



REPORT ON

International Workshop on Food Safety of Aquaculture Products in Southeast Asia

*Challenges in Sustaining the Food
Safety of Aquaculture Products*

8-9 May 2013
Hotel del Rio
Iloilo City, Philippines

*Organized by SEAFDEC/AQD
with funding from GOJ-Trust Fund*



INTRODUCTION

The concept of “Sustainable Aquaculture” is an effective approach towards achieving the food/livelihood securities and poverty alleviation in the Southeast Asian region. To effectively achieve sustainability in aquaculture practices, concerns on the food safety of aquaculture products need to be addressed.

Food safety, quality, and traceability are major issues that presently confront the aquaculture industry in the region not only in terms of protecting public health but also of meeting the requirements of international trade. Aside from environmental issues arising from aquaculture, the presence of chemical residues and pathogenic organisms in cultured organisms may render aquaculture products unsafe for human consumption and fail to meet international standards, guidelines, and recommendations.

Because of better awareness of the importance of food safety of aquaculture products, consumers now demand that fish should be produced in accordance with responsible farming practices. Responsible and sustainable farm practices and proper surveillance of contaminants, such as antibiotics, pesticides, and pathogenic microorganisms, with appropriate analytical methods are important to ensure wholesome and safe aquaculture products. In addition, the traceability, in terms of origin and authenticity, of aquaculture products is a major concern to food safety regulators and international trading partners because of increased food transport across borders. Failure to secure food quality and safety can have dire economic impacts and create potential human health problems.

In view of the foregoing, with funding support from the Government of Japan, the Southeast Asian Fisheries Development Center Aquaculture Department (SEAFDEC/AQD) convened an international workshop on food safety of aquaculture products in order to secure wholesome and safe aquaculture commodities in the ASEAN region. The workshop was held in Iloilo City, Philippines on 8-9 May 2013.

THE WORKSHOP

The general objective of the workshop was to promote and influence regional initiatives in securing wholesome and safe aquaculture commodities in the ASEAN region. The specific objectives were to: (i) acquire knowledge, technologies and recommendations that are necessary for SEAFDEC Member Countries to integrate into their food safety and traceability standards setting process involving aquaculture products in their respective situations, and (ii) to increase the Member Countries’ awareness and commitment to promote wholesome and safe aquaculture products. The workshop was attended by 150 aquaculture and food safety experts, scientists, representatives and observers from 11 countries. The scientific program and list of participants are in Appendices 1 and 2. The Keynote address was delivered by Mr. Hajime Kawamura, Deputy Secretary General of SEAFDEC (see Appendix 3).

Deliberations of the meeting were conducted in five technical sessions besides the introductory session. These sessions comprised presentations of country papers and contributed papers on specific topics (see “IWFS Book of Abstracts”) and discussions.

Through presentations of country reports¹ during **Sessions 1** and **2**, participants learned the status of food safety and traceability of aquaculture products as well as regulations and recommendations available in the following Member Countries of SEAFDEC: Philippines, Vietnam, Cambodia, Brunei Darussalam, Japan, Lao PDR, Indonesia, Singapore, Myanmar, and Thailand.

Session 3 began with a plenary paper presentation of Dr. Mark Tamplin, Professor, Food Safety Center, Tasmanian Institute of Agriculture, University of Tasmania on 'Challenges in the Food Safety of Aquaculture Products'. Following the comprehensive information and most preferred recommendations to sustain the food safety of aquaculture products, pressing issues and topics were presented and discussed. The presentations and discussions during **Sessions 3** and **4** focused on a range of topics from basic scientific approaches to governmental management initiatives on food safety. These include: (i) application of effective, safe natural alternatives to synthetic compounds, (ii) assessment of impacts of ethoxyquin as an antioxidant used in feeds for shrimps on export, (iii) risk-benefit analysis of fish consumption exemplified by a selenium-containing antioxidant, selenoneine, showing function of MeHg-detoxification, (iv) present issues and concerns on agrochemicals, (v) enhancement of the role of academe in fostering awareness and developing capabilities on food safety, (vi) regulations and actions on food safety issues in the Philippine Food and Drug Administration, (vii) integrated approach towards seafood safety and quality assurance in Philippines, (viii) microbial inactivation through thermal treatment, and (x) food safety management and control system in the Bureau of Fisheries and Aquatic Resources, Philippines.

Workshop Discussions: Identification of the research gaps and research collaboration among Member Countries.

Session 5 focused on workshop discussions. Foremost of the issues/aspects considered in the discussions was how to move forward to the right direction, effectively and firmly, to elevate the level of skills and attention not only of the specialist groups but also of the general public to secure the food safety of aquaculture products. The other important aspects considered were: (i) the needs and requirements of member countries on setting food safety standards of aquaculture products; (ii) the special needs of member countries in learning the procedures and methodologies for detection of contaminants and assessment of exposure risks; (iii) application of knowledge and utilization of available resources and training needs of personnel in the Member Countries.

The participants were divided into three working groups to discuss the following topics; 1) research gap, 2) capacity building, and 3) regulatory, harmonizing policies among member countries. Participants were encouraged to select and join one of the three topics/groups so that everyone could freely participate, discuss, and obtain the information.

