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Seminar-Workshop on the Assessment of Good Animal Husbandry Practices (GAHP) in APEC Member Economies

Agricultural Technical Cooperation Working Group
APEC-SOM Steering Committee on Economic and Technical Cooperation

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INTRODUCTION

A Seminar-Workshop on the Assessment of Good Animal Husbandry Practices in APEC Member Economies is a three-day activity organized by the Bureau of Agriculture and Fisheries Product Standard (BAFPS) of the Philippine Department of Agriculture (DA) last 25-27 October 2011. This project aspires to create cooperation and competency in identifying specific inadequacies vis-a-vis the individual and collective animal husbandry practices of the APEC Member Economies.

There were sixteen participants and three experts from ten member economies coming from Brunei Darussalam, Chile, Indonesia, Malaysia, Peru, Philippines, Australia, New Zealand and United States respectively.

The project overseer was Dr Alpha P. Mateo of BAFPS and the project consultant was Mr Gilberto F. Layese of Kahariam Realty and Farms Inc.

The list of the participants, resource speakers and project team can be found at Annex 1 of this document.

The activity was comprised of three components namely lectures, member economy presentations and workshop. The program of activities is seen in Annex 2.

OPENING PROGRAM

The APEC Seminar-Workshop on the Assessment of Good Animal Husbandry Practices (GAHP) in APEC Member Economies started with the opening remarks given by the Officer-in-Charge (OIC) of the Bureau of Agriculture and Fisheries Product Standards (BAFPS), Ms Angelina A. Bondad. In her message, she extended her warmest welcome to the resource persons, guests and participants to the seminar-workshop. Also, she emphasized that the 3-day activity of the APEC Technical Cooperation Working Group under the APEC-SOM Steering Committee on Economic and Technical Cooperation aims to create cooperation and competency in identifying specific inadequacies in relation to husbandry practices in APEC member economies vis-a-vis the individual and collective animal husbandry practices among the economies and wished for the success of the activity. In closing, Ms Bondad encouraged the participants to discover the culture and offerings of Tagaytay City and the Philippines. The opening remark of Ms. Bondad is listed in Annex 3.

Mr Manuel R. Jarmin, Executive Director of the Livestock Development Council (LDC), Department of Agriculture (DA) Philippines delivered the Welcome Remark (Annex 4) on behalf of the Secretary of the DA, Honorable Proceso J. Alcala. Mr Jarmin acknowledged the presence of the resource persons and pool of experts from Australia, New Zealand and the United States for sharing their time and expertise to facilitate the success of the APEC Seminar-Workshop. He commended APEC for their continued involvement to be a powerful medium for regional prosperity through free trade and investments, and creation of avenues for greater interchange

in food and agriculture towards rural development. Furthermore, Mr Jarmin briefly introduced the GAHP program being implemented by the DA in keeping with the demand for greater food safety in the food chain in a manner that does not harm the environment or jeopardize the safety and welfare of producers and other workers in food production and trade. In his speech, Mr Jarmin indicated that the DA is considering the implementation of GAHP as one of its priorities to achieve food security and safety throughout the food chain.

The USDA Animal and Plant Health Inspection Service (APHIS) attaché to the Philippines, Mr Kelan Evans also gave a message to the participating APEC Member Economies. In his speech, he shared his experience working in Afghanistan, implementing projects that assist farmers enhance their production and produce food for the community. According to him, food is a necessity that most people take for granted. He added that in most developing economies, food safety and food security information are almost unheard of. However, Mr Evans reminded the group that ensuring food safety should be in line with efforts of achieving food security for all economies. In closing, the USDA Attaché expressed his gratitude to the organizers of the activity and acknowledged the participation of the delegates coming from Brunei Darussalam, Chile, Indonesia, Malaysia, Peru, Thailand and Philippines.

RATIONALE AND OVERVIEW

The project overseer for the APEC seminar-workshop introduced the rationale and background information for the activity (Annex 5). Dr Alpha Mateo explained that the three (3) day activity of the APEC Agricultural Technical Cooperation Working Group (ATCWG) was organized under the APEC SOM Steering Committee on Economic and Technical Cooperation with the aim to create cooperation and competency in identifying specific inadequacies vis-a-vis the individual and collective animal husbandry practices of APEC Member Economies. Similarly, Dr Mateo added that seminar-workshop also intends to fulfil the following specific objectives: (a) assess the current situation of livestock and poultry industries and its relationship to rising public health concerns among member economies, production capacity and product safety; (b) create a forum and initiate regular discussion on regional issues on animal production systems; and (c) share best practices on good animal husbandry among APEC Member Economies. Consequently, at the end of the seminar-workshop, the participating Economies should be able to come with a collation of best practices, SWOT Analysis and recommendations for future undertakings related to supporting GAHP. To facilitate the delivery of the expected outputs, the seminar-workshop shall be executed through lectures from the resource persons, member economy presentations and a workshop on developing SWOT analysis for implementation of GAHP.

For the first part of the lecture, an overview of Good Animal Husbandry Practices (GAHP) was delivered by Mr Gilberto F. Layese, project consultant for the activity (Annex 6). He clarified that the presentation covers only GAHP in relation to food safety and would not discuss GAHP in line with biosecurity issues. As an introduction, Mr Layese defined food safety in accordance to the definition set by the Codex Alimentarius (Codex). After which, he added that the lapses in food safety can be attributed to food borne diseases which causes morbidity and mortality, particularly in vulnerable populations such as the children, elderly, immuno-compromised individuals, and pregnant and lactating women. Likewise, it was emphasized in the presentation that food safety challenges differ by region due to various factors including disparity in income levels, diets, local conditions and government infrastructure. Mr Layese shared the report of the Center for Science in Public Interest (2005) that for developing economies, several food safety concerns have been observed, namely: (a) inappropriate use of agrochemicals, (b) use of

untreated or partially treated waste water, (c) use of sewage or animal manure on crops, (d) insufficient food inspection, (e) lack of infrastructure, and (f) poor hygiene including lack of supply for clean water.

Moreover, Mr Layese discussed the factors that increase food safety challenges as reported by the World Health Organization (WHO) such as change in agronomic process, increase in international trade, changes in food or agricultural technology, increase in susceptible population, increase in travel, changes in lifestyle and consumer demand, bioterrorism, changes in animal husbandry. He also enumerated the various aspects of a Good Animal Husbandry Program by citing examples of criteria in which animal production units can be verified against by checking and ensuring safety of farm workers, identifying appropriate farm location or sites, proper animal housing facilities, sustainable farm management, animal feeding, environmental management, and animal product and handling. The GAHP program of the Philippines was given as an example during the presentation. Mr Layese indicated that in the economy, GAHP sets only minimum requirements for the industry and implemented voluntarily. However, he mentioned that the Philippines has started to introduce a certification program to support adoption of GAHP in the economy and allow farmers and producers to enter both local and international markets.

AUSTRALIAN LIVESTOCK EXPERIENCE

In the introduction of the export of Australian Livestock experiences (Annex 7), Dr Mark Schipp shared the recent crisis faced by the Australian livestock industry. According to him, Australia has been exporting a large volume of livestock products to Indonesia. However, in the current year, media coverage reported poor animal welfare in the livestock industry including the export of livestock to other economies. As a result of the media report, the Australian government suspended their exports in order to focus on a more sustainable approach on livestock and animal husbandry. Dr Schipp informed the participants that his presentation is the first formal public presentation of the revised Australian system for the export of Australian livestock. His presentation covered drivers for change, domestic and international action to address the issue on animal welfare. According to him, the main drivers for change in the livestock industry included considerations on animal welfare outcomes in the whole supply chain in response to the clamour of the Australian community for more humane treatment of animals and thus fostering industry sustainability. To initiate the change, the Australian government established two working groups to come up with recommendations for the improvement of management of the system. However, Dr Schipp emphasized that current existing Australian standards on animal husbandry is not below international requirements but further improvements were encouraged in the review.

