the priority areas of APEC Food Safety Cooperation Forum. Economies in Europe and North America, the risk assessment capacity, assessment method and institutional setup among the Asia-Pacific counterparts, especially the developing ones varied tremendously. Most developing economies in the Asia-Pacific region severely lack the capacity to develop and implement safety standards and regulations. The proposed project seeks to establish a long-term and stable information exchange mechanism in food safety risk surveillance, risk assessment and risk communication, to promote the capacity of Asia-Pacific economies in development/revision of food safety standards and supervisions, to establish a harmonized and effective food safety risk control mechanism and to provide technical support for the food trading and economic development in Asia-Pacific region.

With the concerns mentioned above, the China National Center for Food Safety Risk Assessment (CFSA) has applied the Project of "Enhanced Capacity Building for Food Safety Risk Assessment in Asia-Pacific (S ATC 02 12A)" in 2012. The main project objectives include:

- (1) To share the experiences and lessons in the field of food safety risk assessment among APEC and non-APEC economies.
- (2) To identify strengths and weaknesses of various APEC economies on food safety risk assessments system and assess their needs.
- (3) To build the regional network for food safety risk assessment and information sharing among APEC economies.

- (4) To establish a long term regional multilateral cooperation and exchange mechanism for food safety risk assessment in APEC economies.

To successfully reach the objectives of the project, one of the key works for this project was to undertake relevant academic research and shared the outcomes of the research at the “International Workshop on Food Safety Risk Assessment” held in September in China.

Regarding to the work of research, a RFP approach has been applied for seeking the most apriority contactor. Three bidders have been invited by the PO to compete for the contract of research during 3-7 September 2012. Each bidder has submitted their schedule 2 of RFP with proposal and relevant CVs before 7 September 2012. The evaluation has been given by the PO to each bidder referring to the selection criteria approved by APEC on the RFP. According to the thoroughly evaluation of PO, the Beijing Bionovo Medicine Development Co. China has been chosen as the contractor for the contract of research. According to the contract, Beijing Bionovo Medicine Development Co. has already completed the work as followed:

- (1) Completed a questionnaire for APEC economies.
- (2) Completed an analysis report on “Status of Capacity building on food safety risk surveillance, assessment, communication and standard development among APEC economies”.
- (3) Completed an analysis report on “Research on the Development of Food Safety Risk Assessment in China”.
- (4) Completed the training demand assessment report before the Symposium.
- (5) Completed the training evaluation report during the Symposium.
- (6) Completed the follow up evaluation report after the Symposium.

II. Analysis report on “Status of Capacity building on food safety risk surveillance, assessment, communication and standard development among APEC economies”

A specifically ddesigned questionnaire on “status of Capacity building on food safety risk surveillance, assessment, communication and standard development among APEC economies” had been sent to each of the APEC Economies Liaison Office by email. Out of a purpose of investigating capacity building, the survey falls into several categories including food safety supervision system, food safety risk monitoring, food safety risk assessment and food safety standardization capacity, involving the law basis for food safety, management departments, personnel allocation, funding, the number of technical institutes, the nature and ways of working, main existing problems in the work.

Total of 21 survey forms were distributed, and 10 economies sent back the filled

forms, including Australia; Canada; China; Hong Kong, China; Indonesia; Japan; the Philippines; Russia; Thailand; and Viet Nam. The key findings of the study include:

- (1) The 10 economies all promulgate and adopt supervision laws, laying a legal basis for the supervision of food safety. The number of government agencies involved in food safety supervision varies among different economies. Each economy adopts its unique model of supervision system to serve for supervising food safety within its economy.
- (2) The 10 economies have all established the system of monitoring food safety risk within their economies.
- (3) Except the Philippines and Russia, the other eight economies have established the network of risk monitoring technology institutes for food safety.
- (4) All the economies excluding the Philippines have reference labs.
- (5) All the 10 economies have requirements by law to design monitoring plans. Indonesia; the Philippines; Viet Nam don't have government-designed monitoring plans. The other seven economies, excluding Canada and Hong Kong, China, all have one government agency responsible for planning.
- (6) "Insufficient funding" is the key issues Facing Food Safety Risk Monitoring in the economies.
- (7) Total of nine economies, Thailand excluded, all have requirement by law to make food safety risk assessment, constituting a legal foundation for related departments to carry out food safety risk assessment.
- (8) With regards to the number of food safety risk assessment reports completed by the institutes and the funding situation in 2011, most of the economies didn't respond in the survey, which is similar to the part of risk monitoring. We can guess that most of the economies are also lagging behind in terms of assessment resources management, and it is necessary to collect, sort and analyze the data related to assessment in the future.
- (9) The governments or local regulatory agencies in most of the economies are involved in food safety technical regulations or standards making, with the data of risk monitoring and risk assessment being applied in standards making, and CODEX is making impacts.

III. Analysis report on "Research on the Development of Food Safety Risk Assessment in China"

The key findings of the study include:

- (1) Since the Food Safety Law has been enforced formally on June 1st, 2009, food safety legal construction in China has been continuously perfected and the food safety supervision system has been gradually rationalized, the structure which is coordinated comprehensively by the Food Safety Committee of the

State Council, assumed the overall responsibility by the local governments, worked in division cooperation by the other departments is formed. 6 departments have different responsibilities during the food safety chain.

- (2) Since the Food Safety Law has been enforced and promulgated, according to the relevant regulations, the Chinese government has formed a National Expert Committee of Food Safety Risk Assessment which is composed of the 42 experts from medicine, agriculture, food, nutrition fields, and has established the China National Center for Food Safety Risk Assessment (CFSA) in October, 2011. Otherwise, MOH formulated and promulgated Food Safety Risk Surveillance Management Regulation, Food Safety Risk Assessment Management Regulation, Administrative Measures on Qualification Affirmation of Food Inspection Agencies, Food Inspected Work Specification and other normative documents successively with the other departments, established the consultation mechanism for the national food safety risk surveillance, printed and distributed the constitution of the national food safety risk assessment experts committee.
- (3) According to the related regulation of Food Safety Law, MOH has carried out the formulation and the amendment of food safety standard in conjunction with the relevant departments, released the “Twelfth Five-Year Plan on Food Safety National Standard” ,and cleared the guiding ideology ,basic principles , main goal , work task of the food safety standard work during the “Twelfth Five-Year”. MOH has published the national and local administrative regulation of food safety standards, and the record regulation of the enterprise standard. The food standard system which is suitable to China has been established preliminarily. In 2010, China has established the National Food Safety Standard Review Committee that contains 10 committees which composed of food contaminant, microbe, food addictive, pesticide residues, veterinary drug residues, and the adjudication committee with 350 authoritative experts from medicine, agriculture, food nutrition discipline fields.
- (4) In accordance with the situation that the weakness of the national food safety risk communication work, MOH has pushed the provinces to implement the and established the regulation of the emergency co-ordinators of food safety information, so that it can strengthen the food safety information communications and coordination, and standard the management of information announcement. MOH also distributed 100,000 "propagandize folded-sheets of food safety series" which made with the concerned departments, and held a exchange seminar named “understand the food additives in scientific way" which invited journalists, consumers and

experts to communicate face-to-face and response to community concerns timely.

- (5) Despite the remarkable progress the Chinese food safety supervision system has made in the recent years, there are still certain challenges faced by the system, such as the entire food safety work is still weak and still not well meeting with the demand of the population. Especially the intensive level food industry is still relatively low. In contrast with the developed countries, the food industry technology level in China is still low. There is a great gap on the legal awareness of some of the food producers and traders. The awareness of integrity and social responsibility awareness has to be raised. The food safety regulatory and technical capacity is still relatively weak, food safety hazard or systemic risk is not completely eliminated. We are faced with both pathogenic microorganisms, contaminants, additives, animal and plant toxins caused by traditional food safety issues, but also to respond to the law to add non-food substances, mixed to make fake poisoning crime, false propaganda, media hype triggered by non-traditional food safety incident.

IV. Training demand assessment report before the Symposium

To assess the capacity building needs on food safety risk assessment between 21 economies in Asia-Pacific region, questionnaires about survey on the capacity of food safety risk surveillance, assessment and standards development in Asia-Pacific Region were delivered to 21 APEC economies before the “International Workshop on Food Safety Risk Assessment”. Finally, 10 economies including Australia; Canada; China; Hong Kong, China; Indonesia; Japan; The Philippines; Russia; Thailand; and Viet Nam responded the questionnaire. From the survey, we observed that for developed economies, like Australia and Canada, the main challenge for the development of food safety standards might be the financial support or ability to keep up with emerging issues, while for developing economies, like China and Indonesia, capacity building are still big challenge for them.

V. Training evaluation report during the Symposium

There were totally 12 close questions and 5 open questions offered to symposium participants to survey for the evaluations for the content and organizations of this symposium and the demand for further food safety training programmes. There were totally 147 questionnaires offered to symposium participants, 75.5% of them (111) was taken back during the meeting. Therefore, the results could be representative for all participants. From the survey we conducted in the symposium, the participants showed an overall positive feedback to each aspect offered in this meeting. The symposium provided an efficient and qualified platform to let participants from different countries to exchange their experiences in food safety risk assessment, risk communications, standards formulations and revisions, supervision and management. We believed it would promote the capacity building in food safety

working areas for all participants, especially for those from APEC economies.

VI. Follow up evaluation report after the Symposium

To evaluate the long term effect of the “International Workshop on Food Safety Risk Assessment” held in September 27-28 in Beijing on capacity building for food safety risk assessment in Asia-Pacific Region, we made up a questionnaire and sent 100 electronic copies to participants from both 8 economies and China. By November 15, 2012, there were only 25 questionnaires returned and one of them came from Viet Nam. Based on the questionnaires available, we had the feedbacks in the following questions.