¹ Due to unforeseen circumstance, Malaysian representative could not attend the workshop; hence, no country report was presented

With consideration of the above-mentioned aspects for discussions, the participants tackled under each topic the main problems/ issues, strategies/ solutions, along with time scale and potential funding sources.

The working group discussions were followed by a plenary session to present the output of each group and discuss overall the topics. A workshop rejoinder or summary was then presented by Dr. Eduardo M. Leaño of Network of Aquaculture Centres in Asia-Pacific.

The summarized outputs of the working groups and overall workshop summary are presented below.

Group 1 – Research gap

(Summarized by Dr. Ma. Lourdes Aralar, SEAFDEC)

Emerging toxins and biological hazards

a. Ethoxyquin: Ethoxyquin having been identified during the oral presentation of papers as a pressing concern, was listed first since this has heavy impact in the shrimp industry in many ASEAN countries. Instrumentation and analysis of residue levels of ethoxyquin was identified as one of the issues since most, if not all of the ASEAN countries do not have the capability to detect very low levels of this component in aquaculture, particularly shrimp products. Despite the stringent requirements in Japan and other shrimp importing countries for ethoxyquin, there are no established data on toxicity to consumers, biological residence time in aquaculture products, and even toxicity (if any) in other organisms. Hence it was recommended to conduct research on these areas. Procurement of instruments (Liquid Chromatography-tandem Mass Spectrometry: LC-MS-MS) by ASEAN countries should be given priority, and later a standardized method to establish maximum residue levels (MRL's) should also be conducted.

b. Cyanobacterial toxins in freshwater and marine aquaculture products: These also emerged in the discussions of plenary papers. It was acknowledged that there are already a number of studies on environmental triggers for cyanobacterial blooms, which have occurred mainly in temperate countries. Thus, triggers for these cyanobacterial blooms in the ASEAN milieu still need further investigations. Toxicity of cyanobacterial toxins, its bioaccumulation and biological retention time in both freshwater and brackishwater fish were also given top research priority.

c. Fish zoonotic diseases: These are one of major concerns in food safety. Although GOJ-TF project of SEAFDEC is already conducting studies on trematodes in freshwater fish in ASEAN countries, this need to be expanded to cover other fish borne zoonoses. This will entail a comprehensive survey and identification of zoonotic parasites in fish products as well as appropriate treatment protocols and proper food preparation to address these problems.

d. Brestan and other banned pesticides: There was quite a debate among the group members on whether to include this or not. This is because there have been a lot of research already on the harmful and toxic effects of Brestan and a host of banned pesticides; hence, the reason they are banned. There are those who thought that this item is best covered under the workshop group on policy since it seems the main issue is in the implementation and

enforcement of the ban. After a lengthy discussion, it was finally decided to include this under the “Research” group. Focus should be on determining presence (or absence) of Brestan and other banned pesticide residues in aquaculture commodities available in the market; determining residue levels and establishing maximum residue levels; and standardization of methods in determining MRL’s.

Funding support expected and time required

a. --- Among the local (Philippine) agencies to be tapped for funding support for this initiative on ethoxyquin are DOST (Department of Science and Technology), DA-BAR (Department of Agriculture’s Bureau of Agricultural Research), GOJ-TF (Government of Japan Trust Fund), Private partnerships with exporters, International Funding Sources (IFS) for Young Researchers, *etc.* Target time frame for this is 1 to 5 years.

b. --- Collaboration with the EU (European Union), International Organization on HAB (Harmful Algal Bloom) may be a source of funding as well as ASEAN partnerships and National Codex Organization of the Philippines for research on cyanobacterial toxins. Time frame for this research item is 5 years with the Philippines, Lao-PDR and Singapore taking the lead.

c. --- Funding source for further studies on fish zoonotic diseases maybe the GOJ-TF since it has already started funding research on this issue, as well as the DOH (Department of Health) of the Philippines and possibly ASEAN partnerships with activities being completed within 3 years.

d. --- Since the issues relevant to Brestan and other banned pesticides mainly concerns the Philippines (particularly with Brestan), the association of Milkfish producers, the DA-BAR and the DOST of the Philippines will be tapped for funding support. Time frame for this is 5 to 10 years with ASEAN participating in the research.

Other challenges toward food safety

Since many of the aquaculture chemicals that have been banned in aquatic products involve pesticides, it was suggested that research on natural products that could be used as natural pesticides be looked into. This will involve screening of possible products that can be used and identification of the active ingredient. Once the active ingredient has been identified, this may involve further chemical modification and biosynthesis, if possible, of the active ingredient for mass production. Cost-benefit analysis of the resulting product should also be conducted. Some toxins from marine organisms may also be explored. Agencies that may be tapped for this is the Philippines’ DOST and Vietnam’s RIA (Research Institute for Aquaculture). This is a time-consuming research enterprise with a huge number of products to be tested and may require a time frame of 10 years with possible Thailand, Vietnam and Indonesia taking the lead among the ASEAN.

Group 2 – Capacity-building

(Summarized by Dr. Teruo Azuma, SEAFDEC and Dr. Mark Tamplin, UTAS)

Enhancement of training courses on food safety

To promote capacity-building for food safety of aquaculture products, enhancement of training courses on food safety was considered one of the essential countermeasures to heighten food safety in the ASEAN member countries.