Being one of the main exporters of meat products, the Australian Livestock Industry is in constant need to continuously meet the needs of importing economies and trading partners. Parallel to this, their industry is constantly managing the high-risk situation of handling live animals vis-a-vis community expectations for humane treatment of animals under the ambit of a good regulatory system. As a result of this, Dr Schipp reported that the actions to address the issues taken to date by the Australian government were (a) announcement of lifting of suspension of trade with Indonesia on 6 July 2011; (b) building supply chain assurances and (c) improving regulatory framework implemented for live feeder and slaughter cattle exports to Indonesia. By 21 October 2011 over 100,000 heads of cattle were already exported to Indonesia. Farmers affected by the temporary discontinuation were given subsidies and assistance to offset the effects of the measures.

As explained by Dr Schipp, the new framework developed shall only be applied for exports. One of the major changes in the framework includes strengthening the control, tracking and accountability of animals throughout the supply chain. Independent audits by a third party is being required prior the issue of export permits. These requirements ensure that the industry has a long term future and provide importing economies with confidence that Australia is a reliable trading partner. The revised framework shall be applied to all requirements and all livestock export in the beginning of next year. Implementation is targeted to be at seventy-five percent (75%) in February 2012 and full adoption by the end of December 2012. For the Australian government, this entails a lot of work to properly institute the changes but this is vital to ensure that trade is not disrupted and no legal impediments shall occur. Similarly, Australia is pledging to aid ten million Australian Dollars (AUD $10M) over four (4) years to eligible economies for the improvement of animal welfare.

The Australian case may serve as a lesson for governments in efficiently adopting and acting on issues without vitally closing markets. Close consultation with various stakeholders also served to be a vital action to ensure success and ease of adoption of proposed measures. In developing the framework, the government engaged the industry, state and territory governments, importing economy governments and animal welfare groups.

Parallel activities have also been initiated by the Australian government in their domestic industry. As one of the proposed action, a review of the Australian Standards for the Export of Livestock (ASEL) is set on February 2013. Similarly, the state and territory governments are tasked to create enforceable laws on animal welfare standards. Similarly the industry sector shall be encouraged by the government to implement a through-chain quality management system. In compliance with the recommendations generated by the working group, Australia shall be reinforcing their system for animal identification. Currently, mandatory tagging is done only for cattle. Consequent adjustments of the system shall include electronic tagging of sheep and goat.

Another recommendation emerging from the review is to enhance the accreditation mechanism of the Australian Quarantine Inspection Service (AQIS) veterinarians. Likewise, a reassessment of the shipping standards and carriage/export of livestock and re-examination of the post-arrival conditions for export of breeder livestock are also actions for completion by the government.

After the presentation of Dr Schipp, several questions were asked by the delegates. One of the questions asked for clarification whether the new export protocols issued were specific only to Indonesia. In response, Dr Schipp replied that the immediate actions undertaken by the Australian government addressed the issue of their export to Indonesia. However, the actions and changes in the system were extended to be adapted to other economies where Australia has trade. Similarly, one of the delegates inquired about the role of the government vis-a-vis involvement of the private sector in the revised system. As an answer to the query, Dr Schipp stated that the private traders issue ‘contracts to sell’ with their corresponding buyer in the importing economy. The Australian government issues export health protocols for every livestock exported outside of the economy. In compliance with the changes, the government has imposed additional provisions to the Export Control Act that Australian traders should be able to provide proof that each head of cattle scan be accounted for throughout the supply chain.

Lastly, a question was raised regarding information on how to avail the assistance from the Australian Government in the importation of slaughtered animals. Accordingly, Dr Schipp informed the participants that assistance may be given to Official Development Assistance

(ODA) eligible economies with the vision that the economy may invest in improving animal welfare facilities. To facilitate in obtaining information on the revised export standards including the proposed assistance to importing economies and other clarifications, the Australian Government has established a dedicated website at www.liveexports.gov.au.

DAIRY FARMING IN NEW ZEALAND

Dr Richard Laven of the Institute of Veterinary, Animal and Biomedical Sciences, Massey University in New Zealand presented an overview of Dairy Farming in New Zealand (Annex 8). The focus of his presentation was on New Zealand Dairy Farming system as it impacts food safety, particularly on the threats of existing and emerging zoonoses. As a background, Dr Laven indicated that New Zealand has and continues to have a solid agricultural backbone. A huge part of the industry can be attributed to dairy, with an estimated forecast in growth to reach eleven billion dollars ($11.9B) by 2012.

In general, New Zealand dairy is dependent on pasture. To be efficient, livestock farmers match calving with pasture supply to ensure that lactation matches the availability of pasture during autumn and winter months. Farmers are able to do this by promoting seasonal breeding with once a year calving patterns to ensure that a small amount of autumn calving is needed in order for the liquid milk market to persist. During summer, there is higher pasture than feed requirement thus pasture that can be stored is converted and conserved for use in winter months. Starting August, the feed requirement is higher than in summer, therefore pasture converted in summer is given to the herds. Calving is also recommended during this period, with consequent conceiving in October and drying off in December to meet the pasture growth pattern. Since the industry is export driven, the farmers aim for high milk solids (e.g. fat and protein content) and not volume of milk per cow.

Current statistics indicate that herd number is stable for the period of 2005 to 2009. However, the number of cows is increasing steadily from 3.83 Million in 2005 to 4.25M in 2009. To meet the demands of the dairy market, New Zealand has shown increased production of milk attributed to the increase of cows per herd. On the contrary, though New Zealand has a significant number of sheep, that population is dropping due to the conversion of farms from sheep to dairy cow production systems.

The New Zealand dairy industry can be categorized into five (5) types. System 1 is described as a production method wherein all grass is self contained for the stock on the dairy platform. For System 2, feed, around four to fourteen percent (4-14%) of feed is imported in the farm as supplements or grazing off, particularly for dry cows. On the other hand, System 3 is depicted as a production unit relying on ten to twenty percent (10-20%) imported feed to extend lactation (for autumn feeding) and for dry cows. System 4 and 5 are rarely employed with the former relying on twenty to thirty percent (20-30%) imported feed used during lactation and for dry cows, and the latter using imported feed all year. Most dairy farms in New Zealand use System 2 and 3.

A further description of land and production systems for dairy farming was presented by Dr Laven. According to him, pasture land for cows are mostly flat in contrast with rolling lands used for sheep grazing. Stocking density is generally high. Pasture is maximized for grass production and grass intake. For imported feeds used as supplement, maize or grass silage, molasses, and palm kernel extract is used. However, the use of feed pad is still limited. For winter, options are grazing, grazing off and use of fodder crops.

Cows are usually grazed in close proximity as they graze in small areas. The increase in cow grazing increases risk for contamination of irrigation water. Similarly, the use of housed systems also impact on the environment particularly on storage of slurry. However, this is not a current problem in New Zealand since housed systems are seldom employed. In contrast, limited housing for calf increases prevalence of scour. Pneumonia is also a common problem in calf, but current statistics indicate that New Zealand has low prevalence on pneumonia. Dr Laven added that this may be attributed to the low intensity system adopted by dairy farmers for their cows. He explained that the New Zealand system is working because farmers rely on low inputs as possible. Should there be increased housing requirement of cows, then a more active management system is needed by dairy farmers.

Although the farm management system is working excellently working, threats to the health of the animals remain to be a priority. Key zoonoses for the dairy industry include *tuberculosis* spread by opossums. The current control measures undertaken to for mitigating the spread of TB is through aerial spraying of medicine. *Leptospira* are also spread by opossums. As such, dairy farmers in New Zealand are required to have a risk management plan to control the spread of leptospirosis. Strict biosecurity measures are being implemented between and among dairy farms to prevent the spread of the disease. *Salmonella* contamination is also a threat because it is present in the environment. Once *Salmonella* is in the farm, then it becomes a big issue because it can spread rapidly. Appropriate dairy pasteurization protocols can solve the issue. For New Zealand, salmonella contamination remains to be low since farms do not use significant amounts of imported feed material and rely mostly on pasture.

Other key zoonoses include *Cryptosporidia* that has caused reported outbreaks involving veterinary students in New Zealand. Similalry, *Escherichia coli* has caused some outbreaks in bobby calves fed with contaminated apple puree. The threat of *Giardia* is also critical as it may come from contaminated waterways. A large percentage of dairy farms rely on tank or well water, thus proper handling of slurry and manure is necessary to avoid contamination of ground water in the farm. Lastly, *Mycobacterium avium* and Johnes are important zoonotic diseases for dairy cattle in New Zealand.