With 11 feedback questions from 25 responders, we thought there was positive effect of symposium for promoting capacities construction for food safety risk assessment among APEC economies, especially for China. The symposium helped participants to understand the food safety situations in the right way, transferred the right knowledge of food safety risk analysis, provided an efficient platform for APEC economies to exchange their food safety information and experiences and most important of all, based on what we knew from the questionnaires, the participants thought it was valuable to hold this symposium in the regular way.

Appendix:

Appendix 1-Analysis report on “Status of Capacity building on food safety risk surveillance, assessment, communication and standard development among APEC economies” and questionnaire

Appendix 2-Analysis report on “Research on the Development of Food Safety Risk Assessment in China”

Appendix 3-Need Assessment Report on Capacity Building of Food Safety Risk Assessment from APEC Economies

Appendix 4-Evaluation report for International Symposium for Food Safety Risk Assessment

Appendix 5-Report for Follow-up Survey for International Symposium on Food Safety Risk Assessment

Appendix 1: Analysis Report of the Status of Capacity Building on Food Safety Risk Surveillance, Assessment, Communication and Standard Development among APEC Economies

In order to learn about the status quo and needs of the risk monitoring, assessment and standardization capacity of food safety in the Asia Pacific region and continue to strengthen the food safety risk assessment in the region, the APEC grants support to the project of strengthening the capacity building of the Asia Pacific risk assessment of food safety (APEC S ATC 01 12A).

I. Organization Introduction

Designed by the organizer China National Center for Food Safety Risk Assessment, a survey form is sent to each of the APEC Economies Liaison Office by email. Out of a purpose of investigating capacity building, the survey falls into several categories including food safety supervision system, food safety risk monitoring, food safety risk assessment and food safety standardization capacity, involving the law basis for food safety, management departments, personnel allocation, funding, the number of technical institutes, the nature and ways of working, main existing problems in the work. (Please refer to attachment for details)

II. Survey Findings

A total of 21 survey forms were distributed, and ten economies sent back the filled forms, including Australia; Canada; China; Hong Kong, China; Indonesia; Japan; the Philippines; Russia; Thailand; and Viet Nam.

Analysis was made to the gathered information, and specific results are as follows:

1. Food Safety Supervision System

Table 1 Food Safety Supervision System Overview

Economies	Supervision Laws	The number of Government Agencies
Australia	Y	1
Canada	Y	3
China	Y	7
Hong Kong, China	Y	2
Indonesia	Y	7
Japan	Y	4
The Philippines	Y	2
Russia	Y	2
Thailand	Y	2
Viet Nam	Y	3

As indicated by Table 1, the ten economies all promulgate and adopt supervision laws, laying a legal basis for the supervision of food safety.

The number of government agencies involved in food safety supervision varies among different economies. There is one government agency in charge in Australia, two responsible government agencies in Hong Kong, China; the Philippines; Russia and Thailand, three in Canada and Viet Nam, four in Japan, and seven in Indonesia and China. Each economy adopts its unique model of supervision system to serve for supervising food safety within its economy.

2. Food Safety Risk Monitoring

(1) Food Safety Risk Monitoring System

Table 2 Types of Food Safety Risk Monitoring System

Economies	Foodborne illness report systems	Foodborne illness active surveillance systems	Food contamination surveillance systems	All of the above	Others
Australia	/	/	/	Y	/
Canada	/	/	/	Y	total diet study
China	/	/	/	Y	/
Hong Kong, China	/	/	/	Y	/
Indonesia	/	/	/	Y	/
Japan	Y	/	Y	/	Surveillance of pathogenic microorganisms in livestock farms and vegetable farms
The	Y	/	/	/	/

Philippines

Russia	/	/	/	Y	/
Thailand	/	/	/	Y	/
Viet Nam	Y	/	Y	/	/

As indicated by Table 2 , the ten economies have all established the system of monitoring food safety risk within their economies. Seven economies including Australia; Canada; China; Hong Kong, China; Indonesia; Russia and Thailand have established the reporting and active monitoring systems for pollutants and foodborne illness. Japan; the Philippines and Viet Nam have yet to establish the proactive monitoring system for foodborne illness. The Philippines only has the reporting system for foodborne illness, and there is no pollutant monitoring system. Canada and China have carried out research on overall diet, laying a statistical basis for assessing food safety risk.

(2) Food Safety Risk Monitoring Institutes

Table 3 Food Safety Risk Monitoring Institutes Overview

Economies	Monitoring Technology Institutes		the way of appointing monitoring technology institutes		
	Number	Network	Sate-designated	Local government-designated	Others
Australia	1	Y	Y	/	/
Canada	3	Y	Y	Y	/
China	1500	Y	Y	Y	/
Hong Kong, China	2	Y	Y	/	/
Indonesia	5	Y	Y	Y	/
Japan	2	Y	Y	/	Tender system
The Philippines	1	N	Y	/	/
Russia	5	/	Y	/	/
Thailand	/	Y	Y	/	/
Viet Nam	3	Y	Y	/	/

As indicated by Table 3, all the monitoring technology institutes are appointed by the nations/city. In addition, Japan; China and Indonesia have the appointments by local governments as well. Tender system is practiced in Japan.

Except the Philippines and Russia, the other eight economies have established the

network of risk monitoring technology institutes for food safety. In terms of the number of monitoring technology institutes, China has the largest number of 15,000, while Indonesia and Russia have five respectively; Canada and Viet Nam each has three; Hong Kong, China and Japan, two; Australia and the Philippines, one.

(3) Reference Labs System Overview

According to Table 4, all the economies excluding the Philippines have reference labs. The reference labs in Australia; China; Hong Kong, China; Russia; and Viet Nam undertakes tasks in methods designing, inter-section comparison, emergency technology support, institute quality evaluation, technical training etc. Canada and Indonesia carry method designing, inter-section comparison, emergency technology support, and institute quality evaluation. Canada carries out methods designing, institute quality evaluation and technical training. Japan only conducts inter-section comparison among government labs.

Table 4 Reference Lab Overview

Economies	Reference Lab	Annual undertakings					
		Methods Designing	Inter-section Comparison	Emergency Technology Support	Institute Quality Evaluation	Technical Training	Others
Australia	Y	Y	Y	Y	Y	Y	/
Canada	Y	Y	Y	Y	Y	/	/
China	Y	Y	Y	Y	Y	Y	/
Hong Kong, China	Y	Y	Y	Y	Y	Y	/
Indonesia	Y	Y	Y	Y	Y	/	/
The Philippines	N	/	/	/	/	/	/
Russia	Y	Y	Y	Y	Y	Y	/
Thailand	Y	Y	/	/	Y	Y	/
Viet Nam	Y	Y	Y	Y	Y	Y	/
Japan	Y	/	Y	/	/	/	Analysis for the government

(4) Monitoring Plan and Implementation

Table 5 Food Safety Risk Monitoring Plan

Economies	Legal Basis	State/City Food Safety Risk Monitoring Plan	
		Monitoring Plan	Designing Agencies
Australia	Y	Y	Department of Health FSANZ
Canada	Y	Y	Department of Health, Canadian food

			inspection agency
China	Y	Y	MOH
Hong Kong, China	Y	Y	CFS、CHP
Indonesia	Y	N	/
Japan	Y	Y	MAFF
The Philippines	Y	N	/
Russia	Y	Y	Ministry of Agriculture
Thailand	Y	Y	Ministry of Public Health
Viet Nam	Y	N	/

As indicated by Table 5 , all the ten economies have requirements by law to design monitoring plans. Indonesia; the Philippines; Viet Nam don't have government-designed monitoring plans. The other seven economies, excluding Canada and Hong Kong China, all have one government agency responsible for planning.

As indicated by Table 6, Australia; China; Hong Kong, China; and Japan provided the data related to personnel and funding inputs, while the majority hasn't shared the figure. Assumingly, most of the economies are lagging behind in terms of monitoring resource management.

Table 6 Food Safety Risk Monitoring Overview			
Economies	Number of Technicians	2011 Food Safety Risk Monitoring	
		Funding (in U.S.10,000 dollars)	Sample (unit/1000 people)
Australia	100	A\$ 500k	Unknown
Canada	not available	not available	not available
China	2000	3000	0.1
Hong Kong, China	300	3800	9
Indonesia	unknown	unknown	unknown
Japan	100	400	/
The Philippines	/	/	/
Russia	>1000	>150 Rbls	166000 in total
Thailand	>200	Unknown	Unknown
Viet Nam	/	Unknown	Unknown

Table 7 Quality Control of Food Safety Risk Monitoring Institutes

Economies	Uniform Allocation of Standard Substance or Quality Control Materials	Quality Evaluation Made	Computerized Data Management
Australia	Y	Y	Y
Canada	Y	Y	Y
China	Y	Y	Y
Hong Kong, China	Y	Y	Y
Indonesia	N	N	Y
Japan	Y	Y	Y
The Philippines	/	/	/
Russia	Y	Y	Y
Thailand	Y	N	Y
Viet Nam	N	Y	Y

As indicated by Table 7, most of the economies have quality guarantee measures in place to assess the monitoring data. Except the Philippines, the other nine economies have adopted computer-based data management system. Except the Philippines, Indonesia and Thailand, the others including Australia; Canada; China; Hong Kong China; Japan; Russia and Viet Nam have quality assessment and control of monitoring institutes. Except the Philippines; Indonesia and Viet Nam, other economies including Australia; Canada; China; Hong Kong China; Japan; Russia and Thailand distribute standard substance or quality control products on a uniform basis.

(5) Key Issues Facing Food Safety Risk Monitoring

From Table 8, we see that Hong Kong China has not raised any issue.

“Insufficient funding” is the issue in seven economies, excluding Canada; Hong Kong China and Japan.