Recognition of food safety for human health and trade

Throughout the Sessions for Country Reports on the first day of this workshop, we realized a wide variation in the level of food safety development for aquaculture products among member countries. In addition, trade includes not only exports but also imports in our region, with the majority being exported. Nowadays, there are major concerns that affect trade, and yet the consciousness of food safety needs to be heightened for domestic consumption. These present situations imply the necessity of information-sharing and -unification among member countries.

Importance of train-the-trainer, utilization of mass-media, and development of competent staff

The situation described above emphasizes the need to disseminate science-based knowledge and skills to avoid contamination of zoonotic pathogens and chemicals contaminated in fishery products. This can be strengthened through effective training courses held internationally and domestically. Taking into consideration the characteristics of Southeast Asian Fisheries and Aquaculture practices, the small-scale fishers and aqua-farmers supporting the majority of the production should be specifically targeted for capacity-building. To validate knowledge and technology dissemination to small-scale fishers and fish farmers through training activities, train-the-trainer programs should be enhanced much more than presently done, so that the fishers and farmers can effectively receive knowledge and skills on food safety. Mass-media also should be utilized to disseminate the importance and concepts of aquatic food safety among the public. Developing a system where science-based knowledge can be extended to the every aqua-farmer throughout the region is a pressing issue, underlining the need for inter-country collaborations to produce competent training staff.

Gaps to be filled and the strategies

In addition to the number of trainers, there were still many hurdles that need to be cleared to strengthen the training courses and make them as effective as possible, such as adequate budgets, training equipment, and opportunities to deliver training courses. Budgets, in particular, may be the biggest limiting factor to effective capacity-building. To support training activities, benefitting countries such as the EU, Japan, and others - major importing countries of aquaculture products from the Southeast Asian region - are expected to exert their significant financial and technical capacities, as well as the self-help endeavors of international and regional organizations, and the national and local governments of member countries. In addition, private sectors that have benefitted in terms of knowledge and technology from the SEAFDEC and/or national governments, should also contribute to such initiatives. In addition, it is necessary to increase incentives for trainees who come from national/local governments and/or industries, by mechanisms such as certificates, so that trainees can demonstrate the important value of participating in training programs. It is strongly encouraged that respective governmental offices and private sectors secure the

opportunity to dispatch responsible trainees. A follow-up survey of trainees is also needed to validate the efficacy of dissemination to small-scale farmers and practitioners. The results of this survey could also be used as feedback to regularly improve the training curricula.

Group 3 – Regulatory, harmonizing policies among member countries

(Summarized by Ms. Consuelo C. Baltazar, Department of Agriculture, BFAR, Philippines)

The group took note of the enthusiasm of the participants in learning about new trends and developments in technologies, practices as well as on emerging issues that significantly affect the safety of aquaculture products and the industry in the Southeast Asian region as shown by the active interaction among the participants. The group was tasked to identify issues raised during the plenary sessions that affect the safety and quality of aquaculture products, and to propose some strategies to resolve or find immediate intervention by way of proposing/promulgating policies with the view of harmonizing the implementation of such policies across the SEAFDEC/ ASEAN member countries. Target funding sources/ institutions and timelines were set, and the countries responsible were likewise targeted subject to confirmation by concerned members.

Issues to be overcome and strategies

a. Need for reasonable standard for food safety: Standards valid for intra- and extra-ASEAN should be established. Information sharing via the internet specifically for aquaculture products is strongly recommended. Tangibly, member countries need to upload a list of approved/ licensed establishments, facilities and fishing vessels in a website.

b. Need to harmonize importation requirements among ASEAN member countries: ASEAN member countries are recommended to meet regularly to review policies on food safety of fish and other aquatic products, hopefully, twice a year (through ASEAN Consultative Committee on Safety and Quality- Prepared Foodstuff Product Working Group (ACCSQ-PFPWG).

c. Need to establish policies and laws on food safety for concerned countries: Technical assistance or advisory services where needed should be rendered. CODEX² guidelines and standards, and OIE³ standards for animal welfare and GAQP for aquaculture products should be referred to.

d. Need to strengthen implementation of policies and laws on food safety: Respective member countries are required to 1) exert greater governmental support, 2) recruit and train manpower, provide adequate financial resources, implement self-policing, intensify implementation of ASEAN Rapid Alert System for Food and Feed (ARASFF), and draft common regulations applicable to all ASEAN member countries.

² The Codex Alimentarius Commission, established by FAO and WHO in 1963 develops harmonised international food standards, guidelines and codes of practice to protect the health of the consumers and ensure fair practices in the food trade.

³ World Organization for Animal Health

e. Need to regularly monitor veterinary drugs and agrochemicals: Use of emerging chemicals such as ethoxyquin should be regulated. The list of veterinary drugs and agrochemicals should be updated to harmonize with food safety requirements. ASEAN member countries should have a common standard for concerned chemicals and veterinary drugs. Further education on proper withdrawal period of regulated/ veterinary drugs is strongly recommended. Particularly, further studies are needed on the use of ethoxyquin. In addition, monitoring of veterinary drugs in aquaculture products should be strengthened for safety intended domestic consumption. For economic reasons, and if at all, it is possible, an initiative from the ASEAN member countries to lobby with the Japanese government to make the standard limit for ethoxyquin reasonable and attainable by the region, is earnestly desired.

