# REPORT OF THE NINTH MEETING
# OF THE ASIA REGIONAL ADVISORY GROUP ON
# AQUATIC ANIMAL HEALTH


**Network of Aquaculture Centres in Asia-Pacific**

**Bangkok, Thailand**

**8-10 November 2010**

**Preparation of this document:**
This report was prepared by the 9th Asia Regional Advisory Group (AG) on Aquatic Animal Health (AGM-9) that met at Maruay Garden Hotel, Bangkok, Thailand, on the 8th to 10th November 2010.

The Advisory Group was established by the Governing Council of the Network of Aquaculture Centres in Asia-Pacific (NACA) to provide advice to NACA members in the Asia-Pacific region on aquatic animal health management, through the following activities: (a) evaluate disease trends and emerging threats in the region; (b) identify developments with global aquatic animal disease issues and standards of importance to the region; (c) review and evaluate the Quarterly Aquatic Animal Disease reporting programme and assess the list of diseases of regional concern; (d) provide guidance and leadership on regional strategies to improving management of aquatic animal health including those under the framework of the Asia Regional Technical Guidelines; (e) monitor and evaluate progress on Technical Guidelines implementation; (f) facilitate coordination and communication of progress on regional aquatic animal health programmes; (g) advise in identification and designation of regional aquatic animal health resources, as Regional Resource Experts (RRE), Regional Resource Centres (RRC) and Regional Reference Laboratories (RRL); and (h) identify issues of relevance to the region that require depth review and propose appropriate actions needed. Members of the Advisory Group include invited aquatic animal disease experts, World Animal Health Organization (OIE), Food and Agricultural Organization of the United Nations (FAO) and collaborating regional organizations.

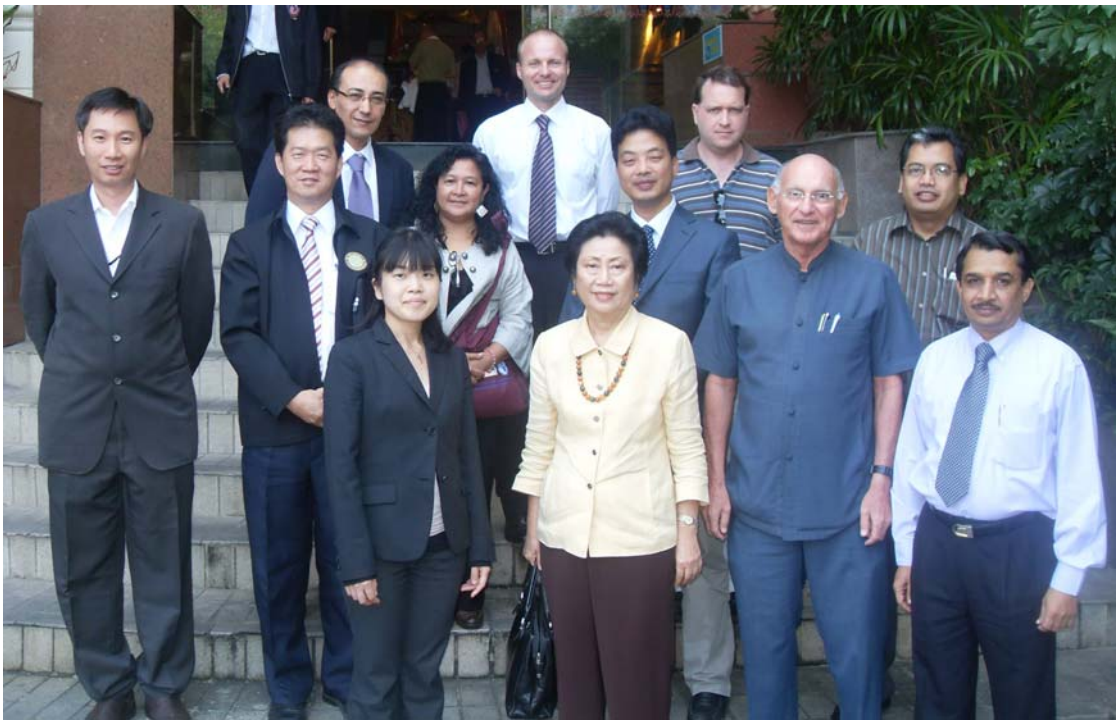


Reference: NACA 2011. Report of the Ninth Meeting of the Asia Regional Advisory Group on Aquatic Animal Health. Published by the Network of Aquaculture Centres in Asia-Pacific, Bangkok, Thailand.