Table 8 Key Issues of Food Safety Risk Monitoring Capacity								
Economies	Insufficient legal foundation	Unclear roles and responsibilities of technical institutes	Insufficient capability	Insufficient professional team	Insufficient equipment input	Insufficient funding	Insufficient Roles for Reference Labs	Others
Australia	/	/	/	/	/	Y	/	/
Canada	/	/	/	/	/	/	/	Y
China	/	/	/	Y	Y	Y	Y	/
Hong Kong, China	/	/	/	/	/	/	/	/

Indonesia	Y	/	Y	Y	Y	Y	Y	/
Japan	/	/	/	Y	/		Y	/
The Philippines	/	/	Y	Y	Y	Y	Y	/
Russia	Y	/	/	/	Y	Y	/	/
Thailand	/	/	/	/	/	Y	/	/
Viet Nam	Y	Y	Y	Y	Y	Y	Y	/

Five economies including China; Indonesia; Japan; the Philippines and Viet Nam choose “insufficient professional team” and “insufficient roles for reference labs.”

China; Indonesia; Russia; the Philippines and Viet Nam choose “insufficient equipment input.”

Indonesia; the Philippines and Viet Nam choose “insufficient capabilities.”

Indonesia, Russia and Viet Nam choose “insufficient legal foundation.”

Viet Nam is the only economy to choose “unclear roles and responsibilities of monitoring technical institutes.”

In Summary, most of the economies have abided the law to establish risk monitoring network systems for food safety with government-designed monitoring plans, reference labs and quality evaluation system, which guarantees to some extent the smooth implementation of risk monitoring. However, more efforts are to be strengthened in terms of personnel and funding inputs, as well as improving working capabilities to better do the job.

3. Food Safety Risk Assessment

(1) Food Safety Risk Assessment Overview

According to Table 9, a total of nine economies, Thailand excluded, all have requirement by law to make food safety risk assessment, constituting a legal foundation for related departments to carry out food safety risk assessment. Excluding Japan and the Philippines, the other eight economies all have established nationwide network of food safety risk assessment institutes or have representative networks. Out of the ten economies, Indonesia is the only economy that has not worked out a prioritized assessment plan for food safety risk.

Table 9 Food Safety Risk Assessment System Building

Economies	Legal Foundation	Assessment Institute Network	Prioritized Assessment Plan
Australia	Y	Y	Y

Canada	Y	Y	Y
China	Y	Y	Y
Hong Kong, China	Y	Y	Y
Indonesia	Y	Y	N
Japan	Y	N	Y
The Philippines	N	N	Y
Russia	Y	Y	Y
Thailand	Y	Y	Y
Viet Nam	Y	Y	Y

(2) Overview of Food Safety Risk Assessment Institutes

Table 10 Overview of Food Safety Risk Assessment Institutes

Economies	Number	Membership Departments	Specialized Institutes for Risk Communications
Australia	1	FSANZ、 MOH	Y
Canada	1	MOH	Y
China	1	MOH	Y
Hong Kong, China	1	Centre for food safety	Y
Indonesia	5	government	N
Japan	1	Cabinet office	N
The Philippines	0	/	/
Russia	/	/	N
Thailand	2	Ministry of Public Health & Ministry of Agriculture and Cooperatives	N
Viet Nam	3	Ministry of Health, Ministry of Agriculture and Rural Development and Ministry of Industry and Trade	Y

As indicated by Table 10, Russia did not provide data. All the other nine economies all have varying number of State/City food safety risk assessment institutes. There is no such risk assessment institute in the Philippines, one in Australia; Canada; China and Hong Kong China respectively, two in Thailand, three in Viet Nam, and five in Indonesia. Due to different management models in each economy, the institutes belong to different government agencies. In addition, Australia; Canada; China and Hong Kong China have established specialized risk communications institutes.

Table 11 Food Safety Risk Assessment

Economies	Institute Feature		2011 Working Performance	
	Specialized Institute	Comprehensive Institute	Number of Reports Completed	Funding (in US\$10,000)
Australia	/	Y	20	1000
Canada	/	Y	not available	not available
China	/	Y	/	/
Hong Kong, China	/	Y	6	353
Indonesia	/	Y	unknown	/
Japan	/	Y	/	/
The Philippines	/	/	/	/
Russia	/	/	/	/
Thailand	/	/	>5	unable to estimate
Viet Nam	Y	Y	unknown	unknown

As indicated by Table 11 ,while Russia did not provide data and the Philippines has no risk evaluation institutes, only Viet Nam out of the other eight economies has specialized institute for food safety risk assessment, while the institutes in most of the economies fall into the category of comprehensive institutes.

With regards to the number of food safety risk assessment reports completed by the institutes and the funding situation in 2011, most of the economies didn't respond in the survey, which is similar to the part of risk monitoring. We can guess that most of the economies are also lagging behind in terms of assessment resources management, and it is necessary to collect, sort and analyze the data related to assessment in the future.

(3) Major Issues Facing Food Safety Risk Assessment

The five economies of China; Indonesia; Japan; the Philippines and Viet Nam name "insufficient professional team" as a major issue.

In addition, the four economies of Indonesia; Japan; the Philippines and Viet Nam choose "insufficient capacity of emergency assessment."

The Philippines; Thailand and Viet Nam choose "unclear definition of the roles of institutes."

Indonesia; the Philippines and Viet Nam choose "insufficient database backup support."

The Philippines is the only one to choose “insufficient legal foundation.”

Table 12 Major Issues of Food Safety Risk Assessment

Economies	Insufficient legal foundation	Unclear roles of institutes	Insufficient professional team	Insufficient funding	Insufficient database backup	Insufficient emergency assessment	Others
Australia	/	/	/	Y	/	/	/
Canada	/	/	/	/	/	/	Y
China	/	/	Y	Y	/	/	/
Hong Kong, China	/	/	/	/	/	/	/
Indonesia	/	/	Y	Y	Y	Y	/
Japan	/	/	Y	/	/	Y	/
The Philippines	Y	Y	Y	Y	Y	Y	/
Russia	/	/	/	/	/	/	/
Thailand	/	Y	/	/	/	/	/
Viet Nam	/	Y	Y	Y	Y	Y	/

In summary ,most of the economies have established relevant network of food safety assessment institutes as required by law, and about half of the economies have specialized risk communications institutes, which have ensured to some extent the smooth implementation of the work of risk assessment. However, more efforts are needed in terms of personnel and funding inputs to further improve the performance.

4. Food Safety Standardization Overview

(1) Food Safety Technical Regulations or Standards Making Institutes

Table 13 Food Safety Standards Making Institutes

Economies	Personnel involved	2011 Funding (in US\$10,000)	Whether local government or local regulatory agency involved	Whether technical regulation making institutes and risk assessment institutes are independent
Australia	130	1800	Y	N
Canada	not available	not available	Y	N
China	/	120	Y	N
Hong Kong,	35	unknown	N	N

China				
Indonesia	unknown	/	Y	N
Japan	20	/	N	Y
The Philippines	unknown	unknown	Y	N
Russia	/	/	/	/
Thailand	/	/	Y	N
Viet Nam	unknown	unknown	N	Y

As indicated by Table 13, local governments or local regulatory agencies are involved in making food safety technical regulations or standards in Australia; Canada; China; Indonesia; the Philippines and Thailand. On the front of independence of food safety technical regulation making institutes and food safety risk assessment institutes, Russia didn't provide data while only Japan and Viet Nam out of the other nine economies have such independent institutes.

In terms of the number of personnel and funding, Australia; China; Hong Kong, China; and Japan provided partial statistics, while most of the economies didn't give estimations. It is assumed that most of the economies are lagging behind in terms of resources management of standards making, and more efforts are needed in collecting, sorting and analyzing relevant data in this regard.

(2) Food Safety Technical Regulations or Standards System

Table14 Overview of Content Making for Food Standardization Similar to CODEX in Food Safety Control

Economies	A part of regulations		Independent from regulations and made by specialized industrial institutes
	Made by government agencies	Made by designated special technical institutes	
Australia	Y	/	/
Canada	Y	/	/
China	/	/	/
Hong Kong, China	Y	/	/
Indonesia	Y	/	/
Japan	Y	/	/
The Philippines	Y	/	/
Russia	/	/	/

Thailand	Y	/	/
Viet Nam	Y	/	/

As indicated by Table 14 , the content of food standards similar to CODEX involved in food safety controlling system is part of the regulations in the nine economies, Russia excluded as it didn't provide statistics. China designates specialized technical institutes to make the contents, while the others rely on government agencies in charge to make the contents directly.

Table 15 Standards Making for Food Quality				
Economies	A part of regulations		Independent from regulations and made by specialized industrial institutes	No regulation or standards, subject to industry self-management
	Made by government agencies	Made by government agencies		
Australia	/	/	Y	Y
Canada	Y	/	/	/
China	/	Y	/	/
Hong Kong, China	Y	/	/	/
Indonesia	Y	/	/	/
Japan	Y	/	/	/
The Philippines	Y	/	/	/
Russia	/	/	/	/
Thailand	Y	/	/	/
Viet Nam	Y	/	/	/

As indicated by Table 15, Russia provided no statistics. In the other nine economies, the standards for food quality are independent from regulations in Australia and it is made by industry institutes, or without regulations or standards, thus subject to industry self-management. The standards in other economies are all part of the regulations, and in China, the standards making is done by government-designated specialized technical institutes, while the others are done by government agencies in charge directly.

(3) Food Safety Technical Regulations or Standards Making

Table 16 Data of Risk Monitoring Applied in Food Safety Technical Regulations or Standards

Making			
Economies	Complete Utilization	Partial Utilization	No Utilization
Australia	Y	/	/
Canada	Y	/	/
China	/	Y	/
Hong Kong, China	Y	/	/
Indonesia	/	Y	/
Japan	/	Y	/
The Philippines	Y	/	/
Russia	/	/	/
Thailand	/	Y	/
Viet Nam	/	Y	/

As indicated by Table 16, Australia; Canada; Hong Kong, China; and the Philippines fully utilized the data of risk monitoring in making food safety technical regulations or standards while China; Indonesia; Japan; Thailand and Viet Nam only partially utilized the data of risk monitoring. Russia provided no data.