Funding sources, timetable, and country/ institute responsible

Governments of all ASEAN member countries are expected as entity offering funding sources to address all issues mentioned above. “Need to regularly monitor veterinary drugs and agrochemicals” are considered as the issues for which the most immediate action is necessary. Both needs “for reasonable standard for food safety” and “to strengthen implementation of policies and laws on food safety” are required to be solved within 1 to 2 years and continuously for the latter. Two to three years would be allowed to “harmonize importation requirements among ASEAN member countries, while three to five years to “establish policies and laws on food safety for concerned countries. The ASEAN Secretariat and all ASEAN member countries should have responsibilities on all the issues mentioned above.

Topics concerned specifically

The presence of excessive amounts of *ethoxyquin* in aquaculture shrimps, which are recently exported from the Philippines and Vietnam to Japan and China, and were consequently rejected in both the countries, prompted the Japanese government to impose a very stringent standard with which the exporting countries find very difficult to comply. This matter became the most important issue. The deliberate use of *Brestan and other banned pesticides*, the occurrence of *zoonotic diseases* brought about by the changing environmental factors are also among the most significant issues discussed. The strategies identified and put forward by the group were intended to generate interest in proposing new policies by way of new regulations on setting standard limits for ethoxyquin that would be reasonable, acceptable and attainable by the member countries considering their current limitations and the prevailing economic and environmental business climate. It is hoped that new policies will be developed to address the issues and concerns identified.

Summary of Workshop Discussions

(summarized by Dr. Eduardo M. Leaña- Network of Aquaculture Centres in Asia-Pacific)

The workshop discussions on Research Gaps (Group 1), Capacity Building (Group 2) and Regulatory Policies and Harmonization (Group 3) made important recommendations in answering some relevant issues on food safety of aquaculture products in the region. Research gaps focus on the prudent use of drugs and chemicals in aquaculture, as there are no (or inadequate) regulations in most of the ASEAN member countries pertaining to their responsible and proper usage. Presently, many importing countries have become stricter in

the implementation of food safety regulations on aquatic animal products, including the presence of chemical/drug residues in both fresh and frozen products. This has resulted in occasional rejections of exported products, causing significant financial loss to the exporters. Although many publications on the prudent use of chemicals/drugs in aquaculture are available, the real concern is on finding alternative (to drugs/chemicals) prevention and control measures for important aquatic animal diseases affecting the aquaculture industry in the region.

As recommended, natural products can be potentially used as natural pesticides or antimicrobials for disease prevention and control. However, if we look at the published literatures in this regard, there is quite a lot of studies that have been undertaken evaluating the efficacy of compounds from natural sources (e.g. plants and microbes), but practical application of such findings is far from realization. The introduction of many probiotic products claiming beneficial microbial actions in enhancing immunity of cultured organisms or improving the microbial flora of the aquatic environment also have varied results, thus its usage cannot be standardized nor harmonized.

Going back to the importation and exportation of live aquatic animals and animal products, major importing countries are now imposing varied and stringent product quality and food safety standards which the exporters (mainly aquaculture producers from the region) are finding harder to comply. These importing countries (e.g. EU) have well established associations/organizations that meets regularly in coming up with such standards and regulations for importation of aquaculture products. Asia-Pacific region, on the other hand, is the major producer of aquaculture products in the world. Unlike other regions, however, each country in the Asia-Pacific seems to be performing separately in the production and exportation of aquatic products. In the annual General Assembly Meeting of the World Organisation for Animal Health (OIE) as example, where international standards, regulation and certification are discussed and formulated, Asia-Pacific lacks a unified voice in raising issues of concern. It was, therefore, recommended that Asia-Pacific countries become more pro-active in liaising with veterinary authorities in formulating comments and raising issues on aquatic animal health, food safety and certification (NACA, 2011). Moreover, a lobby group is also recommended to be formed among member countries to deal with these international standards, issues and regulations.

In view of the above, capacity building activities related to food safety issues are greatly needed for most ASEAN member countries. These include enhancement of training courses on food safety of aquaculture products, and awareness programs for dissemination of science-based knowledge, skills and information on food safety issues including zoonotic and transboundary aquatic animal pathogens, as well as chemical and drug residues.

As major aquaculture producers in the world, ASEAN member countries strongly need harmonized procedures for compliance to regional and international standards on food safety and health certification, for both live and processed aquaculture products. Asia-Pacific in general and ASEAN particular need to have “one voice” in raising concerns on the very high standards being imposed by some importing countries. Such action should give high considerations on the current aquaculture practices being implemented for the production of important aquaculture species in the region. If this “one voice” will be realized, the ASEAN or the region can come up with good compromise among major importing countries/regions that can then ensure the sustainability of aquaculture production and of export/import markets in the region and the world.

Reference:

NACA 2011. Report of the Tenth Meeting of the Asia Regional Advisory Group on Aquatic Animal Health. Network of Aquaculture Centres in Asia-Pacific, Bangkok, Thailand. 22 p.