## Abbreviations and Acronyms

| | |
|---|---|
| AADCP-RPS | ASEAN Australia Development Cooperation Program – Regional Partnership Scheme |
| AAHRI | Aquatic Animal Health Research Institute (Thailand) |
| AAHSC | Aquatic Animal Health Standards Commission of the OIE |
| AAPQIS | Aquatic Animal Pathogen and Quarantine Information System (FAO) |
| AbHV | Abalone Herpesvirus |
| ADG | Asia Diagnostic Guide |
| AG | Advisory Group |
| AGM | Advisory Group Meeting |
| ANAAHC | ASEAN Network of Aquatic Animal Health Centres |
| ANQAP | Australian National Quality Assurance Program |
| APEC | Asia-Pacific Economic Cooperation |
| APIQTC | Animal and Plant Inspection and Quarantine Technology Center (China) |
| ASDD | Abdominal segment deformity disease (in *P.vannamei* ) |
| ASDV | Abdominal segment deformity virus |
| ASEM | Asian European Meeting |
| ASEAN | Association of South East Asian Nations |
| AVG | Abalone viral ganglioneuritis |
| AVM | Abalone viral mortality |
| BIOTEC | National Center for Genetic Engineering and Biotechnology (Thailand) |
| COFI | Committee on Fisheries (FAO) |
| DAFF | Australian Government Department of Agriculture, Fisheries and Forestry |
| DoF | Department of Fisheries (Thailand) |
| EU | European Union |
| EUS | Epizootic ulcerative syndrome |
| FAO | Food and Agricultural Organization of the United Nations |
| GC | Governing Council of NACA |
| IHHNV | Infectious hypodermal and haematopoietic necrosis virus |
| IMN | Infectious myonecrosis |
| IMNV | Infectious myonecrosis virus |
| KHV | Koi herpesvirus |
| KHVD | Koi herpesvirus disease |
| LSNV | Laem Singh necrosis virus (in *P. monodon*) |
| *Mr*NV | *Macrobrachium rosenbergii* nodavirus |
| MSGS | Monodon slow growth syndrome |
| NACA | Network of Aquaculture Centres in Asia-Pacific |
| NaCSA | National Center for Sustainable Aquaculture (India) |
| NC | National Coordinator |
| NHP | Necrotising hepatopancreatitis |
| OIE | World Organisation for Animal Health (France) |
| PCR | Polymerase chain reaction |
| PICT | Pacific Island Countries and Territories |
| *Pv*NV | *Penaeus vannamei* nodavirus |
| QAAD | Quarterly Aquatic Animal Disease |
| RRC | Regional resource centre |
| RRE | Regional resource expert |
| RRL | Regional reference laboratory |
| RT-PCR | Reverse transcriptase PCR |
| SAARC | South Asian Association for Regional Cooperation |
| SEAFDEC | Southeast Asian Fisheries Development Center |
| SEAFDEC-AQD | Southeast Asian Fisheries Development Center Aquaculture Department |

| | |
|---|---|
| SPC | Secretariat of the Pacific Community |
| SPF | Specific pathogen free |
| SVC | Spring viraemia of carp |
| SVCV | Spring viraemia of carp virus |
| TAC | Technical Advisory Committee of NACA |
| TG | Technical Guidelines (Asia Regional Technical Guidelines on Health Management for the Responsible Movement of Live Aquatic Animals) |
| TOR | Terms of Reference |
| TS | Taura syndrome |
| TSV | Taura syndrome virus |
| VHS | Viral Haemorrhagic Saepticemia |
| WAHIS | World Animal Health Information System |
| WAHID | World Animal Health Information Database |
| WFC | WorldFish Center |
| WSD | White spot disease |
| WSSV | White spot syndrome virus |
| WTD | White tail disease |
| WTO | World Trade Organization |
| YHV | Yellowhead virus |