Table 17 Risk Assessment Results Applied in Food Safety Technical Regulations or Standards

Making			
Economies	Full Reference	Partial Reference	No Reference
Australia	Y	/	/
Canada	Y	/	/
China	/	Y	/
Hong Kong, China	Y	/	/
Indonesia	/	Y	/
Japan	Y	/	/
The Philippines	/	/	NO DATA
Russia	/	/	/
Thailand	Y	/	/
Viet Nam	/	Y	/

As indicated by Table 17, Australia; Canada; Hong Kong China; Japan and Thailand fully refer to the risk assessment results in making food safety technical regulations or standards, while China; Indonesia and Viet Nam only referred partially to the results. The Philippines has by far no such risk assessment results that can be referred to. Russia provided no data in this regard.

Table 18 CODEX Reference in Food Safety Technical Regulations or Standards Making

Economies	Full Reference	Partial Reference	No Reference
Australia		Y	

Canada	Y		
China		Y	
Hong Kong, China	Y		
Indonesia		Y	
Japan		Y	
The Philippines	Y		
Russia	/	/	/
Thailand	Y		
Viet Nam		Y	

As indicated by Table 18, Canada,, Hong Kong China; the Philippines and Thailand fully modeled after CODEX standards, while Australia; China; Indonesia; Japan and Viet Nam only take partial reference. Russia didn't provide data.

Table 19 Content Consistency between Food Safety Technical Regulations or Standards and CODEX

Economies	Full Consistency	Partial Consistency	Complete Difference
Australia	/	Y	/
Canada	/	Y	/
China	/	Y	/
Hong Kong, China	/	Y	/
Indonesia	/	Y	/
Japan	/	Y	/
The Philippines	/	Y	/
Russia	/	/	/
Thailand	/	Y	/
Viet Nam	/	Y	/

As indicated by Table 19, all the economies except Russia that provided no data, have their food safety technical regulations or standards being partially consistent with CODEX.

(4) Major Issues Facing Food Safety Technical Regulations or Standards

Table 20 Major Issues of Food Safety Technical Regulations or Standards

Economies	Lack of the level of pollution data	Lack of diet exposure data	Lack of risk monitoring data	Lack of mplementation effects data	Lack of professionals	Lack of funding	Lack of public recognition	Others
Australia	/	/	/	/	/	Y	/	/
Canada	/	/	/	/	/	/	/	Y
China	Y	/	Y	/	/	Y	Y	/

Hong Kong, China	/	/	/	/	/	/	/	/
Indonesia	Y	Y	Y	Y	Y	Y	/	/
Japan	Y	/	/	Y	Y	/	/	/
The Philippines	Y	Y	Y	Y	Y	Y	Y	/
Russia	/	/	/	/	/	/	/	/
Thailand	/	/	/	/	/	/	/	Y
Viet Nam	/	Y	/	Y	Y	Y	Y	/

As indicated by Table 20, Russia provided no data and Hong Kong China raised no issue. Australia; China; Indonesia; the Philippines and Viet Nam name “lack of funding support” as the major issue facing their food safety technical regulations or standards making, highlighting the financial restraints on standards making.

China, Indonesia, Japan and the Philippines choose “lack of the level of pollution data.”

Viet Nam; Indonesia; Japan and the Philippines choose “lack of implementation effects data” and “lack of professionals.”

Indonesia; the Philippines and Viet Nam choose “lack of diet exposure data.”

China; Indonesia and the Philippines choose “lack of risk evaluation methods.”

China; Viet Nam and the Philippines choose “lack of public recognition”

In summary, the governments or local regulatory agencies in most of the economies are involved in food safety technical regulations or standards making, with the data of risk monitoring and risk assessment being applied in standards making, and CODEX is making impacts.

III. Suggestions

In order to ensure smooth implementation of food safety supervision and improve food safety risk monitoring, assessment and standardization capacity, we suggest the APEC economies to increase personnel, funding and substance inputs from the current basis. In addition, more efforts can be made to improve the technological level of technicians through training, communications, studies and other means to further perfect the food safety supervision system and lay a technical support to do the job better.

Survey on the Capacity of Food Safety Risk Surveillance, Assessment and Standard Development in Asia-Pacific Region

Dear Colleagues,

This survey is designed for the APEC project “Enhanced Capacity Building for Food Safety Risk Assessment in Asia-Pacific” (APEC S ATC 01 12A) with the aiming at understanding the current status of food safety risk surveillance, assessment and standard in Asia-Pacific region. The result of the survey will be shared at the “International Symposium on Food Safety Risk Assessment” hosted by the China National Center for Food Safety Risk Assessment in Beijing on 27-28 September 2012. Please take few minutes to answer the following questions, put “√” on the most appropriate answer or indicate your comments for certain questions.

Please kindly send the fulfilled questionnaire back to the symposium organizing committee at apecfoodsafety@gmail.com at your earliest convenience but not later than 18 September 2012.

Thank you for your time and support!

APEC Economy : _____

Contact : _____

Telephone : _____

Fax : _____

Email: _____

1. Monitoring and Management System of Food Safety

1.1 Is there any legal basis for food safety risk monitoring program, like food contamination surveillance, foodborne illness report system, and risk management program in your economy, what is the name of that law:

1.2 How many governmental authorities are involving in the food safety risk monitoring and management at national level, please list all of them and indicate their major duties: _____

2. Food Safety Risk Surveillance

2.1 What kind of food safety risk surveillance systems do you have in your economy?

(Multiple-option)

- ☐ Foodborne illness report systems
- ☐ Foodborne illness active surveillance systems
- ☐ Food contamination surveillance systems
- ☐ All of the above
- ☐ Others, please indicate _____

2.2 Is there any legal basis for food safety risk surveillance in your economy?

- ☐Yes ☐No

2.3 How many institutions for food safety risk surveillance are there in your economy? _____. Is there any national network for the food safety risk surveillance institutions in your economy (national wide or regional wide)?

- ☐Yes ☐No

2.4 The food safety risk surveillance institutions in your economy are designated:

- ☐By the national government ☐By the local government
- ☐Others, please indicate _____

2.5 Is there a reference laboratory system for food safety in your economy? ☐Yes
☐No

2.6 What duties do the reference laboratories have? (multiple-option)

- ☐Technological development ☐Inter-laboratory comparison
- ☐Technical support for emergency ☐Laboratory quality evaluation
- ☐Providing training for food safety risk surveillance institutions
- ☐Others, please indicate: _____

2.7 Is there a national workplan for food safety risk surveillance in your economy? ☐Yes ☐No

Which government department or institutions implement the food safety risk surveillance under the national workplan in your economy? _____

2.8 What is the budget to support food safety risk surveillance in 2011 in your economy? _____ Us Dollar.

How many samples have been tested? _____ sample/1000 population

2.9 How many professional technicians and researchers involved in food safety risk surveillance in your economy? _____

2.10 Have the food safety risk surveillance institutions been uniformly provided with the standard substance or quality control serum for the food safety surveillance in your economy? ☐Yes ☐No

2.11 Is there any quality assessment for food safety risk surveillance institutions in your economy? ☐Yes ☐No

2.12 Have the computers been used for collecting the surveillance data, processing and statistical analysis in your economy? ☐Yes ☐No

2.13 The main challenges for food safety risk surveillance program in your economy include (multiple-option):

- ☐ Lack of legal basis
- ☐ The duty of surveillance technical institution is ambiguous
- ☐ Lack of capacity
- ☐ Lack of specialists
- ☐ Lack of investment in equipment
- ☐ Lack of fund supports
- ☐ Weak in reference laboratory
- ☐ Others, please indicate _____

3.Food Safety Risk Assessment

3.1 Is there any legal basis for food safety risk assessment in your economy?

☐Yes ☐No

3.2 Is there any national network for the food safety risk assessment in your economy (national wide or regional wide)?

☐Yes ☐No

3.3 Is there any national priority project on food safety risk assessment in your economy?

☐Yes ☐No

3.4 How many food safety risk assessment institutions at the national level in your economy? _____ Which governmental agency are they belonging to? ____

3.5 The national food safety risk assessment institutions are belonging to

☐ The organization specialized exclusively in food safety risk assessment

- ☐ One part in the general organization which has other responsibilities
- ☐ Others, please indicate _____

3.6 How many food safety risk assessment reports have been generated in 2011 in your economy? _____. What is the budget? _____ Us Dollar

3.7 Is there any specific institution for food safety risk communication in your economy? ☐Yes ☐No

3.8 The main challenges for food safety risk communication in your economy include (multiple-option):

- ☐ Lack of legal basis
- ☐ The duty for risk communication is ambiguous
- ☐ Lack of specialists
- ☐ Lack of fund supports
- ☐ Lack of data information
- ☐ Lack of capacity in emergency assessment
- ☐ Others, please indicate _____

4. Food Safety Standard

4.1 How many people are responsible for developing the food safety technical regulation or standard? _____

4.2 What is the budget for developing the food safety technical regulation or standard in your economy in 2011? _____ Us Dollar

4.3 Do the local authority agencies participate in the development of national food safety standards?

- ☐Yes ☐No

4.4 The food safety contents as regulated in CODEX standards are of which of the following situations in your economy

- ☐ a part of the legal system and regulated by governmental authority agencies
- ☐ a part of the legal system and regulated by professional research and technical institutes
- ☐ out of the legal system and regulated by special industrial institutes

4.5 The food quality contents of standard are

- ☐ a part of the legal system and regulated by governmental authority agencies.

- ☐ a part of the legal system and regulated by professional research and technical institutes
- ☐ out of the legal system and regulated by professional special industrial institutes
- ☐ Regulated by the industries themselves

4.6 Are the institutes responsible for establishing food safety standards apart from the institutes responsible for food safety risk assessment?