Message:

I would be really pleased if the summaries of workshop discussions presented here could help you and each Member country in bridging the gaps and in addressing the emerging issues on food safety in the ASEAN region. It is our wish to relay/disseminate the outcomes of this meeting to contribute to the establishment of sustainable aquaculture practices in the region –

- Teruo Azuma, Ph. D., Chairperson, Organizing Committee, Deputy Chief & Co-Manager of GOJ-TF Program, SEAFDEC/AQD]

Appendix 1

Scientific Program

Wednesday, 8 May, 2013

07:30-08:30 Registration

OPENING CEREMONIES

Master of Ceremonies Dr. Ma. Rowena R. Eguia

08:30- Welcome Messages

Dr. Felix G. Ayson
Chief, SEAFDEC AQD

Atty. Asis Perez
National Director, Bureau of Fisheries and
Aquatic Resources (BFAR) and SEAFDEC Council
Director for the Philippines

Opening Remarks

Dr. Teruo Azuma
Deputy Chief, SEAFDEC/AQD and
Co-Manager, GOJ-TF5 Program

-09:30 Keynote Address

Mr. Hajime Kawamura
Deputy Secretary General, SEAFDEC

09:30-09:45 Break/ Poster Viewing

SESSION I

Moderator: Dr. Veronica R. Alava

09:45-10:15 **Country Report 1:** Food Safety of Aquacultured Products in the Philippines
*Simeona E. Regidor, Sonia S. Somga, Joselito R. Somga,
Marygrace C. Quintero*

10:15-10:45 **Country Report 2:** Status of Food Safety Management of Aquaculture Products
in Vietnam
Chau Thi Tuyet Hanh¹, Pham Hoang Duc², Nguyen Hoai Nam³

10:45-11:15 **Country Report 3:** Traceability system in Aquaculture Product, Cambodia
Bun Chantrea

11:15-11:45 **Country Report 4:** Food Safety of Aquaculture Products in Brunei Darussalam
Noriani Anggas

11:45-12:15 **Country Report 5:** Research Topics on Seafood Safety in Japan
Michiaki Yamashita

12:15-13:30 Lunch/ Product Presentation (Philab and Merck)

SESSION II

Moderator: Dr. Eduardo M. Leaño

- 13:30-14:00 **Country report 6:** Food Safety of Aquaculture Products in Lao PDR
Thongkhoun Khonglaliane
- 14:00-14:30 **Country Report 7:** Ensuring the Safety of Aquaculture Products in Indonesia
Tuti Hartati Siregar
- 14:30-15:00 **Country Report 8:** Food Safety of Aquaculture Products – Singapore
Perspective
Helen Phang
- 15:00-15:30 Break/ Poster viewing
- 15:30-16:00 **Country Report 9:** Food safety activities of Department of Fisheries, Myanmar
Hla Htay
- 16:00-16:30 **Country Report 10:** Food safety and Traceability for Marine shrimp Farm in
Thailand
Suwanna Worasing
- 16:30-17:30 Open Forum
Moderator: Dr. Relicardo M. Coloso
- 18:00- Conference Dinner (Cultural Night)

Thursday, May 9, 2013

SESSION III

Moderator: Dr. Leobert D. de la Peña

- 08:30-09:10 **Plenary Paper:** Challenges in Sustaining the Food Safety of Aquaculture
Products
Mark Tamplin
- 09:10-09:40 **Contributed Paper1:** Application of Edible Mushroom Extract to Prevent
Melanosis in the Farmed Shrimp Species, *Penaeus monodon* and *Litopenaeus*
vannamei
Angel B. Encarnacion, Toshiaki Ohshima
- 09:40-10:10 **Contributed Paper 2:** A Case Study on Exthoxyquin: A technical Barrier in
Philippine Shrimp Exports
Roselyn C. Usero
- 10:10-10:30 Break/ Poster Viewing
- 10:30-11:00 **Contributed Paper 3:** The Benefits and Risks of Fish Consumptions
Michiaki Yamashita
- 11:00- 11:30 **Contributed Paper 4:** Agro-Chemicals in Fisheries
Jose P. Peralta

SESSION IV

Moderator: Dr. Ma. Michelle D. Penaranda

- 11:30-12:00 **Contributed Paper 5:** Role of Academe Enhancing Capabilities on Food Safety
Emeliza Lozada

- 12:00-12:30 **Contributed Paper 6:** Food and Drug Administration Philippines and Food Safety of Aquaculture Products
Ma. Theresa Cerbolles
- 12:30-13:30 Lunch/ Product Presentation (Guill-bern Corporation))
- 13:30-14:00 **Contributed Paper 7:** An Integrated Approach to Seafood Safety and Quality Assurance: Philippines' Experience
Consuelo C. Baltazar

SESSION V

Moderator: Dr. Erlinda C. Lacierda

- 14:00-14:30 **Contributed Paper 8:** Challenging Microorganisms in Aquaculture Products: Establishment of Thermal Processes for Safety
Alonzo Gabriel
- 14:30-15:00 **Contributed Paper 9:** BFAR Food Safety Management and Control System
Dennis Tiotangco

WORKSHOP

Moderator: Dr. Rolando V. Pakingking, Jr.