The 9th Asia Regional Advisory Group on Aquatic Animal Health.
(From Left to Right)
Front Row: Dr. Sayuri Iwaki (OIE-Asia Pacific, Tokyo, Japan); Dr. Supranee Chinabut (Thailand), Prof. Timothy Flegel (Thailand), Dr. C.V. Mohan (NACA);
Middle Row: Dr. Siow Foong Chang (Intervet, Singapore), Dr. Somkiat Kanchanakhan (AAHRI, Thailand), Dr. Melba Reantaso (FAO, Italy), Dr. Jie Huang (OIE, China), Dr. Eduardo Leaño (NACA);
Back Row: Dr. Karim Ben Jebara (OIE, France), Dr. Ingo Ernst (DAFF, Australia), Mr. Simon Wilkinson (NACA)
Not in photo: Dr. Temduong Somsiri (AAHRI; co-opted member)

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# Opening Session

A brief introduction was given by Dr. Eduardo Leaño, the newly appointed Coordinator of Aquatic Animal Health Programme of NACA, and who served as the Technical Secretary for the Advisory Group (AG).

On behalf of Dr. Sena de Silva (Director General, NACA), Dr. C.V. Mohan (Manager, Research and Development) formally opened the meeting and welcomed the members and co-opted members of the AG. Dr. Mohan thanked the World Organisation for Animal Health (OIE) including OIE Regional Representation in Tokyo, and the Food and Agriculture Organization of the United Nations (FAO) for their continuous cooperation and support to the functioning of the AG. The Inland Aquatic Animal Health Research Institute (AAHRI) and its current Director Dr. Temduong Somsiri was also thanked for their active participation to AG and to other aquatic animal health-related activities in the region. The continuous support of Drs. Tim Flegel, Ingo Ernst and Supranee Chinabut were also appreciated. Dr. Mohan also mentioned that AG has been a very useful mechanism in helping and guiding the aquatic animal health programmes in the region. Dr. Mohan wished everyone a successful and fruitful meeting.

# Election of Chairperson and Vice-Chairperson

Dr. Chinabut nominated Dr. Ernst to serve as Chairperson for the 9th AG, which was accepted and approved by the group. No Vice-Chairperson was appointed at this time. Dr. Ernst took over in presiding the meeting after the welcome remarks. The meeting agenda (Annex A) was adopted. The list of participants is given in Annex B.

# Session 1: Progress since AGM-8 and Expected Outputs from AGM-9

## 1.1. Progress report from NACA's Regional Aquatic Animal Health Programme

Dr. Leaño presented the progress report of NACA's Regional Aquatic Animal Health Programme as well as the status of AG's recommended activities for 2010. Limited activities were undertaken in 2010 as it was a transition period from the time that Dr. Mohan was promoted as Manager of Research and Development of NACA in February 2009 to the time of appointment of Dr. Leaño as Coordinator of Aquatic Animal Health Programme starting 1 April 2010. Four Quarterly Aquatic Animal Disease reports were published (2009/3, 2009/4, 2010/1 and 2010/2) and widely disseminated. The Secretariat of the Pacific Community (SPC) requested NACA's technical assistance on the conduct of Regional Terrestrial and Aquatic Animal Disease Reporting Workshop held in Fiji, June 2010. The workshop was undertaken in response to the new EU regulations for importation of marine ornamentals from PICTs.

Other activities presented are as follows:

- The Global Conference on Aquaculture (22-25 September 2010, Phuket, Thailand) where aquatic animal health and biosecurity were among the important issues discussed during Panel Expert Presentations and Discussion. Fish health management reports were also well represented in the poster session. Messages conveyed by the Expert Panel included the promotion of biosecurity measures at the grassroots level and to keep pace with unprecedented level of aquaculture development, greater commitments of governments to

implement aquatic animal health standards, and the need to develop international standards to address the high incidence of emerging aquatic animal diseases;

- Laboratory visit and lectures by Dr. Leaño at the Animal and Plant Inspection and Quarantine Technology Center (APIQTC) in Shenzhen, China upon the invitation from Dr. Liu Hong, Director of the Key Lab of Aquatic Animal Disease;
- Arrangements made (in collaboration with Inland AAHRI and Coastal Fisheries Research and Development Bureau of the Department of Fisheries, Thailand) in response to a request for Attachment Training for two Hong Kong Fish Health Officers. The training was scheduled to be held in December 2010, but it was cancelled due to budgetary constraints. There is still a plan to undertake the training in 2011.