- ☐Yes ☐No

4.7 Are the food safety standard established based on the surveillance data?

- ☐Completely used the data ☐ Data unused ☐Partially used the data

4.8 Are the food safety standard established based on the risk assessment data?

- ☐Completely used the data ☐ Data unused ☐Partially used the data

4.9 Do the food safety standards established refer to CODEX standards?

- ☐Yes, Completely ☐Partially consulted ☐ No

4.10 How the consistency between the food safety standards in your economy and that in CODEX?

- ☐Completely consistent ☐Partially consistent ☐Completely different

4.11 The main challenges faced by the development of food safety standard in your economy include (multiple-option):

- ☐ Lack of surveillance data
- ☐ Lack of dietary exposure data
- ☐ Lack of the risk assessment method
- ☐ Lack of implementation effect assessment
- ☐ Lack of specialists
- ☐ Lack of fund supports
- ☐ Lack of recognition from the public
- ☐Others, please indicate_____

Thank you for your time and support!

Please kindly send the fulfilled questionnaire back to the symposium organizing committee at apecfoodsafety@gmail.com at your earliest convenience but not later than 18 September 2012. Thank you very much!

Appendix 2: Analysis Report on the Development of Food Safety Risk Assessment in China

Since the Food Safety Law has been enforced formally on June 1st, 2009, food safety legal construction in China has been continuously perfected and the food safety supervision system has been gradually rationalized, the structure which is coordinated comprehensively by the Food Safety Committee of the State Council, assumed the overall responsibility by the local governments, worked in division cooperation by the other departments is formed. The supervision responsibility of each departments including:

Department	Major supervision responsibility
Food Safety Committee of the State Council	1. Comprehensive coordination(analyze the food safety situations and research, arrange, coordinate and direct food safety work; propose major policies and measures for food safety regulation; and supervise the fulfillment of food safety regulation responsibility. 2. Publish the food safety information. 3. Organize to investigate and publish the major food safety accidents.
Ministry of Health (MOH)	1. Food safety risk assessment. 2. Food safety standard formulation. 3. Formulation of the Administrative Measures on Qualification Affirmation and the Inspected Specification of Food Inspection Agencies.
Ministry of Agriculture (MOA)	Responsible for the supervision of the primary agricultural products links (Species breeding)
Quality Inspection Department	Responsible for the supervision of the food's production and processing links
The State Administration for Industry and Commerce	Responsible for the supervision of the food circulation links
State Food and Drug Administration (FDA)	Responsible for the supervision of the catering service industry

In general, the food safety situation of our economy is steady, we has gained some

progress and achievement in food safety supervision in recent years.

1. To promote the construction of food safety risk surveillance, assessment and warning system actively.

Since the Food Safety Law has been enforced and promulgated, according to the relevant regulations, the Chinese government has formed a National Expert Committee of Food Safety Risk Assessment which is composed of the 42 experts from medicine, agriculture, food, nutrition fields, and has established the China National Center for Food Safety Risk Assessment (CFSA) in October, 2011. Otherwise, MOH formulated and promulgated Food Safety Risk Surveillance Management Regulation, Food Safety Risk Assessment Management Regulation, Administrative Measures on Qualification Affirmation of Food Inspection Agencies, Food Inspected Work Specification and other normative documents successively with the other departments, established the consultation mechanism for the national food safety risk surveillance, printed and distributed the constitution of the national food safety risk assessment experts committee.

At present, the food safety risk surveillance system has been established preliminarily and the national food safety risk surveillance project has been enforced for 3 years continuously. By 2011, MOH has established 1196 surveillance points for chemical contaminants, illegal food additives and foodborne pathogenic microorganism, which covered 100% provinces, 73% cities and 25% counties, having the active detection to the unusual foodborne case or healthy case in 416 medical institutions. Currently MOH is establishing 6 national food safety risk surveillance comparative laboratories and the foodborne disease active motoring network.

In terms of strengthening the establishment of the food safety risk assessment relevant system, CFSA proposed the technical regulatory framework of the risk assessment work and formulated the guidance documents, such as The Working Guide to Food Safety Risk Assessment, the Guide to Drafting of Food Safety Risk Assessment Reports, and the Requirements for Data and Data Collection for Food Safety Risk Assessment.

The Working Guide to Food Safety Risk Assessment normalizes the general requirements in the process of food safety risk assessment; the Guide to Drafting of

Food Safety Risk Assessment Reports can normalize and unify the terms and format of national food safety risk assessment reports and improve its quality; the Requirements for Data and Data Collection for Food Safety Risk Assessment normalizes the basic requirements for data collection related to food safety risk assessment. These three technical documents not only powerfully drive the system building of expert committees, but also play important roles at technical level in guiding the implementation of national food safety risk assessment works.

In addition, CFSA offers the scientific suggestion to the other food safety supervision departments. CFSA has already 100 offers scientific propositions for the practical work of Food Safety Committee of the State Council, MOH, Quality Inspection Department, MOA, FDA, Ministry of Public Security and other council units and government department.

2. To strengthen the development and revision of the food safety standard comprehensively

According to the related regulation of Food Safety Law, MOH has carried out the formulation and the amendment of food safety standard in conjunction with the relevant departments, released the “Twelfth Five-Year Plan on Food Safety National Standard” ,and cleared the guiding ideology ,basic principles , main goal , work task of the food safety standard work during the “Twelfth Five-Year”. MOH has published the national and local administrative regulation of food safety standards, and the record regulation of the enterprise standard. The food standard system which is suitable to China has been established preliminarily. In 2010, China has established the National Food Safety Standard Review Committee that contains 10 committees which composed of food contaminant, microbe, food addictive, pesticide residues, veterinary drug residues, and the adjudication committee with 350 authoritative experts from medicine, agriculture, food nutrition discipline fields. In 2011, MOH released 21 new food safety standards which including the maximum levels of mycotoxins, the maximum levels of pesticide residues, the composite food additives, the prepackaged food label, the nutritive standards and other basic standards in food. And made the strict rules to the safe use of the 28 limited standard of 6 kinds of fungal toxins,118 limited standard of 54 kinds of pesticides. In the light of the need of

the supervision work, MOH published Quick- frozen Flour and Rice Products, Stainless Steel Products and other important products standards, formulated and appointed 216 food additive products standards. Application and quantities standards of the 23 types, 2314 kinds of food additives have been revised and published, dissolved 39 food additives including benzoyl peroxide, calcium peroxide and others by law. MOH cleared the 3000 food package materials which are submitted from the industries systematically and published the list of 107 package materials which used resins, they announced that the feeding bottles are forbad to product with bisphenol A.

In addition, China has been the host economy of the Codex Committee on Food Additives for 6 years successively. 2011, China was elected as the Asia district executive of Codex Alimentarius Commission successfully. MOH uses these aforesaid advanced factors to enhance the longitudinal study of the food standard and promotes Chinese food standards to develop at the same pace with international standards.

3. To strengthen the risk communication work

Risk communication is the progress that the risk assessment staff, risk management staff, customs, enterprises, academia, and other stakeholders exchange the information and opinions about a certain risk, the elements that risk involved and the risk information under the whole process of risk analyze, it can explain the risk assessment results and offer the decision-making basis of risk management. With the comprehensive risk communication, the educated purpose will be realized. It can make the public know the food safety knowledge and the truth of the food safety problems, and understand the relevant policy and the supervised management that formulated by the government, it can also mediate and eliminate the contradiction and the misunderstanding of the food safety risk problems between the government and enterprises, the scientific community and the public, so that the trust could be established among the each parties that involved the risk analysis. At present, food safety risk communication is considered as the weakest link of the food safety risk analysis framework in China.

In accordance with the situation that the weakness of the national food safety risk communication work, MOH has pushed the provinces to implement the and

established the regulation of the emergency co-coordinators of food safety information, so that it can strengthen the food safety information communications and coordination, and standard the management of information announcement. MOH also distributed 100,000 "propagandize folded-sheets of food safety series" which made with the concerned departments, and held a exchange seminar named "understand the food additives in scientific way" which invited journalists, consumers and experts to communicate face-to-face and response to community concerns timely.

On the other hand, after a serious research on the current situation and existential issues, government agencies concerning with food safety draw up the program for communication on risks and give a clear working schedule on focal tasks. They have also brought up new ideas on the rule-making of standard communication risk regularities, the training of the personnel and the enhancement of the institution construction, which lays a solid foundation for the creation of the system on communication risks in China.

4. Challenges

Despite the remarkable progress the Chinese food safety supervision system has made in the recent years, there are still certain challenges faced by the system, such as the entire food safety work is still weak and still not well meeting with the demand of the population. Especially the intensive level food industry is still relatively low. In contrast with the developed countries, the food industry technology level in China is still low. There is a great gap on the legal awareness of some of the food producers and traders. The awareness of integrity and social responsibility awareness has to be raised. The food safety regulatory and technical capacity is still relatively weak, food safety hazard or systemic risk is not completely eliminated. We are faced with both pathogenic microorganisms, contaminants, additives, animal and plant toxins caused by traditional food safety issues, but also to respond to the law to add non-food substances, mixed to make fake poisoning crime, false propaganda, media hype triggered by non-traditional food safety incident.

5. Policy recommendation

It is suggested to the Chinese government that multi-pronged approach should be

applied to master resources dynamically in real time, to increase resource investment, to emphasize the efficient use of resources, to strengthen the quality management, and to improve food inspection capacity to fundamentally change the status quo of insufficient food inspection capacity technical support capabilities.

5.1 To optimize and integrate the existing resources

To establish a working mechanism, to change departments compartmentalization management status quo, to make full use of existing resources, optimization and integration, to improve the efficiency of resource use, and to achieve the purpose of sharing resources.

It is suggested that the integrated and coordinated department should be combining the local food inspection duties and decomposition to the food inspection agency. The central and local governmental food inspection duties should be in accordance with the Food Safety Law. It is recommended that to establish food inspection resources to optimize integration, institutional and resource sharing mechanism.