- 15:00-15:15 Workshop Mechanics
Dr. Edgar C. Amar
- 15:15-16:15 Workshops: breakout sessions
 Group 1: Research gap ---methodology, emerging toxins
 Group 2: Capacity building ---infrastructure, training,
 Group 3: Regulatory policy, harmonizing policies among member countries
- Workshop outputs
- 16:15-16:35 Group 1
- 16:35-16:55 Group 2
- 16:55-17:15 Group 3
- 17:15-17:30 Summary of workshop outputs
Dr. Eduardo M. Leaño

CLOSING CEREMONIES

Master of Ceremonies: Dr. Ma. Rowena R. Eguia

- 17:30- Impressions on the Conference / Workshop
 Prof. Carlos Baylon
 Dean, College of Fisheries and Ocean Sciences
 University of the Philippines in the Visayas
 Miag-ao, Iloilo
- Prof. Mark Tamplin
 Centre Leader
 Food Safety Center
 Tasmanian Institute of Agriculture

-18:00 Closing Remarks

Dr. Relicardo Coloso
Research Division Head,
SEAFDEC/AQD

Appendix 2

List of Participants

SEAFDEC SECRETARIAT

1. Mr. Hajime Kawamura
Deputy Secretary General

AUSTRALIA

2. Dr. Mark Tamplin
University of Tasmania/
Food Safety Centre
Tasmanian Institute of Agriculture

BRUNEI DARUSSALAM

3. Ms. Noraini Anggas
Department of Fisheries
4. Ms. Siti Norhaziyah Pg Abd. Halim
Department of Fisheries

CAMBODIA

5. Mr. Chantrea Bun
Inland Aquaculture Office
Fisheries Administration

INDONESIA

6. Ms. Tuti Hartati Siregar
Research and Development Center for Marine and Fisheries
Product and Processing
The Agency for Marine and Fisheries Research and Development
Ministry of Marine Affairs and Fisheries

JAPAN

7. Dr. Michiaki Yamashita
Food Safety Assessment Research Group
National Research Institute of Fisheries Science

LAO PDR

8. Mr. Thongkhoun Khonglialiane
Namxouang Aquaculture Development Center
Department of Livestock and Fisheries

MYANMAR

9. Mr. Hla Htay
Ministry of Livestock and Fisheries

Department of Fisheries
Hlawgar Fisheries Station Mingalardon Township
Yangon, Myanmar

SINGAPORE

10. Ms. Helen Phang
Agri-Food and Veterinary Authorities
Singapore

THAILAND

11. Ms. Suwanna Worasing
Trat Coastal Fisheries Research and Development Center
Coastal Fisheries Research and Development Bureau
Department of Fisheries
12. Dr. Leano, Eduardo
Aquatic Animal Health Programme
Network of Aquaculture Centres in Asia-Pacific
Bangkok, Thailand

VIETNAM

13. Mr. Chau Thi Tuyet Hanh
Department of Aquaculture
Fisheries Administration

PHILIPPINES

Bureau of Agricultural Research, BAR

14. Espino, Marinelle
15. Gadong, Marnelie

Bureau of Fisheries and Aquatic Resources, BFAR

16. Agustin, Carmencita-BFAR 3
17. Amano, Kazami Joanne-BFAR 1
18. Ame, Evelyn-BFAR 2
19. Arvesu, Judith Mae- BFAR
20. Azarias, Joy –BFAR
21. Balagapo, Ronaldo-BFAR NCR
22. Baldonado, Mea-BFAR 1
23. Baltazar, Consuelo – BFAR
24. Bantaya, Mercedita – BFAR CO
25. Bilog, Sancho – BFAR 1
26. Cabrera, Ligaya – BFAR 4A
27. Encarnacion, Angel – BFAR 2
28. Francisco, Lorna – BFAR
29. Galang, Amanda – BFAR RFO 1

30. Jimenez, Ma. Eden –BFAR 9
31. Lumingkit, Evie – BFAR 10
32. Mallari, Chad Ryan – BFAR NCR
33. Minandang, Sittie Camalia – BFAR ARMM
34. Mora, Irmi – BFAR 5
35. Navarce, Madeleine Lourdes – BFAR 11
36. Pangantihon, Precilla – BFAR 6
37. Parungao, Welvin – BFAR 4A
38. Pingol, Thorndike – BFAR 10
39. Quintero, Mary Grace – BFAR CO
40. Regidor, Simeona – BFAR
41. Solano, Sherlyn – BFAR
42. Somga, Sonia – BFAR NCR
43. Talavera, Anna Melissa – BFAR 13
44. Tiotangco, Dennis – BFAR
45. Tud, Ruby – BFAR 5
46. Villarin, Ma. Kris – BFAR 8

Department of Science and Technology Reg. Office 1, DOST 1

47. Criste, Anita
48. Libunao, Decth-1180

SEAFDEC Aquaculture Department, SEAFDEC AQD

49. Alava, Veronica
50. Alayon, Stephen
51. Albacete, Rose Margaret
52. Amar, Edgar
53. Aralar, Maria Lourdes
54. Arnaiz, Margarita
55. Aya, Frolan
56. Ayson, Evelyn Grace
57. Ayson, Felix
58. Azuma, Teruo
59. Baes, Charis
60. Bantillo, Nanette
61. Bautista, Norwell Brian
62. Bautista, Richelle
63. Behemino, Churchill
64. Bilbao, Angela Denise
65. Binas, Joseph
66. Burlas, Aubrey
67. Burlas Michael Ray
68. Caballero, Pedrita
69. Castanos, Milagros
70. Catedral, Demy