## 1.2. Progress Report of NACA's Research and Development

The R&D Manager of NACA provided a detailed account of progress made since AGM 7. The meeting was informed that the R&D program of NACA had been revised under a new framework to reflect the mission of NACA to support sustainable aquaculture and aquatic resource management, policy development and inter-governmental cooperation in the region. The R&D mandate of NACA is presently addressed through six interlinked thematic work programs (Aquatic Animal Health, Coastal Aquaculture, Emerging Global Issues, Food Safety and Quality in Aquaculture, Genetics and Biodiversity, Inland Aquaculture) and two cross-cutting work programs (Education and Training, Communications) that facilitate and support implementation of the thematic work programs. The meeting was provided brief insights into each of the 8 NACA work programs. The meeting was informed that the NACA Secretariat was successful in not only developing several projects but also in securing funding for their implementation at national and regional levels. Attention of members was drawn to the fact that NACA was successful in responding to several global and emerging issues

- Climate change impacts (e.g. NORAD project in India, Vietnam, Philippines, Sri Lanka)
- Fish meal/ fish oil (e.g. FAO TCP project in China, Thailand, Indonesia and Vietnam)
- Small scale aquaculture and farm level bio-security (e.g. BMP projects in India, Indonesia Thailand)
- Certification (e.g. cluster certification project in India and Thailand)
- Marketing (e.g. linking small scale farmers to modern markets project; India, Thailand)
- Change public perception on aquaculture (e.g. success stories in Asia Aquaculture)

The meeting was apprised of the present approach used for project development, fund raising and project implementation and the issues and concerns associated with it. This approach has several limitations. Some of the key issues and concerns with the present approach include:

- Activities and benefits are not evenly distributed across member governments
- There is no structured mechanism available for involving member governments in developing projects and fund raising
- Ownership of projects by member governments is not up to the desired level
- Project outcomes are seldom sustained beyond the project completion and do not necessarily become part of the national programs.

Considering the above limitations with the present approach, the AG was requested to take a fresh look at the work program development and implementation and assist NACA in developing appropriate strategies to overcome the limitations in the area of aquatic animal health management.

**Discussion**

- The AG appreciated the progress made by NACA in support of responsible and sustainable aquaculture and promoting bio-security in the region. The AG recognized the role played by various donors and collaborating partners;
- To create synergy, the AG suggested that NACA and FAO should continue to update each other to make sure that activities and projects that will be implemented or extended to the requesting government are complementary. Example of which is the response of NACA to the request of SPC for technical assistance in complying with EU regulations on importation of ornamental fishes from PICTs (strengthening of their aquatic animal diseases reporting through WAHIS). Another is the request of the Malaysian Government to FAO on the preparation of national strategy which will be implemented by their Bio-security Division;
- As trade is one of the important driving forces for improving aquatic animal health management capabilities (e.g. certification, biosecurity), exporting countries could cooperate on programs that assist them to meet importing country requirements.
- Country collaborations need to be further strengthened through existing regional organizations (e.g. NACA, SEAFDEC, ASEAN, APEC). It is also timely to assess the performance of each member country on aquatic animal health programs as aquaculture development in Asia is unprecedented and creating great impact on other aquaculture-producing countries in the world.

**Recommendations**

- AG strongly recommended the convening of a Regional Meeting for National Coordinators/Aquatic Focal Points to assess the progress made on implementation of key elements contained in the Asia Regional Technical Guidelines and discuss regional priorities on aquatic animal health and other related activities/programmes. It was suggested that NACA work closely with FAO and OIE in developing a proper concept for this purpose.
- AG recommended that Asia-Pacific countries should engage more strongly in international standard setting processes. This could be achieved through a more coordinated and cooperative regional approach to commenting on draft international standards. Individual countries (Fishery Authorities) may need to be more pro-active in liaising with their Veterinary Authorities in formulating comments and raising issues on aquatic animal health standards.
- The AG recommended that NACA could assist in collation of country comments on international standards and facilitate a regional response, acknowledging that responses to the OIE must be submitted through each country's delegate to the OIE .
- Considering the limitations in the present approach of project development and implementation, the AG recommended that NACA come up with suitable strategies to involve countries right from the project formulation stage to ensure ownership and continuity.