5.2 To increase the resources investment

On the basis of the status quo, the state and local governments should increase investment in food inspection resources (personnel, equipment, funds). Efforts to solve the serious shortage of food inspection resources, especially professional and technical personnel, national and local financial input of funds, and shortage of equipment. Efforts to solve the serious problems of food inspection capacity is generally insufficient, especially the food inspection ability of the national and provincial institutions is at the poor level, and low capacity of municipal and county agencies. Both national and local government need to make efforts to strengthen the food inspection team.

5.3 To strengthen the institutional management

It is suggested that to strengthen the food inspection agency management, strict quality control, and to provide technical support to the reference laboratory system for a more scientific and objective evaluation of the food inspection. Those local food inspection agencies do not have the accreditation or laboratory accreditation (measurement certification) illegally engaging in the activities of the food inspection agency should be resolved as soon as possible.

5.4 To dominate the change of the real-time inspection resources

Investment of food inspection resources is a long-term work, to dominate the real-time dynamic resources according to the food safety regulatory requirements is vital. The food inspection (monitoring) system and capacity building, the food inspection agency construction standards, food inspection resources put into the food inspection agency construction, will improve the food inspection capacity, which is an important part of the security system of food safety regulation.

Appendix 3: Need Assessment Report on Capacity Building of Food Safety Risk Assessment from 21 APEC Economies

Food safety is a global public health challenge and equally important to the food quantity and access related issues, that hinder achieving food security for millions in the world in general and the Asia-Pacific in specific. Food safety is essential to achieving holistic global food security and is one of the most serious challenges facing mankind in the 21st century. The unbalanced development of food safety system between economies means that needs varies between economies to completing their own system. Not like some developed countries in Europe and North America, the risk assessment capacity, assessment method and institutional setup among the Asia-Pacific counterparts, especially the developing ones varied tremendously. Most developing economies in the Asia-Pacific region severely lack the capacity to develop and implement safety standards and regulations. This is indicated by the fact that only 34% of developing member countries have participated in the Codex Alimentarius Commission meetings, that is 10% less than the participation level from developed countries.

To assess the capacity building needs on food safety risk assessment between 21 economies in Asia-Pacific region, questionnaires about survey on the capacity of food safety risk surveillance, assessment and standards development in Asia-Pacific Region were delivered to 21 APEC economies before the workshop. Finally, 10 economies including Australia; Canada; China; Hong Kong, China; Indonesia; Japan; the Philippines; Russia; Thailand; and Viet Nam responded the questionnaire. From the survey, we observed that for developed countries, like Australia and Canada, the main challenge for the development of food safety standards might be the financial support or ability to keep up with emerging issues, while for developing economies, like China and Indonesia, capacity building are still big challenge for them.

1. Food safety risk surveillance

From the survey, we found that most of the surveyed economies have foodborne illness report system, foodborne illness active surveillance systems and food contamination surveillance systems as their main food safety risk surveillance system.

Some developing economies, like Philippine, only have foodborne illness report systems and do not have food contamination surveillance systems. Besides foodborne illness report systems and food contamination surveillance systems, Japan also has surveillance system on pathogenic microorganism in livestock, e.g. cattle, layers, broilers, farms and vegetable farms. And risk surveillance has legal basis in all surveyed economies. However, reference laboratory, as the base of risk surveillance may still not well established in developing economies. All economies have the network on food safety risk surveillance at both national and regional levels. From the survey, we may find that lack of fund support might be the challenge for both developing and developed economies, while lack of capacity and specialist, as well as weak government management might be big challenge for developing economies. So in the workshop, we will arrange topics on risk surveillance and participants can learn experience from developed economies. Also, as the host, China will share our own experience on foodborne disease active surveillance.

2. Food safety risk analysis

Risk assessment, risk management and risk communication are three tasks of risk analysis. Risk assessment has attracted attention of most economies with the evidence that almost all the surveyed economies has legal basis for food safety risk assessment, except The Philippines. Risk assessment institutions are belonging to one part in the general organization which has other responsibilities in China, Australia; Canada; Hong Kong, China; Indonesia; Thailand; and Viet Nam. Meanwhile, we noticed that special institutions on risk communication were established in Australia; Canada; China; Hong Kong, China; and Viet Nam. The ambiguous duty on risk communication and lack of data information are challenges for developing economies, while lack of capacity in emergency assessment might also be a challenge for developed economies, like Japan. As mentioned in Dr. Charles Yoe's book (published in 2011 by CRC press), risk communication was for years the bastard child of risk analysis, seldom talked about and often ignored or treated poorly. Risk communication improves understanding of the risk and risk management options. It enhances trust and confidence in the decision-making process and promotes the participation and involvement of interested parties. Done well, it can strengthen working relationships among stakeholders. So we invited speakers from Europe and

Australia, who will introduce the experience of risk communication in European Food Safety Authority and Food Standards Australia New Zealand.

3. Food safety standard

The food safety contents as regulated in CODEX standards are a part of the legal system and regulated by governmental authority agencies in all surveyed economies. The food quality contents of standard are a part of the legal system and regulated by governmental authority agencies except Australia. The current policy environment in the Asia-Pacific region doesn't give significant impetus to the food safety related issues. The formulation and implementation of food safety law and regulations are often fragmented as it is dealt by different laws and regulations under different ministries and departments. Development of food safety and quality standards should be based on risk assessment results. However, lack of risk assessment methods, surveillance data, and dietary exposure data hinder the process of standards development.

While food safety regulation and law system disparities between economies need our attention, newly emerging issues and novel foods can cause new disparities. Globalization of the economy, the information revolution and the emergence of the knowledge society will profoundly alter social and economic conditions around the world as well the Asia-Pacific region. Communication and cooperation is extremely needed in this area according to food safety related issues.

To better balance the capacity building on food safety system between economies, as well as benefit the developing economies in Asia-Pacific region, we invite senior experts from world organization, like expert from WHO, as well as other famous food safety authorities like FSANZ, Food Directorate of Health Canada, USFDA, USDA and Ministry of Agriculture, Forestry and Fisheries Japan to give lectures on the workshop. Besides that, we also arrange speakers from academia, like University of Maryland and China Agricultural University. From their experience and different standpoints, the workshop shows a holistic view on food safety related area to better meet different needs from different economies.

Appendix 4: Evaluation report for International Symposium for Food Safety Risk Assessment

1. The background of the survey for International Symposium for Food Safety Risk Assessment

1.1 Questionnaire

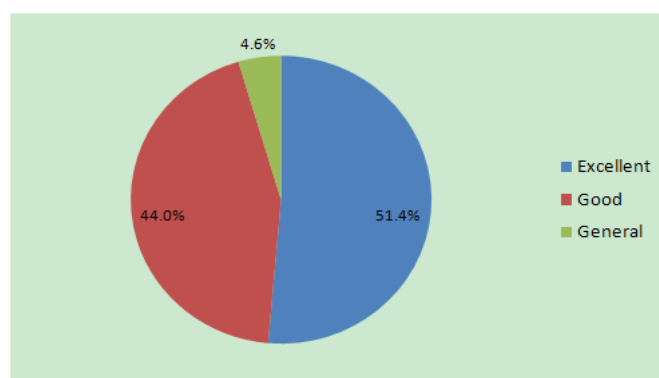
There were totally 12 close questions and 5 open questions offered to symposium participants to survey for the evaluations for the content and organizations of this symposium and the demand for further food safety training programmes.

1.2 Issue and recall of the questionnaire

There were totally 147 questionnaires offered to symposium participants, 75.5% of them (111) was taken back during the meeting. Therefore, the results could be representative for all participants.

1.3 Composition of the surveyed individuals

Among 111 responders, 91.9% of them came from food safety relevant institutions in different provinces in China, 9.9% of responders from Australia; Canada; Hong Kong, China; Ireland; Indonesia; Thailand; the United States; and Viet Nam 34.2% of surveyed participants worked in the areas relevant to food safety risk assessment, standards formulations and food safety crisis treatment. 14.4% worked in food policy formulation, risk communications, risk alert and risk management.



2. Content and results

2.1 Symposium evaluation

2.1.1 General evaluation

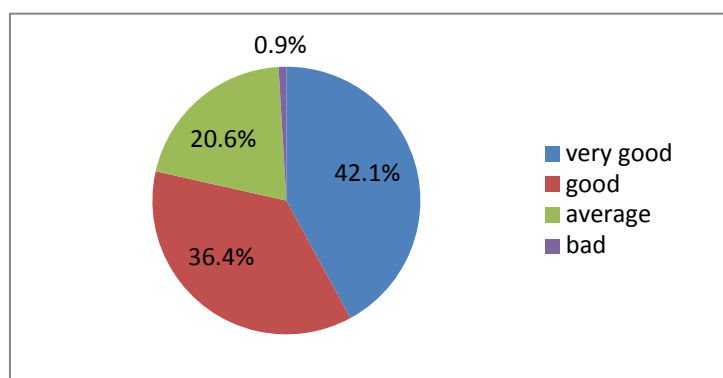
95.4% of surveyed participants satisfied with the symposium and 51.4% of them

were very satisfied with the meeting.

2.1.2 Top 3 benefits among the participants from the symposium.

The top 3 benefits from the symposium among 38.7% of the surveyed participants were to extend the knowledge, to understand the new trend and to strengthen the capacity in food safety working area. Besides, all surveyed participants considered the symposium a good opportunity to exchange the experience in food safety areas among participants from different countries.

2.1.3 Content evaluation



There were 42.1% and 36.4% of surveyed participants thought the symposium very helpful and helpful respectively. Through the symposium, the participants extended the knowledge and fully understood the progress in the food safety working area and got better to know how to do in future.

2.1.4 What content of the symposium are helpful for your future work?

Most of the surveyed thought the presentation in the meeting were very professional. They strengthened the knowledge of progress in food safety area and provided new clues in the future work. Most of the surveyed thought they were benefited from the following areas:

They are global food safety situations, challenges and management, the introduction for global food safety risk surveillance systems and programme, the progress for food safety risk assessment, especially for microbial risk assessment, food safety supervision and management system in China, especially for policy formulation in food safety risk surveillance and risk assessment in China, global food safety standards formulation and revision systems and their progress in the Codex and China, case studies for risk communications and risk assessments.