Good animal husbandry is critical to control diseases in the farm unit. For New Zealand, pasture based systems are seen to reduce spread of disease. However, increasing the herd size also increase risk for the spread of diseases. Similarly, proximity of farms is also of biosafety concern. Although the current dairy farm management structure in the economy is functioning quite well, there is a need to improve the system in order to actively manage threats and spread of disease.

In conclusion, Dr Laven stated that other risk management strategies being implemented in New Zealand include vaccination for leptospirosis, tuberculosis eradication program, employment of milk pasteurization protocols and limiting human-animal contact. Still, active controls on farm as well as legislative controls are limited. In particular, he recommends that the dairy industry should look into improving and changing multi-suckling schemes and pooling of colostrum for cows as part of its active risk management strategies.

Based on the presentation given by Dr Laven, one participant from the Philippines stated that in their experience in the importation of live animals from New Zealand, there has been difficulty in getting health certificate from the latter. As such, the delegate from the Philippines inquired regarding the appropriate channels to which these certificates could be obtained. In response, Dr Laven explained that New Zealand gives very minor health certificates, unless in cases

where there are existing disease in the area where the cattle is sourced. Furthermore, he added that export requirements from New Zealand are matched according to the requirements of the importing economies. For example, in requesting for a health certificate, the Philippines may request for the certification of particular diseases or zoonoses of concern from New Zealand.

The effect of raising New Zealand cattle from a pasture system to a more feed dependent system was asked by one delegate. Dr Laven answered that milk production of the cow shall depend on the size of the cow and not the management system to which the cow is subjected. According to him, by changing from a pasture based system to a high producing system, it is possible to increase yield based on the size of the cow. Likewise, there is no perceived increase in the risk in cow welfare and disease. The opposite may be observed however, if the system is from a high producing/feed depended system to a pasture based system. In this situation, the milk yield may be restricted and low fertility may be a common effect.

Another inquiry was raised regarding animal welfare concerns on the housing of cows in New Zealand. As a response, Dr Laven indicated that there have been concerns on housing but partly because some other stakeholders do not understand that the need and application of housing vary according to the conditions and situations present in the field. He elaborated that there is a need for housing particularly in the winter time in order to provide adequate protection for the animals. Also, the dairy industry needs to look into the proper balance between solving environmental issues and managing food safety risks.

The delegates also requested further elaboration on the waste management strategies implemented by the dairy farmers in New Zealand. Dr Laven explained that their current system provides little control for managing waste. As such, there is a need for their government to implement stronger policies and conduct capacity building activities for sustainable management of dairy farms and avoid problems in contaminating waterways.

Discussions also ensued regarding appropriate techniques in improving milk solid content of dairy cows. Dr Laven clarified that in general, less liquid milk produced entails increased milk solids solely due to dilution effects. However, he further described that for dairy cows, the Jersey breed has been a popular breed used for milk production. Also, it has been shown that there is little effect of pasture in the levels of milk fat of dairy cows but supplementation of oil seeds in the diet provides increased levels of milk fat.

ANIMAL HUSBANDRY IN THE US

An introduction of the system for monitoring and regulating animal husbandry activities in the US was given by Mr Kelan Evans of the United States Department of Agriculture (USDA) (Annex 9). In his presentation, he focused on key offices/authorities in USDA that influence public health safety for animals. For the US, animal husbandry is a diverse industry, covering livestock and poultry farms that use pasture, barnyard and/or landless production systems for home consumption, domestic and international markets.

In general, most US livestock production industries have developed and implemented science-based animal care guidelines driven by consumers' concern for animal welfare, including voluntary audits. However, the US does not impose mandatory ear tags for cattle as in the case of Australia. The important agencies involved in monitoring and regulating animal production in the US was identified by Mr Evans to be the following: Animal and Plant Health Inspection

Service (APHIS), Food Safety Inspection Service (FSIS), National Institute of Food and Agriculture (NIFA), and the Agricultural Marketing Service (AMS).

The APHIS is in charge of protecting and improving the health, quality and marketability of US animals, animal products and veterinary biologics. It is also the office in charge of veterinary laboratories and serves as a center for veterinary biologics. Also, the APHIS conducts animal health surveillance, monitoring and reporting throughout the US. Through the National Animal Health Surveillance System (NAHSS) of the APHIS a collaborative network of agencies in the US was created to do rapid detection of outbreaks and diseases and improve traceability of animals and animal by-products. In 2003, the NAHSS was proven to be effective in detecting Bovine Spongiform Encephalopathy (BSE) in the US. As a concrete result of this outbreak, Japan has immediately stopped their importation. However, the early detection of the BSE outbreak helped in averting and controlling the outbreak efficiently. Currently, USDA is revising its regulations for improving the traceability of its livestock, particularly those moving interstate in order to address animal disease events when it takes place. USDA is still accepting comments to their proposed rule until 9 November 2011.

Likewise, APHIS is also implementing the National Poultry Improvement Plan which involves cooperation between federal, state and industry representatives. The plan focuses on improving disease diagnostic technologies for commercial and backyard poultry production, waterfowl, game birds and other species.

Another critical agency of the USDA is FSIS. The FSIS implements the Hazard Analysis of Critical Control Points (HACCP) validation program to reduce the occurrence and numbers of pathogenic microorganisms in meat and poultry product.

The NIFA is also a critical network of the USDA which is a result of collaboration between state and federal government to work on animal disease diagnostics. Similarly, NIFA manages state-based informal education and agricultural assistance to communities in the US. They also provide competitive grant programs for the improvement of animal production and health.

Of similar importance to the monitoring and regulation of animal products in the US is the AMS. The AMS implements various certification schemes to provide assurance on the safety of food products. Among its programs include poultry grading and certification, diced chicken quality control, shell egg grading and certification, shell egg surveillance and economy of origin labelling program. Similarly, the AMS is also in charge of implementing the National Organic Program of the USDA. The certification scheme for organic products involves verification of standards concerning production, handling and maintaining its organic integrity. This is done through accredited organic certification agencies of the USDA.

Similar to the previous presentations, the US is looking forward to a more robust international market for animals. In line with the expansion of trade for animals and animal by-products, traceability systems are seen as a vital tool to minimize the impact of risk. Mr Evans reported that through the USDA's effective surveillance scheme, a shipment of poultry product having low pathogenic avian influenza aptly discontinued and further outbreak in the state of Missouri was adequately controlled. Likewise, reduction of greenhouse gases is seen as an important step in improving efficiency in the animal production systems. Future challenges for the industry such as increase in feed prices and greater pasture conservation should be looked into.

Discussions regarding the recommended approach and inter-phase with stakeholders and animal rights activists followed after the presentation. Although the US indicated that they have

not been able to effectively inter-phase with such groups, Dr Schipp shared Australia's experience in engaging the stakeholders. For the case of Australia, the private sector took the responsibility of initiating changes in the industry. Increasing public demand to have the government take more action on the issue of animal welfare led to effective dialogues between the private and public sector on improving standard and codes of practice for the livestock industry. Also, Dr Schipp recommended that by including various stakeholders in the consultations allowed the groups to positively respond to the approaches proposed by the government.

On the issue of implementing programs on climate change, Mr Evans answered that the US is not yet fully implementing programs on climate change. However, for Australia, Dr Schipp informed the group that their government is imposing carbon taxes on big players in the livestock sector. Currently, the biggest three (3) abattoirs in Australia pay the taxes, thus making the small players comparatively efficient. In line with this, a question was raised whether economies outside of Europe implement 'belching taxes' for livestock production. Dr Richard Laven replied that New Zealand does not impose belching taxes. He explained that inefficient systems are to be blamed for increased greenhouse emissions. Even though there are a large population of ruminants in New Zealand, the total greenhouse emission is relatively low due to the efficient production system as compared to EU systems.

AUSTRALIAN ANIMAL HUSBANDRY PRACTICES AT FARM LEVEL

The "Australian Animal Husbandry Practices at the Farm Level" was presented and discussed by Dr Schipp. He began his presentation by giving a situationer of the livestock industry which is then proceeded by his elaboration on the government regulations at the same time highlighting the differences on practices at the on- and off- farm levels. His full presentation can be found in (Annex 10).