# Session 2: Global Issues and Standards

### 2.1. Outcomes of Recommendations from OIE General Session and the Aquatic Animal Health Standards Commission

Dr. Jie Huang (Member of the OIE Aquatic Animal Health Standards Commission) reported on outcomes from the May 2010 78th General Session (GS) of the OIE with relevance to aquatic animal health.

The General Session adopted the full listing of Necrotising hepatopancreatitis (NHP) and removed Milky haemolymph disease of spiny lobsters (*Panulirus* spp.) that was previously listed as "understudy". For these changes in the listing of diseases, specific reporting obligations will come into force on 1 January 2011. There were no changes to the lists of fish diseases, mollusc diseases, and amphibian diseases.

The OIE 78th GS adopted 6 new chapters: Application of compartmentalisation (Chapter 4.2.); Welfare aspects of stunning and killing of farmed fish for human consumption (Chapter 7.3.); Introduction to the recommendations for controlling antimicrobial resistance (Chapter 6.2.); Handling, disposal and treatment of aquatic animal waste (Chapter 4.6.); Infection with abalone herpes-like virus (Chapter 11.1.); and, Necrotising hepatopancreatitis (Chapter 9.4.). Two new articles were also included in the *Aquatic Animal Health Code – Aquatic Code* (Disinfection of salmonid eggs for infectious haematopoietic necrosis and infectious salmon anaemia, and for viral haemorrhagic septicaemia), while the Glossary and 15 chapters were revised. For the *Manual of Diagnostic Tests for Aquatic Animals* (*Aquatic Manual*), the 78th GS also adopted 2 new chapters: Infection with abalone herpes-like virus (Chapter 2.4.1); and, Infection with *Bonamia ostreae* (Chapter 2.4.3). The revised edition (2010) of the *Aquatic Code* is available on the OIE website (www.oie.int) and in hard copy from the OIE online bookshop. The revised version of the *Aquatic Manual* is available on the OIE website.

The OIE has adopted its 5th Strategic Plan (2011-2015), which, *inter alia*, places a stronger emphasis on aquatic animal health and production as a major contribution to food security and alleviating global poverty.

Other updates presented are as follows:

- A 4-year re-designation scheme will be implemented for OIE Reference Laboratories (OIE-RL) based on the status of particular disease whether it is listed or under study;
- Three applications for OIE-RL are now being considered: WSD and IHHN from China; AbHV from Australia; and, SVC from China;
- Dr. Kei Yuasa replaced Dr. Motohiko Sano as the designated expert of OIE-RL for KHV;
- "The Global Conference on Aquatic Animal Health Programmes: their benefits for global security" will be held on 28-30 June 2011 in Panama City, Panama.

## 2.2. Current Global Issues on Aquatic Animal Health Relevant to Asia-Pacific Region

Dr. Melba Reantaso (FAO) presented on-going projects of FAO related to aquatic animal health which are of importance to the region. The report included issues on: Biosecurity; Certification guidelines; One Health Program; Fisheries/Aquaculture and Veterinary Authorities; and, Certification of aquatic animal health professionals. Biosecurity in aquaculture, as discussed during the Global Conference on Aquaculture 2010, is taking a broader perspective to include aquatic animal health, invasive species, genetic risks, public health and climate change impacts. The following messages were conveyed by panel experts:

- International and national efforts to promote biosecurity need to better reach the grassroots levels of the industry and the community stakeholders;
- Biosecurity frameworks need to keep pace with the unprecedented level of aquaculture development in terms of species, systems and technology;
- Standards on aquatic animal health for known pathogens, aquatic pests and food safety are already available, but greater commitment by governments is needed to implement these standards;
- International standards need to be developed to address the high incidence of emerging diseases of aquatic animals and aquatic pests compared to the terrestrial scenario – there is

a need to complement the pathogen/pest specific approach to biosecurity with standards that deter high risk practices.

On the different certification schemes which are creating confusion for many stakeholders, globally accepted guidelines are needed, which can serve as basis for a more harmonized and acceptable certification. The proposed FAO aquaculture certification guidelines are now awaiting approval. They consider a range of issues relevant to certification schemes in aquaculture: animal health and welfare; food safety; environmental integrity; and, socio-economic aspects.