2.1.5 How the symposium benefit/influence your work, institution and economy?

36.0% of surveyed participants from China thought the symposium benefit their work and institutions. The presentations and experience exchanges in the symposium extended the knowledge and provide the new clues for future works. The participants considered the symposium helpful to understand the progress of food safety risk assessment in the world, make the food safety standards much more scientific and feasible, get much more understanding for global standard formulation and policy making in China and help to guide the standard formulation in local areas. By exchanging the experience in dealing with food safety incidence from different countries, there was increase in capacity of responding to crisis among the participants. Besides, some participants thought the symposium did contribute the development and construction of their career, institutions, and personnel training. The participants from economies other than China thought they had a good chance to understand the construction and development of food safety risk assessment, which could help the execution of WHO global food safety strategy.

2.1.6 How the symposium influence you career plan and execution?

There were 22.5% of surveyed participants considered significant effect of the symposium on their career plans and execution in the following:

To help to increase the capacity to work in food safety risk assessment and standards management and pay more attention on science basis and data management ;

To further understand the importance and significance of national food safety risk surveillance and decide to fully involve into it ;

To know much more about the progress of food safety risk communications in China, learn the lessons from developed countries and have a idea to improve the work in food safety risk communications.

2.1.7 Other comments and suggestions?

Most of survey participants thought it very helpful, were very satisfied with what learned in the symposium and put forward the following suggestions :

Most of the presentations were somewhat general and there would be much more

helpful if there could be more cases, especially for specific chemical pollutants and microbial hazards. ;

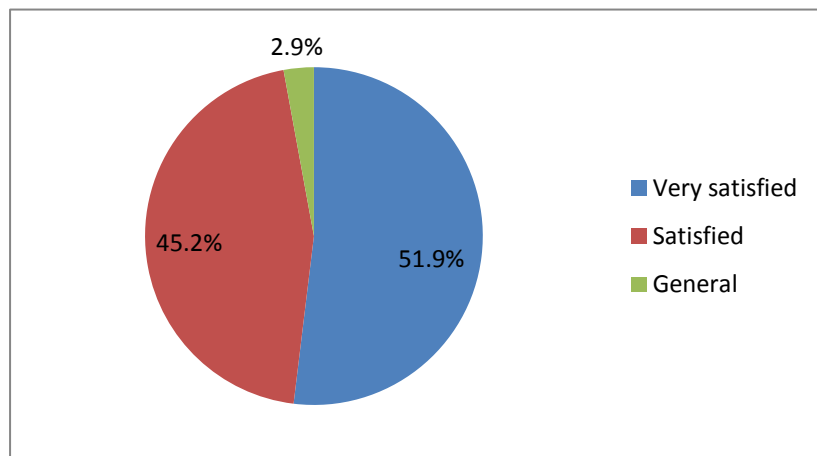
The participants hoped the symposium could be held regularly;

The participants hoped to extend the participants and let more economies to attend into.

2.2 Symposium organization evaluations

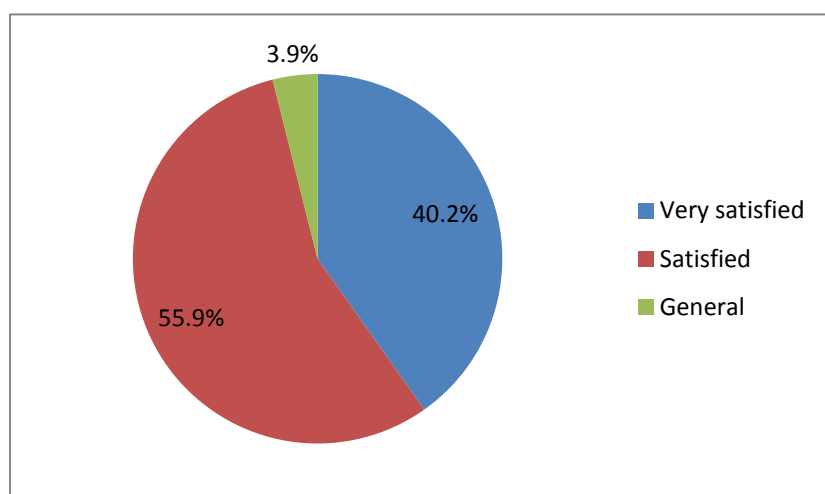
2.2.1 Presentations evaluation

97.1% of the surveyed participants felt satisfied with the presentations and more than 50% of them felt very satisfied.



2.2.2 Meeting materials evaluation

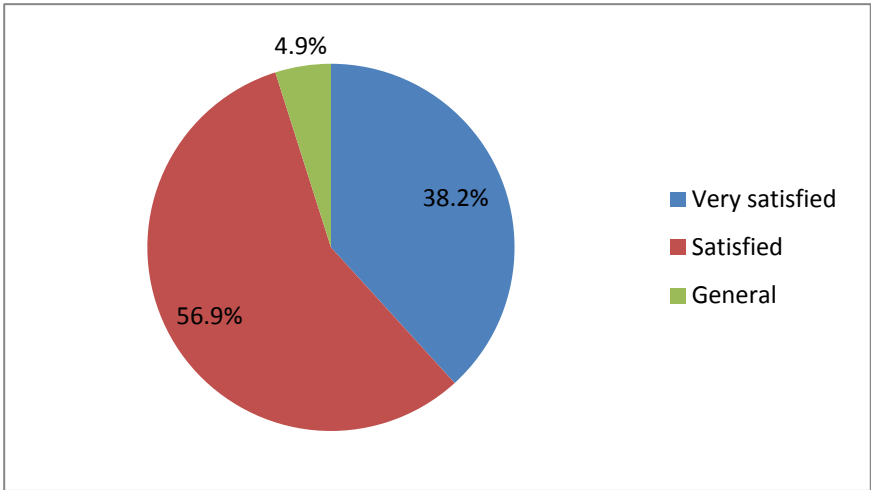
96.1% of the surveyed participants felt satisfied with the content and quality of the meeting materials, and 40.2% of them felt very satisfied.



2.2.3 Meeting services evaluation

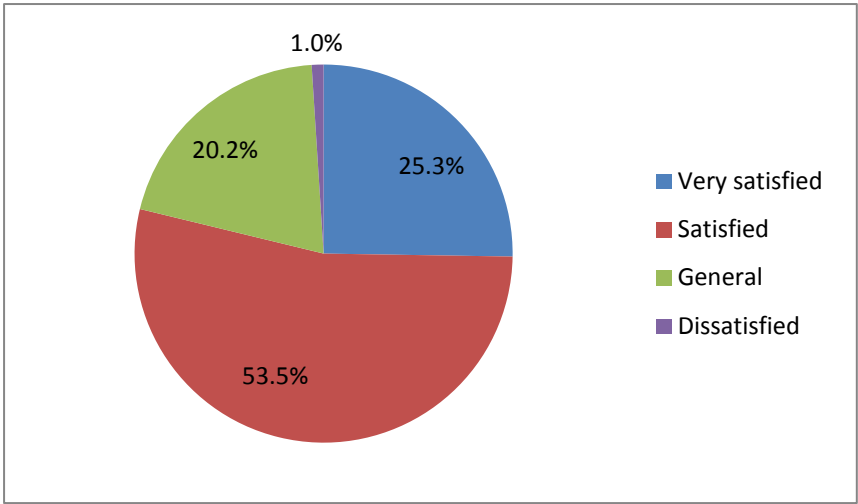
95.1% of the surveyed participants felt satisfied with the service in the meeting hall,

and more than 50% of them felt very satisfied.



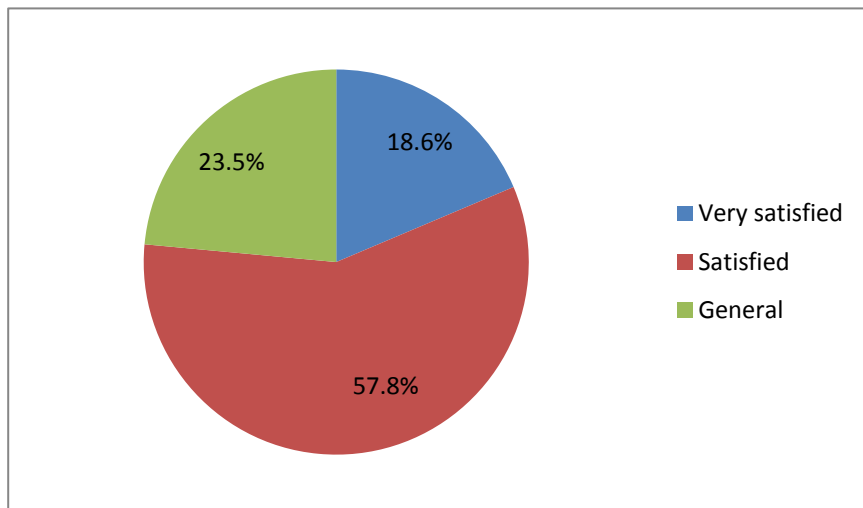
2.2.4 Simultaneous interpretation evaluation

78.8% of the surveyed participants felt satisfied with the simultaneous interpretation in the symposium, while the rest of the surveyed thought the presentations should be interpreted much better.