Dr Schipp gave insight that the concerted effort of various sectors is the reason why the livestock industry in Australia continues to prosper. The consumer group, for one, is looked at as one of the drivers of change in the Australian livestock industry, while the private sector matches the funds put forward by the federal government on research. As a testimony to this agreeable set-up, the government in close collaboration with the private industry stakeholders were successful in creating two (2) important documents that provided guidance for animal practitioners, namely *A national guide to the selection of animals fit to transport: Is it fit to load?* and *Animals at Salesyard.* Further to the role of the government in each state and territories, he discussed the close relationship of the central federal government with the each state/territory governments since the control of animal production and the development of legislations based on regularly revised Codes are developed and done at their levels.

Dr Schipp continued his presentation by discussing in detail on-farm animal husbandry practices which include: handling and housing, identification, health, nutrition, breeding, transport and abattoirs.

Handling practices were recommended mainly to prevent the spread of diseases, improve animal health and increase production. He also elucidated on the identification strategies being practiced in Australia that is seen as a viable management tool which can assist farmers in supervising herds.

Currently, the government is encouraging farmers to use non-invasive identification (ID) system approaches. Among this is the use of ear tags, electronic tags, ear notch, and radio frequency identification (RFID) system. Dr Schipp also informed that there are still some farms in Australia that practice hot iron branding or tattooing. However, requirements on branding differ from state to state such that registration is compulsory in some. He also emphasized that the ID system encourages minimal handling of livestock since all procedures in the farm can be done or conducted at the same time. Moreover, electronic tags were very helpful as a traceability tool for the government especially to manage emergency situations.

With regard to warranting the health of farm animals, most farmers in Australia employ practices that will improve the health of the stock while ensuring the quality of the products. In order to further explain his point, Dr Schipp provided examples of practices done in the sheep and hog industries. He also pointed out that in Australia, weaning is seen as an important method that helps in improving the fertility and behaviour of animals and its future productivity.

Dr Schipp also discussed that artificial insemination is basically the breeding technique being used in whole of Australia. Other biological techniques are not applied since most of the farm animals receive sufficiently sunlight and these alternative techniques are only applicable to indoor breeding.

For the off-farm animal husbandry practices, Dr Schipp touched on considerations for transportation and abattoirs. Considering that most farms in Australia are quite a large distance from the nearest abattoirs, the government including all stakeholders have to ensure that conditions during transport are at the optimum. Standards for transportation include considerations for road feeding, rest period and duration of journey. These standards, he further stressed, are applicable to all people handling livestock meaning from those involved n the farm to transport operators and to people that will receive the animals in the abattoirs.

After his presentation, Dr Schipp answered queries pertaining to goat production in Australia, criteria used for farms which exports animals and/or animal by-products to trading partners, implementation of quarantine protocols, relationship of food safety and animal welfare, state regulations on IDs, accreditation of veterinarians, transportation of animals and its relationship to movement of diseases, and strategies in addressing concerns of animal welfare advocates.

He explained that goat production in Australia is not a significant part of the livestock industry and goat meats are not normally purchased by Australian consumers. Goats are most often than not are wild caught, reared for another two (2) weeks and are then sold to the market. Even with this domestic situation, Australia exports live goat and its meat around the world.

On the criteria being used to determine which specific farms are allowed to export, Dr Schipp explained that quarantine restrictions are only being imposed on ‘blue tongue’ disease and there are health protocols being implemented on this. Considering that trading agreements are between the importing and exporting companies, the government only requires registration of the premise and following certain government quarantine protocols. These protocols, however, are highly dependent on the product being exported.

He also explained on how Australian government addresses animal welfare and food safety issues. At present, there is an existing harmonious relationship between the government and private industry which is seen through their partnership on the production of safe meat. If there are emerging issues which identifies meat as cause of a foodborne outbreak, these are generally dealt with through a forum.

Dr Schipp further elucidated the issue through sharing their experience on handling exported meat with compounds that were detected as residues. So as to properly handle future concerns, the Australian government established a National Residue Program and the issuance of Health Certificates are based on the results of analyses. Another illustration that he shared was on how they handled the cadmium residue problem on farms that apply fertilizers on pasture lands. The sheep industry of Australia now has system instituted to address this issue. Other emerging food safety issues like *E.coli* and *Salmonella* contamination were acknowledged as being difficult to manage at the farm level. To this, Dr Schipp emphasized that programs are specifically adjusted based on the risk identified.

Giving motivation to member economies, Dr Schipp expounded on how the cattle identification system was established in Australia. The cattle ID system is an economy system which started through a dialogue between the federal government and all states and territories. In the said forum, the agreements were made and the federal government initially paid the state governments and territories to get the system going. After which, the management of the system were left to the industry with the government having access to the database created. Through this system, Dr Schipp emphasized that the traceability system is easier to run, cost effective and addresses the issue of government oversight. Through the years, they have proven that the system helped them to trace on which farm(s) the infected animals came from which are then addressed/remediated in the abattoirs.

The Australian government is also sensitive to the concerns of animal advocates and these are effectively tackled through the conduct of National Welfare Forum, issuance and implementation of the standard *A national guide to the selection of animals fit to transport: Is it fit to load?* and through carefully considering the establishment of an abattoir in Northern Australia, for instance. The Code provides guidance for the transportation of animals with bad conditions and on travelling of animals along a certain distance. Dr Schipp also explained that the Australian Code was drafted according to their specific circumstances since EU conditions when applied to their situations will entail higher costs.

Given that Australia also lacks the manpower to manage and provide services to all registered farms, the government has established an accreditation procedure for veterinarians. These private veterinarians undergo a training conducted by the government agencies and receive accreditation afterwards.

Through this scheme, the farm can opt to hire accredited veterinarians to supervise the vaccination on farm, preparation of animals for export and for long voyage and to manage the animals during transport.

DAIRY HUSBANDRY AND FOOD SAFETY IN NEW ZEALAND: A VETERINARY PRACTITIONER'S PERSPECTIVE

The perspective of a private veterinary practitioner regarding the dairy cattle husbandry practices in New Zealand and its relationship to food safety was presented by Dr Laven and his presentation can be found in Annex 11.

He took the member economies through the day-to-day activities of a dairy farm, giving emphasis on its importance as key interaction. He also shared that in New Zealand, registration of all agricultural compounds and veterinary medicines is a requirement unless these

compounds meet certain criteria for exemption. The decisions of farm veterinarian on the use of compounds and/or medicines are also guided by a schematic diagram. Dr Laven also informed that veterinary drug labels in New Zealand are more of advisories rather than statutes, thus, giving the veterinarians the liberty to decide using the best science available. Then again, this comes with great responsibility if problems will arise from the decisions made.

Dr Laven also gave insights on the key issues facing the dairy industry of New Zealand and these comprise of dry cow treatment, food safety issues on bobby calves and antibiotic resistance. As the core issue on bobby calves is on veterinary residues, the New Zealand regulatory agencies put heap of polices on what and what can be done to treat bobby calves. On a related note, he shared the link to a code of practice that discusses good basic risk management and highlighted strategies to ensure animal health and its relation to food safety. One of those approaches is to ensure that animals' teats are clean and dry before clusters are applied, thereby, guaranteeing low level of bacterial load in milk. The issue of antibiotic resistance is current and an on-going concern in New Zealand but Dr. Laven stressed that in dairy cattle industry where there is low antibiotic use, no real issue is posed on the matter.

On raw milk production and its trade in New Zealand, Dr Laven shared that a farm retailing raw milk must have a specifically approved risk management programme before sales can be allowed. At present, dairy farmers in New Zealand are stockpiling at least 5 liters of unpasteurized milk for personal consumption. It was observed also that raw milk sells at a price 15% cheaper compared to those milks sold at the supermarkets. On product categorization, Dr Laven shared that milks sold in New Zealand is distinguished based on protein casein and are labelled as either A1 or A2 milks. Consumers perceived that A1 milk are linked to heart disease and type-1 diabetes. Dr Laven also discussed lengthily the colostrums production in New Zealand, the specific legislations covering this product and the stringent requirements being posed by the industry on its production and farm sources.

After the presentation, Dr Laven answered few queries for clarification. He explained that genetic modification is not resorted to as an approach to increase milk production. Dr Laven pointed out that restriction on milk production is not related to genetics but rather on what is being fed on the cow. When he was asked on the issue of mastitis in New Zealand and what is the scheme being implemented to treat it, he explained that vast majority of mastitis incidence happen during spring (environmental mastitis) and even when there is a large incidence of *Staphylococcus aureus* infection, this can be effectively cleared by dry cow therapy.