Risk assessment is also important for timely assessment of threats from new or expanding species. These include standardization of science-based identification of all risk pathways and high risk organisms, and implementation of pre-border, border and post-border measures for disease prevention. FAO's "One Health Program" which aims for improved animal and public health, enhanced food safety and security, and improved livelihood while protecting the ecosystem, is currently focused on animal diseases. The aims will be accomplished by enhancing disease intelligence and emergency response systems (national, regional and international levels), strong veterinary and public health services, and inter-sectoral collaborations for effective communication strategies.

**Recommendations**

- AG recommended that Asia-Pacific member countries should work cooperatively and pro-actively to deal with international issues, e.g. EU regulations and OIE standards;
- On the Animal Welfare aspects of OIE standards, AG recommended that member countries provide their comments on draft standards to the OIE through their respective OIE delegates. The AG suggested that NACA could facilitate cooperation, start with e-communications, to gather responses from member countries on the implications of proposed international animal welfare standards.

# Session 3: Disease Trends and Emerging Threats

## 3.1. Updates on Crustacean Diseases in the Region

Prof. Timothy Flegel (Centex Shrimp and BIOTEC, Thailand) presented updates on current crustaceans diseases in the region. WSSV and YHV remain to be among the most lethal viral pathogens of shrimps, especially in *P. monodon* and *P. vannamei*. Prevention of these diseases is best achieved by using SPF broodstock (esp. for WSSV) which is also the main reason for record shrimp production. For YHV, the mode of transmission is still unknown but covering the ponds with mosquito nets somehow prevents YSV infection, suggesting an insect vector. The covers also prevent infection via infected shrimps dropped by birds. TSV and IHHNV in *P. vannamei* is no longer a problem, showing no effect on cultivated shrimps since 1998 (for TSV), and the high percentages of shrimps having viral inserts in their genomes (for IHHNV). The most recent threat is IMN which is currently affecting *P. vannamei* in Indonesia. The possibility of spreading the disease to neighboring *P. vannamei*-producing countries is high, considering the transport (both legal and illegal) of *P. vannamei* broodstock and postlarvae from one country to another. Other diseases that should be monitored in *P. vannamei* are:

- *Penaeus vannamei* nodavirus (PvNV) which is not yet reported in the region; the disease was first seen in Belize with disease signs indistinguishable from IMNV;
- MrNV which was shown to infect *P. monodon*, *P. japonicus* and *P. indicus* experimentally; some *P. vannamei* samples from China, Vietnam and Indonesia showed strongly positive for MrNV by RT-PCR and immunohistochemistry.

- ASDD which is associated with a retrovirus-like agent (ASDV), but the clinical sign (deformed body) seem to be stress-induced; not lethal but deformities significantly affect the commercial value of the harvested shrimps.

For *P. monodon*, aside from WSSV and YHV, MSGS is another major problem which is associated with LSNV (necessary but insufficient cause of the disease). It is also found that small shrimps from MSGS affected ponds show retinopathy while large shrimps did not, indicating that another factor might be involved in the disease. Recent findings on viral inserts showed that not all shrimps found positive for viral diseases using routine molecular techniques (e.g. PCR) or diagnostic kits contain the complete genome (infective unit) of the causative virus. False positive diagnosis might result in discarding uninfected shrimps or shrimps with protective inserts. This finding is especially important for shrimp breeding programs with aims to select for disease tolerance.

**Discussion**

- TSV can be considered not a problem anymore, as there was no report of further transmission to other species;
- IMN should be considered a high priority because of the threat it currently pose in spreading the disease from Indonesia to other neighboring *Penaeus vannamei*-producing countries. Necessary preparedness is needed in these countries in any event of IMN outbreaks;
- Viral inserts in shrimp genome (which usually produce positive results using routine PCR diagnosis) is a novel and most recent findings and maybe the reason why some shrimps found positive for viruses are not showing any signs of the disease;
- Shrimps with viral inserts cannot transmit the disease from one shrimp to another (since it is incomplete). The inserts, however, can be passed from one generation to another.