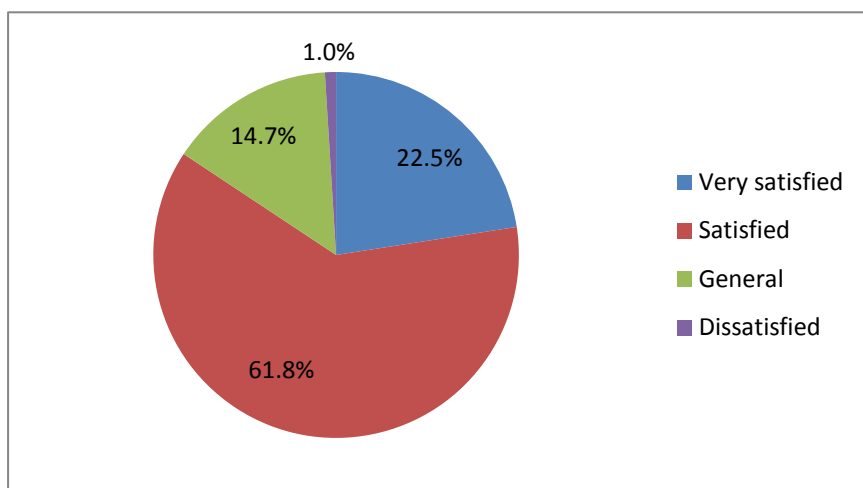
2.2.5 The interchange with other participants

76.4% of the surveyed participants felt satisfied in exchange with other participants in the symposium, 18.6% of the surveyed were very satisfied with it, while the rest of the surveyed thought there should be much more opportunities to exchange the experiences.



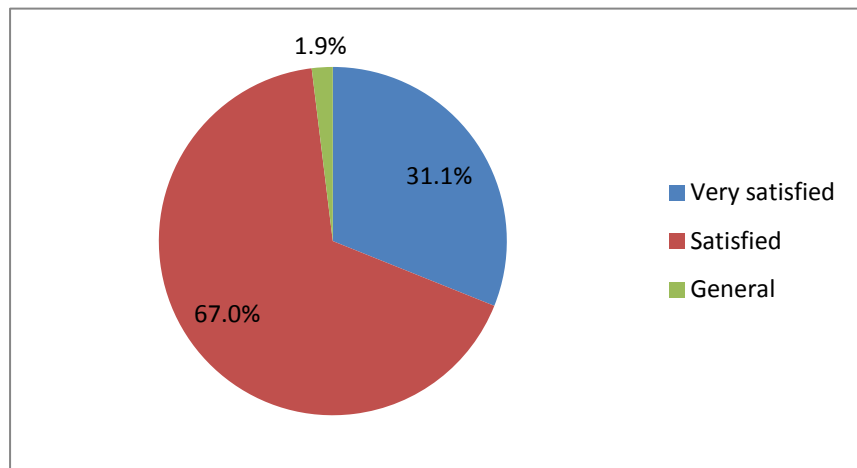
2.2.6 Dining and hotel service evaluation

84.3% of the surveyed participants felt satisfied with the dining and hotel service during the symposium while 15.7% of the surveyed thought there were still some space to be satisfied.



2.2.7 The overall evaluation to the service provided by the organizer

98.1% of the surveyed participants felt satisfied with the services provided by the symposium and 31.1% of them felt very satisfied with good services.



2.2.8 Further suggestions to symposium organizers

To provide the internet access or other sources to download the symposium materials ;

To provide more English-speaking symposium services;

To reform the questionnaires into those with more choices instead of questions.

2.3 Training requirement evaluations

2.3.1 Please list the top 3 food safety working areas you wanted to get trained in the futures.

There were 63.3%, 50.0% and 45.9% of the surveyed participants thought the food safety risk assessment, risk communications and standard formulation respectively the most important areas need to get trained. There also were some requirement in public explanation of the food safety standards and its executions in industries.

2.3.2 Please list the most appropriate frequency of the training programme in one year and its durations.

There were 65.2% of the surveyed participants thought 2 times per years were the most appropriate frequency to get trained in food safety working areas and 48.4% of the surveyed considered 2-days programme would be best.

2.3.3 Please list the most appropriate type of training programme you would like to join (multiple choices)?

A	Classes	50.0%
B	Panel discussions	43.8%

C	Lectures	52.1%
D	Symposiums	49.0%

More than half of the surveyed participants thought the classes and lectures would be appropriate and suggested to be more case studies.

3. Summary

From the survey we conducted in the symposium, the participants showed an overall positive feedback to each aspect offered in this meeting. The symposium provided an efficient and qualified platform to let participants from different countries to exchange their experiences in food safety risk assessment, risk communications, standards formulations and revisions, supervision and management. We believed it would promote the capacity building in food safety working areas for all participants, especially for those from APEC economies.

Appendix 5: Report for Follow-up Survey for International Symposium on Food Safety Risk Assessment

To evaluate the long term effect of the International Symposium for Food Safety Risk Assessment held in September 27-28 in Beijing on capacity building for food safety risk assessment in Asia-Pacific Region, we made up a questionnaire and sent 100 electronic copies to participants from both 8 economies and China. By November 15th, there were only 25 questionnaires returned and one of them came from Viet Nam. Based on the questionnaires available, we had the feedbacks in the following questions.

1. The working areas of the responders?

Among 25 responders, there were 13 of them reported to have worked for food safety risk surveillance, 10 for risk assessment, 9 for food safety standards formulation, 6 for scientific research and food safety incidence investigation and treatment respectively. The responder from Viet Nam had experiences in food safety risk surveillance, risk management and scientific research.

2. What is your beneficial from this symposium?

There were 23 responders thought they knew much more in food safety trends in the world, 20 of them got much more knowledge for food safety risk assessment, 19 improved the relative technologies for food safety, 14 understood the severe situation of food safety in the world, 11 learned the new food safety policies in different countries, and 7 were happy that they had chances to establish the collaboration with other participants. The responders from Viet Nam said he/she boarded her/his academic perspective, learnt the new trends in food safety, carried out academic exchanges, established the new cooperation relationship with fellow participants, and understood some of the policy information related to food safety.

3. How your work was benefited from the symposium?

All 25 responders thought attending the symposium did help in their further career. 18 of them thought they could learn new knowledge and technologies from the symposium for their further works and increase their working efficient. 13 thought the knowledge learned from the symposium could help them to build a new and

efficient working plan or be much more involved in their food safety work, respectively. The responder from Viet Nam felt that she/he was benefited in establishing new work plan, applying new knowledge at work and improving the work efficiency, and tuning to have a more positive attitude.

4. So far, what kind of people had your shared the knowledge and experience learned from the symposium with?

All 25 responders said they had shared the knowledge and experience learned from the symposium with their colleagues and employers. The responder from Viet Nam had shared her/his gains from this symposium with colleagues and leaders in her/his organization, students and colleagues of other APEC economies.

5. What were their feedbacks when you shared the knowledge from the symposium with them?

The responders' colleagues and employers thought "it was helpful and valuable for their further work, especially when they built up new working plan in food safety surveillance, conducting risk assessment and risk communications" and "hoped that there would much more chances to join the symposium in the future". The Viet Nam responder's colleagues in her/his organization thought "it is good to update information among APEC economies in Food Safety". Her/his students replied that their countries can have a good lesson learnt from reformulation the network of food safety management. The Viet Nam responder heard colleagues of other APEC economies said China had done a good job in promoting food export requiring hard food safety management.

6. Have you communicated with other economies' participants or started a collaboration program?

Unfortunately, so far there was no further communication between responders and other economies' participants, neither a collaboration program available. 20 of the responders including the Vietnamese participant thought it was because there was no appropriate collaboration program available and 1 responder thought there were gaps in cultures and language between each other and it was hard for communications.

7. What is your plan for your further work?

Among 25 responders, 19 decided to share the knowledge learned from the

symposium to their colleagues and to improve the local capacity construction for food safety risk assessment. 7 responders had planned to hold a similar symposium in local areas to share new knowledge or write a proposal to local authorities. There was also 4 responders said they would submit the papers to scientific journal based on the knowledge learned from this symposium. The Vietnamese responder decided to spread the new information and knowledge to colleagues, to improve the capacity building on food safety risk assessment of her/his region; to carry out related research, form policy recommendation report and submit the report to government authorities and to strengthen the cooperation with APEC and to apply for APEC project.

8. What kind of collaborating mechanisms or network could be helpful to improve the capacity building for food safety risk assessment in Asia-Pacific regions?

Most of responders (23/25) thought the food safety risk analysis information sharing network would be the most important tool to improve the capacity construction for food safety risk assessment in APEC economies. Food safety risk analysis expert network (16/24), the summit meeting among APEC economies' leaderships (12/24), and local mechanism for food safety emergency aid (12/24) would be also very helpful. The Vietnamese responder thought information sharing and cooperation network on food safety risk analysis much valuable.

9. What should relevant authorities and organizations contribute to establish the mechanism or the network mentioned in last question?

There were 21 responders including the Vietnamese responder thought the relevant authorities and organizations should provide expert and information resources or coordinate local governments to provide financial and technical investment for collaboration in order to establish the mechanism or the network mentioned above. There were also 17 and 10 responders thought providing financial support and promoting non-governmental organizations to support the collaboration would be also very important, respectively.

10. Is there any other contribution from this symposium?

There was one responder said "Right during the symposium, I thought I should rebuild the dream of my future career, to think over what my advantage was and

what I should start". There were also few other responders said they had known much about the severity of food safety situations in the world and thought it would be an appealing area to work for. The Vietnamese responder was interested what China government has supported food management authority in monitoring food safety risks and interest of the food industry through large number of participants.

11. Any other comments for this symposium?

There was one responders thought the duration of this symposium should be much longer and another responders said the symposium should be focus on one specific area, like food safety risk surveillance, or risk assessment, or food safety standards formulation. Also one responder suggested there should be regular symposiums and 2 for each year would be appropriate. The Vietnamese responder thought there should be opportunity to visit a large scale food processing plant or farm, so that participants from other countries could learn a real case.

In summary, with 11 feedback questions from 25 responders, we thought there was positive effect of symposium for promoting capacities construction for food safety risk assessment among APEC economies, especially for China. The symposium helped participants to understand the food safety situations in the right way, transferred the right knowledge of food safety risk analysis, provided an efficient platform for APEC economies to exchange their food safety information and experiences and most important of all, based on what we knew from the questionnaires, the participants thought it was valuable to hold this symposium in the regular way.