PRESENTATION OF MEMBER ECONOMIES

Brunei Darussalam

Dr Ummi Fatimiah Haji Abd Rahman, Veterinary Officer from the Department of Agriculture and Agrifood presented livestock production in Brunei Darussalam and expounded on the role of the government in regulating the industry. Full paper is in Annex 12.

She began her presentation by providing demographical information on Brunei Darussalam. Briefly, she gave a run down on their agricultural development land use which is about 36% of the gazette area, composition of agricultural labour force and concentration of agricultural entrepreneurs on crops sector, and the gross output of agricultural production that is mainly on livestock production. Dr Rahman pronounced that Brunei Darussalam has attained 91.62% and 99.85% self sufficiency in chicken meat and eggs, respectively considering that most livestock

entrepreneurs are into broiler and egg production. With regard to the other sectors - beef, cattle and buffalo, and goat, she briefly explained that most of these products except goat are imported from Australia, Malaysia, India and China. However, the small ruminant industry is slowly progressing in Brunei Darussalam given that the government is providing assistance to the farmers in terms of training.

Further on, Dr Rahman introduced the Brunei Livestock and Veterinary Services Division as well as its organizational structure, functions of each unit and the its manpower resources. It is worthy to note that in Brunei Darussalam, the services of private veterinarians and veterinary paraprofessionals are tapped to provide services to the farmers. She then pursued her presentation by enumerating the support programmes of the government for the livestock industry which are: promoting good animal husbandry practices, regular farm monitoring and animal inspection or treatment, conduct of meat inspection and hygiene monitoring and ensuring the availability of veterinary laboratory services.

Getting to the core of her presentation, Dr Rahman informed that it is the Department of Agriculture and Agrifood that monitors the animal husbandry practices of all the registered livestock farms in Brunei. One of the tasks of the Department is to provide guidelines that will assist the farmers to practice both good animal husbandry and farm management for ruminant and poultry (broilers, layers and breeders). In order to further explain how GAHP is implemented in Brunei Darussalam, she enumerated and expounded on the important points of the GAHP guidelines. These are: farm development and location, livestock management, feeding and water management, sanitation and disinfection program, farm biosecurity, livestock health, records and documentation, and personnel and human resource management. Dr Rahman also presented their National Drug Residue Program which regularly tests for presence of antibiotics, sulpha-drugs, nitrofurans, and growth promoter/hormones. In addition to this and in order to support their other functions, Brunei Darussalam's Microbiology Laboratory ensures quality and food safety of the livestock products at source and before its distribution to the market through the conduct of regular monitoring and sampling. Monitoring for hygiene purposes is conducted at slaughtering centers, poultry processing plants and food processing plants.

To cap off her presentation, Dr Rahman articulated the future activities of the Department which are to implement an accreditation scheme for poultry farms, project on feedlot system for cattle, incentives to encourage goat farming activities, and to engage feed consultant for the development of livestock industry.

As a point for clarification, Dr Schipp inquired on the rationale for government support to the goat industry. Dr Rahman replied by articulating that since the industry is small and emerging, the government provides support in terms of training, improvement on farm management, adherence to the animal husbandry principles and pasture development. Through these interventions, the government is able to encourage farmers to improve their production.

Chile

The implementation of the Good Animal Husbandry Practices (GAHP) in Chile was presented by Dr Leopoldo Stuardo from the Agriculture and Livestock Service of the Ministry of Agriculture. His presentation is found in Annex 13.

To provide a common ground on the livestock industry of Chile, Dr Stuardo provided information on relevant economy facts, demography, situationer on agriculture and forestry, and statistics on livestock population and exportation of animal and animal products. Dr Stuardo also shared that cattle production can be found in south and extreme south regions of Chile. The economy has also set forth a target of doubling the figure of cattle production within the next ten (10) years.

He followed his presentation by elucidating on the organizational structure of the Agricultural and Livestock Service (SAG) under the Ministry of Agriculture and explained its functions afterwards. Among the functions of SAG is on promotion of animal health, food safety inspection and certification of primary products for exports, inspection process of slaughterhouses and implementation of quarantine importation procedures. Dr Stuardo explained that SAG uses international guidelines developed by the Codex and the World Animal Health Organization (OIE) when establishing sanitary requirements.

Dr Stuardo then shared the other functions of SAG. He expressed that aside from the food safety aspect, the concerns on environmental hazards and its impact to climate change is also given focused on. However, adherence to this environmental aspect is not compulsory and that each establishment has the prerogative whether to sign or not an agreement on environmental management.

SAG also addresses the issue of animal welfare and Chile is the only economy so far that have included in its bilateral agreements the aspects of animal welfare. Currently, SAG developed a series of new Regulations that complies with the new Animal Protection Law (Law of the Republic N° 20.380). He then presented that SAG uses inspection as a procedure mainly to verify the compliance of establishments with current economy regulations. In order to ensure that there is fewer occurrences of problems arising from hazards during animal feeding, SAG issues Certificate of Free Sale for export products, product approval process through case studies, authorization of raw materials and implementation of an Official Dioxin Monitoring Program. SAG also requires registration of veterinary pharmaceutical products including vaccines in the Registry and Control of Veterinary Drugs.

With regard to the animal health and biosecurity situationer of Chile, he shared that Chile has attained disease free status for foot and mouth disease (FMD), avian influenza in 2002, classical swine fever since 1994, had successfully eradicated porcine reproductive and respiratory syndrome (PRRS) in 2007, was able to contain and eradicate wild outbreak of Newcastle's also in 2007 and has been recognized as a economy with a negligible bovine spongiform encelopathy (BSE) risk in 2009. For the next few years covering the period of 2008 – 2025, Chile has a project to control and eradicate bovine tuberculosis.

Finally, Dr Stuardo shared with the member economies the Official Sanitary Traceability Program in Chile which is a joint public and private initiative giving support to governmental animal health programs, thereby, ensuring the safety of domestic livestock products.

After his presentation, Dr Stuardo answered enquiries on the approaches done to encourage private sector participation. He expressed that it is the private sector that encourages the government to perform better and they are then convinced by the government to organize themselves so that extension of assistance will be more effective and efficient.

Indonesia

Dr Aron Batubara of the Indonesian Centre Research Institute for Animal Science – Agency of Agriculture Research and Development of the Ministry of Agriculture provided the overview of the Indonesian Good Animal Husbandry Practices. His full presentation can be found in Annex 14.

Dr Batubara commenced his presentation by giving a brief economy profile touching on their economic performance and overview of their population. He shared that Indonesia being an archipelagic economy has a tropical climate basically dominated by rainy and dry seasons. Dr Batubara also cited the Indonesian gross domestic product (GDP) in 2009 and expressed that a steady 4.5% growth was observed annually with the agriculture sector getting 15% share in the whole economic performance.

Likewise, Dr Batubara cited that livestock consumption per capita in Indonesia continuously rises every year registering a 7% growth in meat and 10% in eggs and milk. So as to supply this demand on meat, the Indonesian government imports 70,000 tonnes of beef and 500,000 head cattle annually with the importation increasing at a rate of 16% per annum. With regard to milk production, the dairy population in Indonesia is at 486,994 heads in 2009 and is continuously growing at 7% per annum. Currently, Indonesia produces around 700,000 tonnes of its fresh milk requirement and an annual growth of 5% was observed. Even with this domestic production, Dr. Batubara expressed that Indonesia still imports 74% of its milk requirement from Australia and New Zealand.

Also from the figure cited before, it was distinguished that the livestock sector contributed to around 12% of the national agriculture income. Moreover, he stated that the livestock industry is mainly dominated by the poultry and small ruminant sectors where 80% of the livestock workforce in these categories is smallholder farmers.

On the agencies responsible for implementing regulations and providing other services for the livestock sector, Dr Batubara enumerated five (5) organizations which assist the sector. These are (1) Directorate General Livestock and Animal Health Service, (2) National Centre Research and Development for Animal Husbandry, (3) National Veterinary Research Institute, (4) National Animal Diseases Investigation and Laboratory, and the (5) Bureau Agricultural Standard and Certification. These offices collaborate in order to improve the economy, food security and enhance the export capacity of some agricultural commodities. Dr Batubara discussed that within the context of improving food security, commodities such as meat and milk are essential in controlling inflation and foreign exchange.