**Recommendations**

- Recognizing the high risk and threats posed by IMNV to other *P. vannamei*-producing countries in the region, AG strongly recommended that a meeting on IMNV Awareness and Preparedness be organized focusing on understanding the current situation of IMN in Indonesia (spread and economic impact), assisting them with containment plans, and to prepare a draft emergency response and contingency plan for selected *P. vannamei* producing countries in dealing with IMN. NACA and AAHRI offered technical assistance in this regard, while FAO expressed its interest in organizing/funding the meeting;
- AG also suggested NACA to prepare a one-page Advisory Report on IMNV documenting the disease characteristics, pathogen, spread of the disease within Indonesia and its economic impact in *P. vannamei* industry for wider dissemination in the region
- With the novel findings on viral inserts, AG recommended that those involved in surveillance and disease diagnosis should be informed to be more cautious in interpreting the presence or absence of viral infections (e.g. IHHNV) in shrimps using the routine molecular diagnostic techniques (e.g. PCR, RT-PCR).
- The AG recommended that a brief write up on viral inserts and their implications for diagnosis, surveillance, and seed and broodstock screening programs be developed by NACA with technical assistance from the Crustacean disease expert and widely disseminated in the region.

### 3.2. Updates on Finfish Diseases in the Region

Dr. Siow Foong Chang (Intervet Norbio Singapore) presented updates on bacterial and viral diseases of finfishes in the region, in both marine and freshwater environments. Based on passive

surveillance, the common diseases in major commercial finfish farms in Asia include infections with *Edwardsiella ictaluri, Flavobacterium columnare, Streptococcus agalactiae, Francisella* spp., and iridoviruses (freshwater species), and *Vibrio* spp., *Tenacibaculum maritimum*, *Streptococcus iniae*, iridoviruses and nodavirus (marine species). Of these diseases, big belly disease (*Vibrio* spp.), *T. maritimum*, iridoviruses of marine and freshwater fishes and *S. agalactiae* of tilapia are the most important in terms of economic impact to large scale commercial fish farms in the region. For *S. agalactiae* in particular, two biotypes were identified affecting specific countries in the region. Biotype 1 was isolated from diseased tilapia in Thailand, while Biotype 2 from Indonesia and China. Both Biotypes 1 and 2 were found in diseased tilapia from Vietnam.

Disease diagnosis is important, but it is just half the solution. Fish health experts should understand the epidemiology of important diseases, which include analyzing disease spread and transmission, as well as interaction of the disease agents with the production system and other pathogens. The emergence of large scale aquaculture production systems which are often severely constrained by major diseases needs constant surveillance/monitoring for better aquatic animal health management.

**Discussion**

- To increase use of fish vaccines in Asia-Pacific, aquafarmers need to have access to more affordable vaccines and simple application procedures (e.g. immersion rather than injection), especially for small-scale farmers and producers of low-value species which are common in the region.
- For streptococcal (*S. agalactiae*) infection, vaccine is already available for Biotype 2 and is currently being used in Indonesia. No vaccine is yet available for Biotype 1.

**Recommendations**

- AG recommended that targeted pro-active surveillance and management is needed in the region. In some circumstances, private companies involved in the industry should be encouraged to support active surveillance for them to fully understand the situation.
- In dealing with aquatic animal diseases in general, AG recommended that capacity in epidemiology and fish pathology be strengthened especially for major diseases affecting the aquaculture industry.

## 3.3. Updates on Mollusk Diseases in the Region

Dr. Chinabut (Thailand) informed the AG that there are no updates or recent reports on molluscan diseases, and that the region still lacks experts in this regard.

Dr. Ernst provided an update on the abalone viral ganglioneuritis situation in Australia. In Victoria, there had been no reported spread of the disease in wild abalone in 2010 and there have been no outbreaks in farmed abalone since 2006. In Tasmania, there had been no outbreaks of the disease in processing facilities in 2010 and the disease remained undetected in wild abalone populations in Tasmanian waters.

Dr. Leaño mentioned a parasitic disease of abalone (*Haliotis asinina*) in the Philippines. A report on this issue is included in SEAFDEC AQD's presentation.

Dr. Huang made an update on the viral disease of scallops in China. The genome sequence is already complete and the virus is 90% similar to oyster herpesvirus. The virus is only found in local species of scallops.