71. Cedeles, Remaylyn
72. Chiongson, Justin Brian
73. Coloso, Relicardo
74. Coniza, Eliseo
75. De la Cruz, Joesyl Marie
76. De la pena, Jesserylle
77. De la Pena, Leobert
78. Dequito, Angel Queenee
79. Dumaran, Haydee Rose
80. Eguia, Ma. Rowena
81. Faigani, Gelyn
82. Faisan, Joseph
83. Frael, Irish
84. Garibay, Janelli
85. Genzola, Caryl Vincent
86. Gonzaga, Josette
87. Huervana, Joanna Joy
88. Ladja, Jocelyn
89. Logronio, Dan Joseph
90. Mallare, Mae
91. Mamauag, Roger,
92. Madario, Mary Anne
93. Marcial, Helen
94. Marte, Clarissa
95. Monsale, Don
96. Moquera, Germin
97. Ocampo, Conrado
98. Pagador, Gregoria
99. Pakingking, Rolando, Jr.
100. Palma, Peter
101. Paner, Milagros
102. Panizales, Jeralyn
103. Pascual Felicitas
104. Pedroso, Fiona
105. Penaranda, Ma. Michelle
106. Peneiro, Ma. Maila
107. Po, Gilda
108. Reyes, Daniel
109. Rillo, Jiji
110. Rivas, Peter Paul
111. Roble Tan, Jemar Jed
112. Sales, jayfrel
113. Salvilla, Yvonne
114. Silvestre, Jenalyn
115. Subaldo, Ronilo

116. Suresca, Setzel
117. Talaman, Tereso
118. Tendencia, Eleonor
119. Tendencia, Isidro
120. Teruel, Myrna
121. Torreta, Fely
122. Valera, Jessebel
123. Villacastin, Anne Jinky
124. Villegas, Cezar

Universities and Colleges

Central Philippine University , CPU

125. Borlongan, Ilda
126. Golez, Nelson
127. Guanzon, Nicholas, Jr.
128. Millamena, Oseni

Leyte Normal University (LNU)

129. Pascual , Pet Anthony

Sorsogon State College, SSC

130. Divinagracia, Felicidad
131. Palla, Vladimir Paul

University of the Philippines, Diliman (UPD)

132. Gabriel, Alonzo
133. Lozada, Emeliza

University of the Philippines, Los Banos (UPLB)

134. Natividad, Teresita

University of the Philippines in the Visayas (UPV)

135. Amar, Mary Jane
136. Andrino Karen Grace
137. Baylon, Carlos
138. Estante, Erish
139. Golez, Ma. Shirley
140. Jaspe, Cecilia
141. Lacierda, Erlinda
142. Peralta, Jose
143. Teruel, Luzette

Food and Drug Administration, FDA

144. Cerbolles, Ma. Theresa

Negros Prawn Producers Cooperative

145. Usero, Roselyn

Exhibitors

146. Cruz, Artemio – Philab Ind., Inc.

147. Evia, Rossel – Merck

148. Mabazza, Pamela – Guil-bern Corp.

149. Selorio, Jacinto – Philab, Ind. Inc.

150. Vargaz, Vangie Grace – Guil-bern corp.

Appendix 3

KEYNOTE ADDRESS

*by SEAFDEC Secretary-General
to be delivered by Mr. Hajime Kawamura, SEAFDEC Deputy Secretary-
General*

**at the International Workshop on Food Safety of Aquaculture Products
in Southeast Asia
8-9 May 2013, Iloilo, Philippines**

The Chief of SEAFDEC Aquaculture Department, Dr. Felix Ayson, the Deputy Chief, Dr. Teruo Azuma, delegates from the SEAFDEC Member Countries and other countries, representatives from international, regional and national organizations, representatives from the academe and the national government, my colleagues from AQD, ladies and gentlemen, Good morning!

It is indeed a great pleasure for me to be here with you during this two-day International Workshop on Food Safety of Aquaculture Products in Southeast Asia, to represent the Secretary-General of SEAFDEC. Therefore, on his behalf and my own self, please allow me to congratulate the organizing committee for the timely conduct of this workshop, considering the urgency of addressing the issues on “food safety” of aquaculture products. We are all aware that concerns on food safety in fish and fish products have now been given much attention since the demand of such products for human consumption is on the rise due to health, cultural and socio-economic reasons. Meanwhile, we should also recognize that when food safety is tucked in place, food security and sustainable development of fisheries could be assured.

In their attempts to supply the ever increasing demand for food fish, producers of fish and fish products have been excessively exploiting the natural resources beyond their maximum sustainable yields with most resources already on the verge of being over-exploited or depleted. In the midst therefore of such a scenario, the contribution and importance of aquaculture to food security has become very prominent. However, increasing production from aquaculture requires the adoption of intensive culture technologies that include increased use of fish-based protein and other additives in fish feeds as well as the use of chemicals and drugs as precautionary practices to prevent transmission and outbreaks of fish diseases. All these effort would need proper management which the countries and SEAFDEC through AQD should urgently attend to.

Together with increased production comes the need to trade the produce in international markets in order to maximize revenues and enlarge the coffers of fish producing governments. This in turn calls for the need to ensure the quality and safety of fishery products, which had been manifested in the stringent requirements of importing countries which also includes traceability of fish

products being traded. Nevertheless, the initiatives and efforts of the Southeast Asian countries in complying with such requirements in order to maintain their niches in the international markets deserve commendation.