Under the Directorate General of Livestock Services (DGLS), it was envisioned that Indonesia will be able to increase the availability of meat and milk in the economy, increase farmer income and improve their welfare, reduce dependency on import of meat and ruminant livestock and increase the efficiency and effectiveness of ruminant livestock farming. Dr Batubara also explained that the Beef Self-Sufficiency Program lodged at the DGLS aims to reduce 10% of total demand for cattle import by 2014. He then spelled out the ten (10) strategy points that will help towards the realization of the Program goal. In summary, the strategies can be grouped into increasing the support to the cattle breeding program; improvement on the feed quality, animal health services including slaughter services; enhancement of the commercial cattle farming; and managing the distribution and marketing of beef.

On promoting food safety practices, the Bureau of Agricultural Standards and Certification (BASC) extends assistance to the livestock sector through the establishment of standards for animal feeding, animal feed, animal products, standards for biological, chemical and heavy processing plants, setting of standards for environment of animal farm, feed mill, slaughter house and meat processing plants.

He also discussed that BASC registers feed formula; accredits and inspects animal farms, feed mills, slaughterhouse and meat processing plants and assess it against food safety practices; and certification of animal products for export. In addition to these functions, BASC also provides consultation and ensures transfer of technology for system development and production standardization and certification.

Finally, Dr Batubara detailed the functions of the National Animal Health and Disease Inspection. Among these are the study, research and report on animal diseases and health problem; laboratory diagnosis of animal diseases; research and prototypes biologics and prevention of animal diseases; monitoring surveillance for residues, foodborne pathogen and antimicrobial resistant bacteria; and conduct of research to improve food safety system and training the relevant resources playing roles in food safety.

Enquiries to the presentation of Dr Batubara were basically on expounding the working relationship between the regulatory agencies with smallholder livestock farmers, GAHP certification and how it is done in Indonesia, stability and competitiveness of milk prices and the role of laboratories in eradicating FMD.

In Indonesia, most livestock farmers are categorized as smallholders such that farmers on the average own 1-5 heads of cattle. Giving consideration to the geography and the complexity of the government structure, the Indonesian government has persuaded them to integrate so that assistance can be readily provided to them. On GAHP certification, the program is now being implemented and the inspection at the farm level is coordinated by the Directorate General for Livestock Service (DGLS). With regard to price stability of milk production in the economy, Dr Batubara informed that even though big companies dictate the price of the commodity, the government has endeavoured to make the price more competitive and stable though coordination with the farmers and the companies involved. In so far as the issue of FMD eradication in the economy is concerned, he gave emphasis on the importance of laboratory support services and the local livestock service offices in achieving this target. He gave importance on the role of the 12 regular laboratories that helped in identifying the disease and their exceptional coordination with the local livestock service offices.

Malaysia

The role of Good Agricultural Practices (GAP) at the farm level and its importance in making a major difference in food safety and quality in Malaysia was discussed by Dr Hazliza Zuhir, Veterinary Officer from the Department of Veterinary Services. The Good Animal Husbandry Practices (GAHP) or Skim Amalan Ladang Ternakan (SALT) Program in Malaysia was launched in response to the 3rd National Agriculture Plan particularly on the thrust of improving the quality of fresh produce destined for both the domestic and the export markets. The introduction of the on-farm food safety program supports the “Malaysia’s Best” branding scheme. Her full presentation is at Annex 15.

Dr Zahir briefed the member economies that currently the livestock industry in Malaysia is focused on the production of buffalo, cattle, goat and sheep. She also mentioned that like Brunei Darussalam, they have achieved self-sufficiency in poultry.

The SALT program was developed and is now being managed by the Department of Veterinary Services (DVS) under the Ministry of Agriculture and the DVS is mandated to (1) prevent, control and eradicate animal and zoonotic diseases, (2) promote the growth and development of a sound animal industry, (3) ensure that foods of animal origin are clean, wholesome and fit for human consumption, (4) promote the growth and development of the animal feeds industry, and (5) ensure the welfare and well being of all animals.

She went on with her presentation by informing that the SALT program is based on the Malaysian Standards of GAHP – MS 2027:2006 which was developed by a working group on GAHP for Livestock Commodities and was then approved by the Department of Standards Malaysia and secretariat of SIRIM Berhad. Dr Zuhir listed the content of the standard (MS 2027:2006) specifically pausing at Section 4 of the standard where the requirements were spelled out and explained it a little in detail. She also enumerated the normative references that were used for the development of the standard. Dr Zuhir then pointed out that a farm applying for SALT certification needs to comply with all 14 requirements before a certificate can be issued.

Briefly, SALT is a voluntary scheme developed to audit, verify and certify farms that adopt GAHP principles, operate in a sustainable and an environmental friendly ways and yields produce that are quality and safe for consumption. When implementing SALT principles on the farm, the farmers in Malaysia are of the impression that conformity to standard entails additional cost. Dr Zahir confirmed this notion since the standard occasionally spells out requirements on infrastructure. Furthermore, she shared her observation that most Malaysian farmers are discouraged to apply SALT principles since there is no premium price for livestock products certified under the program. Dr Zahir, however, was quick to point out that the indirect benefits of the program far outweighs the initial investments to able to comply with the requirements. These benefits include but are not limited to increase in productivity, consumer confidence in the safety of the product and ability to trace the products.

Since its inception in 2003, the implementation of the SALT program was divided into three (3) phases. Phase I covering the period of 2003 to 2008 was focused on infrastructure, biosecurity, herd health programme, GAHP and medicine usage control. Meanwhile, Phase II is from 2009 to 2014 and will basically address the issues on traceability, quality systems and application of the Hazard Analysis and Critical Control Point (HACCP) principles throughout the process. Meanwhile, the focus of Phase III will still have to be conceptualized since this will be based on the two (2) previous phases.

Dr Zahir, afterwards, explained the inspection procedure prior to GAHP certification and differentiated an adequacy audit – normally done as documentation audit or review, from a compliance audit – which applies to new applicants and aims to establish the extent to which SALT or VHM or GVHP is implemented, maintained and improved within the organization, and a review audit – for the annual renewal of certificate. As per the aspects for inspection, she gave detailed presentation on what are being inspected in terms of the provisions for farm bio-security; lay-out and infrastructure; farm structure and facilities; farm sanitation programme; animal health management; farm design, infrastructure, facilities, equipment and management tools; handling and restraining of animals; transportation and environmental management. For environmental management, Dr Zahir mentioned that actions like incineration of carcass,

burying of carcass of large ruminants and the use of effective microorganisms (EM) are some of the measures implemented to address environmental concerns.

Even though the SALT certification scheme has been in operation in Malaysia for a number of years now, Dr Zahir shared with the Member Economies the problems they have experienced in the course of its implementation. To them, matters like insufficient awareness on the impact of agricultural and agro-based standards on food safety and quality, environment, social and animal welfare and climate; price control on agricultural produce which discourages participation in the adherence to standards; insufficient legislations that will provide a legal personality to the standards and the voluntary nature of the certification scheme act as barriers to its full realization.

Conclusively she shared that as of the last count, there are 346 farms certified under the SALT program. Seventy-four percent (74%) of which is with the poultry sector (breeder, broiler and layer).

After her detailed presentation, Dr Zahir explained that there is now an external force pushing the livestock industry to implement SALT principles in their farm. This is so because some of their trading partners (e.g. Singapore) are requiring exporters to have SALT certification before business can commence between the importing and exporting companies. Aside from this, even the local supermarket chains are requiring VHM certification before a local company can supply to them. Dr Zahir was also asked regarding the certification fee and the rule on third (3rd) party auditors. She replied by stating that the SALT certification scheme in Malaysia is a government certification program where the trained government personnel act as inspectors, is subsidized by the government and that at present there is no accreditation scheme for 3rd party auditors.