At the regional perspective, we must recall the hopes of the ASEAN-SEAFDEC countries to attain food security and sustainable development of fisheries while adopting the “Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2020” in 2011. With “food security” being the state when “people at all time have access to sufficient, safe, nutritious food to maintain a healthy and active life”, it could be inferred that food safety is well integrated in the whole context of food security.

It is well recognized that SEAFDEC and the Member Countries have been exerting efforts to abide by the instructions set forth in the “Resolution”, especially on the need to “improve technologies and facilities to ensure fish quality assurance and safety management systems, taking into account the importance of traditional fishery products and food security requirements”. Likewise, SEAFDEC/AQD has re-crafted its plans and programs to take into consideration the requirements posed in the “Plan of Action” that aim to ensure the safety of aquaculture products. More particularly, such requirements include the integration of quality and safety management systems for products with significant trade potentials; harmonization of chemical use and food safety in aquaculture; development of product traceability systems from farm to market; and harmonization of quarantine and inspection/sampling procedures, and Sanitary and Phytosanitary (SPS) measures for aquaculture products to secure food safety.

Along this line of thoughts, the Member Countries with technical assistance from SEAFDEC embarked on several initiatives to guarantee the quality and safety of fish and fish products from the Southeast Asian region. We are happy to note that SEAFDEC/AQD had been successful in leading and supporting the Member Countries towards attaining their goals of achieving sustainability in aquaculture. Some the countries’ achievements include the promotion of Good Aquaculture Practices, advancement of sustainable fish health management, technical expertise in tracking down chemicals and antibiotic residues in fish and fish products, successful management of quality assurance systems, and promoting a unified traceability system for aquaculture products, among others.

Good Aquaculture Practices or the so-called GAP has been promoted in the region as precautionary approach to ensure sustainable development of aquaculture. GAP outlines the need to ensure food safety through proper fish nutrition management practices, application of sustainable health management schemes, and appropriate use of antibiotics and chemicals in aquaculture activities. GAP also aims to minimize the impacts of aquaculture to the environment, and ensures that aquaculture practices comply with animal welfare and safety requirements of aquaculture workers.

In advancing sustainable fish health management, several national and regional

endeavors had been pursued with technical assistance from AQD, especially on the detection, diagnosis, treatment and adoption of preventive measures for aquatic animal diseases. In addition, disease surveillance systems had been embarked in collaboration with other organizations particularly NACA and OIE. On the use of antibiotics and chemicals in aquaculture, development of the “guidelines for the use of chemicals in aquaculture in ASEAN” with Malaysia as the lead country, received technical inputs from SEAFDEC/AQD based on results of its R&D activities. Moreover, the capacity of laboratories of the Member Countries in the detection of chemicals and antibiotics residues in fish and fishery products had been enhanced through the efforts of SEAFDEC.

Building up the capacity of the region’s laboratories would assure that the fish and fishery products from the region do not contain levels of chemicals and drugs that exceed the standard limit of importing countries and are fit for human consumption. The application of quality assurance systems such as the Hazard Analysis and Critical Control Point or HACCP had also been promoted at farm level, particularly in large farms as preventive systems to assure food safety and quality, as well as the Standard Operating Procedures for Good Manufacturing Practices for small- and medium- establishments. Implementation of these systems had been advocated to ensure food quality and safety, not only for products bound for the export market but also those for domestic consumption.

Several countries in the region have been adopting traceability systems for their aquaculture products. This entails keeping track of the sources of all inputs, including fry, feed, chemicals and drugs, and other inputs used in aquaculture process from farms until the products reach consumers. Traceability systems would ensure that fish products being traded come from culture operations performed in a safe and sustainable way.

Ladies and gentlemen, the list could be very exhaustive and long, but from the abovementioned examples, we could see the several measures initiated and practiced in the region to ensure the quality and safety of aquaculture products. Nevertheless, we should also recognize that aquaculture activities in Southeast Asia are undertaken mostly by small-scale operators with limited resources, capacity and knowledge, making it difficult for the countries to raise awareness of the emerging situations and comply with the requirements.

It is therefore now the role of national governments to seek assistance from relevant regional/international organizations in order to extend support and enhance the capacity of small-scale aquaculture operators to adapt the necessary preventive and control measures, and to develop technologies that could be easily adopted by small-scale farmers. Another big challenge that lies ahead of us would be for countries in the Southeast Asian region that could be collectively considered as large aquaculture producers, to cooperate and come up with harmonized approach and build up the strength of the region in ensuring the quality and safety of fish and fish products. All these efforts could spring into an assurance that the competitiveness of aquaculture products from the region in the world markets is enhanced.

Ladies and gentlemen, I believe that there is still a wide range of things that could and should be done to guarantee the food safety of our aquaculture products. Nonetheless, it is the task of the countries, especially the policy makers, researchers, scientists and all delegates attending this workshop to explore the possibilities including the priority areas and required support that could pave the way for the promotion of activities that aim to enhance food safety of aquaculture products in Southeast Asia. SEAFDEC would be willing to take part in these endeavors.

Lastly, I wish to reiterate our gratitude and appreciation to AQD and to the organizing committee for this Workshop, and especially for inviting the SEAFDEC Secretariat to be part of this activity. On behalf of SEAFDEC Secretariat, I also wish to thank the participants for coming this long way to attend this Workshop. With your presence and active participation, we could be assured of the success of the Workshop and I look forward to your fruitful recommendations.

Thank you very much, and good day!