Peru

Mr Carlos Leyva Fernandez, Safety Food Specialist from the National Agrarian Health Office presented the Peruvian standards on GAHP (Annex 16). He started his presentation by discussing the history, demographics, government structure and economic background. To be very concise, Mr Fernandez related that the since 2006, Peru was able to sign negotiations with several trading partners which include the United States of America (USA), Canada, Singapore, China, Korea and Japan and was able to sign with the European Free Trade Association (EFTA). These negotiations enabled them to open to greater trade and investments.

Essentially, the livestock sector in Peru is being regulated by SENASA more specifically the Office on Agricultural Inputs and Agrifood Safety. He kept on by discussing in details the provisions of the GAHP standard in Peru. Mr Fernandez articulated that from an integral technical point of view, GAHP are those procedures that are applied at the primary production stage which purposely aim to warrant product safety, environmental protection, animal welfare, workers health safety and welfare while applying principles of risk reduction through instituting preventive measures at all stages of production.

Recommended practices were those that involves ensuring that risks are minimized starting from the (a) location of farms, (b) that the design and infrastructure of livestock farms are those that will provide favourable living conditions to the animals while maintaining hygiene and upholding biosecurity measures, (c) that the farm should have an established a documented cleaning and disinfection of facilities, equipment and utensils – Sanitation Standard Operating Procedures (SSOPs) to ensure hygienic conditions for farming, (d) that the animals must

consume good quality water that has undergone chemical and microbiological analyses, (e) that the animals are provided with feeds appropriately rationed with adequate nutrients depending on the species of animals and their age, (f) that the farm should ensure animal health management is implemented and control of diseases and treatments are performed by a responsible and professional veterinarians, (g) that there should be a pest control programme within the farm to evaluate the risk in the vicinity; (h) veterinary drugs and other biological products when administered to the animals should be registered and is the responsibility of a veterinarian, (i) pesticides when used to control pests in pastures and forages, the farmer should consider Integrated Pest Management (IPM) techniques, (j) that ensuring animal welfare is countered with their normal behaviour and quality of life; (k) that traceability of animals and livestock inputs are ensured through recordings; (l) that environmental management means prevention of water pollution; and (m) that risk assessment have to be conducted so that an action plan to promote safe working conditions can be developed.

Philippines

In behalf of the Philippine delegation, the implementation of the Good Animal Husbandry Practices (GAHP) was presented by Dr Rubina Cresencio of the Bureau of Animal Industry (BAI). The presentation is found in Annex 17.

She started off her presentation by giving a brief profile of the economy which include its demographics, the Philippine agriculture program specifically the Agriculture and Fisheries Modernization Act (AFMA) of 1997, performance of the livestock and poultry industries which had a share of 29.01% in terms of current and value of agricultural production in 2010, enumerated the various implementing agencies and its programs with regard to the livestock and poultry industries, and statistics on imports and utilization. Dr Cresencio also explained the governmental structure of the Philippines and expounded on the relationship of the local government units (LGUs), Regional Field Offices (RFOs) of the Department and its Central Office, and the various Bureaus and Agencies under the Department that are also mandated to addresses concerns of the livestock sector.

Dr Cresencio then proceeded with her presentation by explaining in details the Philippine National Standard (PNS) on Code of Good Animal Husbandry Practices. The Code, she communicated sets out the general principles and the minimum requirements in the commercial or backyard rearing/farming of animals for food use. Dr Cresencio further explained that the other standards on industry specific requirements for the different types of animals and production system may be developed. The purpose of the Code, she said is to ensure that the farming practices of the establishment warrants the safety of the final product while safeguarding the health safety and comfort of workers and guarantying that there is no further degradation to the environment.

She then listed down and clarified the minimum requirements that need to be adhered to for farms applying for certification. This includes: (1) general skills, responsibilities and legal responsibilities of farm operators and workers; (2) relationship of farm location and history to food safety; (3) general recommendations for the construction of animal housing and facilities; (4) principles and guidelines for farm management which consist of breeding, reproduction and weaning, animal sourcing, identification and traceability, feeds and nutrition, animal health, handling and restraints of animals, transportation, bio-security measures and farm sanitation program; and (5) environmental management practices. Dr Cresencio also pointed out that practices should be regularly checked for compliance and evaluated for effectiveness and do-

ability on a regular basis. In cases where provisions are no longer applicable these then should be amended.

To conclude her presentation, Dr Cresencio then gave the status of the GAHP program since it has taken off in 2010. Activities were conducted to disseminate information and advocacy, certification was provided to a swine farm and there are several numbers of interested applicants for certification where requirements are awaiting completion.

Responding to the queries on the relationship and delineation of responsibilities of the various agriculture and veterinary offices in the economy, Dr Cresencio enlightened the Member Economies of the devolvement of the agriculture personnel from the Central Office of the Department of Agriculture to the Local Government Units. In saying so, she then discussed that agricultural extension workers and veterinary and para-veterinary personnel can be found in the municipalities, cities and provincial offices. Moreover, to augment the manpower needs of the GAHP Certification Program, the provincial veterinary officers are tapped as local inspectors.

Thailand

The role of the Department of Livestock Department (DLD) in Thailand, its supporting legislations, various agencies supporting their function and the commodity-specific Good Agricultural Practices for Broiler Farm was discussed by Mr Jirawat Akkagraisri, Senior Husbandry Officer from the Animal Feed Quality Control Division of the Bureau of Livestock Standards and Certification (BLSC). His presentation is in Annex 18.

Mr Akkagraisri highlighted the mission of DLD which is mainly to research, develop and transfer technology in animal health and production, standardize, control, inspect and certify livestock product quality and manufacturers and to develop efficient productions by improving animal health, animal breeding and livestock extension. He then introduced the BLSC by naming the different divisions and functions.

In Thailand, he communicated that the Good Agricultural Practices (GAP) for livestock production is commodity specific. To name a few of the standards they have established, Mr Akkagraisri went on by enumerating: Livestock Farm Standard in Thailand covering breeder chicken, poultry hatchery, layer chicken, breeder duck and meat duck; GAP for Bee Farm; GAP For Beef Cattle Farm; GAP for Layer Duck Farm; GAP for Quail Farm; GAP for Meat Goat Farm; and GAP for Sheep Farm. Setting the GAP for Broiler Farm standard, he also discussed the requirements and inspection methods covering aspects on location, lay-out, housing, feed, water, farm management, animal health, animal welfare, environment and documentation and record keeping. In addition, Mr Akkagraisri emphasized the supplementary requirements for farms exporting poultry meat and meat products. The inspection team will also check , aside from the requirements laid out in the Livestock Farm standard, for compliance for pre-slaughter, movement control, and necessary accreditation requirements for slaughterhouse and processing plant.

SWOT ANALYSIS

Member economies were divided into two groups to discuss the following agenda (a) sharing of SWOT analysis for their respective economies (b) come up with a consolidated SWOT for the group and (c) recommend action plans in support of the GAHP program for Asia-Pacific region.

Group 1 was represented by Brunei Darussalam, Indonesia, Peru and philippines. Dr Mark Schipp served as the facilitator for the group. Consequently, Dr Richard Laven was the facilitator for Group 2 which included Chile, Malaysia, Philippines and Thailand.

Group 1: Brunei Darussalam, Indonesia, Peru and Philippines

Group 1 agreed that the common strengths among their economies are: strong government support, diverse natural resources and experienced farmers. However, the group considered that the main weaknesses for successful implementation of GAHP are: low adoption and availability of technology, lack of infrastructure, lack of manpower, deficiency in funds for genetic research and improvement, difficultly in enforcing legislations and impediments in research and development.

The group also reported that member economies need to capitalize on opportunities such as the existence of information sharing networks and global markets in order to sustainably implement the GAHP program. However, Group 1 indicated that threats such as competition, natural disasters and diseases, environmental degradation, high cost of inputs and shortage in human resources should be addressed accordingly.

In closing, the group recommended the following action plan:

1. *Introduce government loans, subsidies or incentives*
   It is necessary to introduce other forms of support such as loans, access to credit or increase of credit ceiling to address high costs of raw materials and inputs or the cost of animal production. Farmer incentives were found to be lacking. Subsidies for example on the sale of live animals and animal medications to farmers were recommended. There is also a need for government to finance activities such as genetic transfer, improvement of livestock genetic quality and technology commercialization.

2. *Seek international aid and support for training of farmers, extension workers, food safety inspectors and exchange programs*
   Economy governments more often than not do not have sufficient funding to support activities related to improving their respective GAHP programs. Farmers and government personnel also do not have the required level of expertise. Thus, there is a need to solicit support from international organizations to train farmers, extension workers and food safety inspectors. An exchange program of experts between and among APEC economies can also enhance competence of these relevant personnel.

3. *Improve natural resources, pasture and forage*
   With the threats of natural disasters and diseases, depletion of non-renewable resources, environmental degradation and loss, and the harmful effects of climate change, it is deemed necessary to improve natural resources, pasture and forage. Sustainable farming practices should be adopted to replenish the depleting natural resources and further protect the environment.

4. *Research and development – information sharing (rapid alert system for disease), World Animal Health Information System (WAHIS)*
   Research and development on genetics and animal breeding technologies, disease management are still lacking in most APEC developing economies. There is a need to continue to share information on current issues related to animal diseases, researches and technologies through established networks such as the rapid alert system for disease and WAHIS.

5. *Provide the necessary infrastructure – processing, abattoirs, fish farms*
   Currently, there is poor infrastructure for water management, animal production abattoirs and facilities. It is suggested that priority should be given to provide infrastructure for animal farms, abattoirs and animal processing to ensure animal food safety and quality throughout the food chain and support the program.

6. *Provide technology – seek international support for genetic improvement*
   Poor genetic quality and genetic improvement, lack of genetic or breeding base were identified as weaknesses in relation to animal genetics. International support may be sought to provide technology to improve local livestock genetics and import livestock, embryo or semen to improve current local genetics which may have potential international market.

7. *Establish GAHP regional standard for ease of trade*
   While most APEC economies have existing GAHP programs, it is necessary to establish GAHP regional standards to further facilitate inter and intra-trade within the APEC economies. Economy standards harmonized to that of international standards will further increase market access.

8. *Adopt and train, share experience and expertise on food legislation and enforcement*
   Current economy food legislations are not updated and some lack the important and relevant legislations. Legislations should be aligned to that of international standards. Considering the lack of expertise on developing up-to-date and relevant food legislation especially by developing APEC economies, it is recommended that they adopt best practices on food legislation (including enforcement regulations) of other economies. Training on food legislation of the APEC member economies is a venue to share experiences on their current food legislation.

9. *Develop a response Standard Operating Procedure (SOP) and preparedness on environmental disaster*
   Considering the inevitability of environmental disasters which may affect animal production, it is recommended that APEC member economies draft guidelines and procedures on environmental disaster response and preparedness. Best practices on disaster response and preparedness of APEC member economies and international organizations may be used to draft the proposed guidelines and procedures.

The tabulated SWOT analysis for economies in Group 1 is included in Annex 19.

Group 2: Chile, Malaysia, Thailand and Philippines

The second group considered several areas in the SWOT analysis, particularly on the human resources, financial resources, innovation and marketing. Also, Group 2 concluded that strengths and weaknesses are mostly coming from the internal situation in each of the economies present in the group while opportunities and threats are from external factors. The tabulated SWOT analysis for economies in Group 1 is seen in Annex 20.

In the discussion of the strengths for APEC member economies, the group concluded that one of the main strong points are farmers with high skill levels which can be improved and backstopped by technical advice and capacity building activities in the economy or via collaborators in APEC member economies and other regional or international networks.

Chile and Malaysia agreed that the availability of genetic resources for the improvement and ease of adoption of Good Animal Husbandry can be considered as strength for both of their economies. However, Philippines indicated that this may not be the case for their local situation. Nonetheless, the group was in agreement that there is strong government support for the implementation and adoption of GAHP in each of the member economies.

Innovations such as technologies in the animal production system and in the information and communication technology can also be considered as one of the strengths. Accordingly, self sufficiency in terms of animal production has been established in most of the member economies, including good export reputation and breeding programs, and an integrated value chain.

On the other hand, the identified weaknesses include the availability of skilled labor for Chile, Malaysia and Thailand. However, for the Philippines, the main limitation is the adoption of small scale farming system that is only focused on ruminants and not extended in swine or poultry. Similarly, for all economies under Group 2, the traditional outlook and farming system still persists for animal husbandry.

Moreover, the lack of infrastructure is observed as a weakness for the livestock and poultry industry, as well as the decrease the availability of raw materials for feed due to the conversion of feed crops into bio-fuels. Another perceived weakness is the difficulty in understanding and awareness for the legal framework for intellectual property rights on genetic materials which brings about impediments in speeding up sharing of resources in the region.

In terms of market access, the main hurdles are the costs of importation which ultimately limits buyers in choosing the best quality materials due to price consideration.

Opportunities for the animal production industry were agreed to be (a) availability and access to global pool of experts coming from CODEX, FAO, OIE, and other international organizations; (b) existing R&D collaboration among economies and research institutions; (c) participation to international standards setting bodies; (d) identification of ‘champions’ promoting GAHP; (e) existing facilities for export; (f) prospects in value adding of products; and (g) declaration of FMD & H5N1 free economies.

Although several strengths and opportunities have been identified, the group stressed that threats to the implementation of GAHP should be given attention, particularly on the (a) competition and free trade; (b) high cost of maintaining the operations; (c) environmental threats such as Genetically Modified Organisms (GMOs); (d) variances and intricacies of import standards; (e) impediments in intellectual property rights; and (f) natural hazards due to climate change.

Finally, the Group 2 recommended the following courses of action for improving animal husbandry in general:

1. *Developing human resources*
   Continuous and sustainable capacity building activities focused on improving the skills of farmers and local workers should be supported. It can be further achieved through collaboration with APEC and other regional or international organizations particularly in terms of available experts or technical assistance to developing APEC economies.

2. *Facilitating access to resources and financial aid*
   Access to government funds and international grants should be considered. Similarly, resources should be made available to farmers, producers and concerned industry members. These resources included facilities, genetics and legislation (best practices). The government should convey a consistent message in promoting its GAHP program based on a solid science-based approach.

3. *Creating an aggressive research agenda and strategies for its adoption*
   Constant assessment on goals and skill levels of workers and technologies should be incorporated in the GAHP program. Technologies and results of research activities should be aimed at addressing specific scenarios.

4. *Facilitating markets*
   Quality improvement through the implementation of certified standards is necessary to facilitate market access. Similarly, approaches towards reduction of costs should be explored. It is also possible to encourage farmer entrepreneurship programs to contribute to the development of the industry.

5. *Adopting climate change mitigation strategies*
   Sustainable production mechanisms that lower environmental impact and its degradation should be promoted.

CONCLUSION

In closing, Mr Gilberto Layese provided a brief summary and shared his expert recommendations in line with the action plans reported by the two groups. He observed that there is an existing heterogeneity among member economies, in particular, the economies are either export oriented or import dependent. However, he also discerned that even though differences occur, similarities are also present among the economies, mainly on the need for assistance.

As a priority, Mr Layese highlighted the need for harmonization of GAHP standards. Although each economy will have different approaches to the implementation of a GAHP program, harmonization shall facilitate trade in the international market and discourage double standards. Furthermore, training programs on drafting laws may be availed through international standards setting institutions such as the Food Standards Australia and New Zealand (FSANZ) in which their experts may be tapped to give guidance on the important elements of drafting legislations. However, member economies should have active participation and provide inputs in order to have a benchmark internationally accepted standards with the standard of the respective member economy.

In the area of research and development, the consultant agreed that collaboration is necessary in order to have a more cost-effective strategy for research. Member economies should endeavour to share resources and research outputs.

To address the concern on balancing the requirement for feed and biofuels, Mr Layese emphasized the directive of the Food and Agriculture Organization (FAO) and the United Nations (UN) that ‘land currently devoted to food should not be used for biofuels’. By following this policy, economies will be able to maintain and meet the requirements for food and feed. With regard the issue on GMOs, APEC economies should consider it more closely whether it is

a threat or an opportunity. The technology of GMOs may only become a threat if there is no proper evaluation on its safety. Currently, there has been little improvement on GM animals globally.

Lastly, Mr Layese stressed that programs such as the GAHP should always be supported by sustainable and continuous training. Member economies should take advantage of support institutions such as the APEC, FAO, OIE and other international organizations to provide technical assistance and expertise in support of the GAHP program. However, he stressed that trainings should be initiated by economy authorities in order to have a more tailor fitted program for the local industry.