### 3.4. Updates on Amphibian Diseases in the Region

Dr. Somkiat Kanchanakhan (AAHRI) presented the status of amphibian diseases in the region focusing mainly on viral pathogens including Ranaviruses, Megalocytiviruses and Lymphocystiviruses. The first two viruses can cause severe systemic disease affecting a diverse variety of hosts, while the Lymphocystiviruses only causes superficial lesions and rarely cause economic loss. Ranavirus, in particular, was also isolated from fishes such as gold fish and marble goby, and also from soft-shelled turtle. The gene sequence of major capsid protein of Ranavirus from these hosts is similar with those isolated from frogs. Recent case of mass die-off of frogs due to Ranavirus was reported in Japan in 2008.

Another important disease of frogs is caused by amphibian chytrid *Batrachochytrium dendrobatidis* which is now detected in free-ranging populations of amphibians in mainland Asia. These were reported in South Korea and from frogs in Mount Gede Pangrango in Indonesia. The occurrence of this disease was highly associated with the decline of amphibian populations in the wild.

**Discussion**

- Concern was raised regarding the presence of Ranavirus infection in wild frog populations. Frog culturists in Thailand usually obtain their broodstock from the wild, which is considered one on the main pathways of spreading the disease.
- The bigger problem is that the virus was also found to infect finfishes such as goldfish and marble goby. Thus it was thought that the host range of Ranavirus be broadened and should be reflected in the quarterly disease reporting and WAHIS.

**Recommendations**

- AG endorsed the suggestion of Dr. Kanchanakhan to establish one more OIE reference laboratory for Ranavirus in the Asia-Pacific region.
- AG suggested that countries in their amphibian disease surveillance programs should consider both cultured and wild populations

# Session 4: Aquatic Animal Health Programmes Relevant to the Region by Partner Agencies

### 4.1. Initiatives and Programmes of FAO in Support to Aquatic Animal Health Management in the Asia-Pacific Region

Dr. Reantaso presented FAO's aquatic animal health and other related programmes and including normative programmes which are global in nature, field programmes implemented in national or regional levels, and combination of normative and field activities. For the normative programmes, co-hosting the Global Conference on Aquaculture 2010 and the Fifth Session of COFI SubCommittee on Aquaculture are two major activities where issues on aquatic animal health and biosecurity were presented and discussed. The meeting was informed that revision of the Asia Diagnostic Guide to Aquatic Animal Diseases is progressing well and proceedings of the Expert Workshop on Prudent Use of Veterinary Medicines in Aquaculture will be available for dissemination in early 2011

The following on-going field programmes were also briefly presented:

- Developing a national shrimp seed certification system in Bangladesh;
- Improvement of food safety in Hubei Province;

- Better management of freshwater aquaculture in Pingjiang County, Hunan Province;
- Identification of capacity building needs of the Malaysian fish inspection system to meet the international market requirement;
- Certification for small-scale aquaculture in Thailand;
- Emergency disease investigation on the EUS outbreak in Southern Africa in collaboration with AAHRI and NACA.

Pipeline projects for field programmes include:

- Building trade capacity of small-scale shrimp and prawn farmers in Bangladesh – Investing in the bottom of the pyramid approach;

**Discussion**

- On the development of national strategies, the successful approaches in some regions (e.g. Bosnia) could be followed in the Asia-Pacific region. National strategic plans are clearly beneficial for building capability and capacity in aquatic animal health. They can also guide the investments of donor agencies to those areas considered to be national priorities.

**Recommendation**

- AG recommended that national strategies for aquatic animal health should be formulated to address the specific needs and priorities of each country — with particular regard to the nature of the country's aquatic animal industries and the national arrangements that are currently in place. The AG also suggested that successful national strategies developed in other regions (e.g. Bosnia) be used as models for guidance while developing national strategies in the region.

### 4.2. Australia's National Aquatic Animal Health Programmes: Current Activities

Dr. Ingo Ernst (DAFF, Australia) provided a presentation on current national aquatic animal health activities that may be of interest to NACA members, including those implemented through Australia's National Strategic Plan for Aquatic Animal Health, AQUAPLAN 2005-2010.

AQUAPLAN 2005-2010 concluded in June 2010 and it is currently being reviewed to consider the plan's development, implementation processes, achievements, and future approaches to aquatic animal health, including the need for a successor strategy.

Aquatic animal diagnostic proficiency testing has been included within the Australian National Quality Assurance Program (ANQAP) which previously only provided proficiency testing services for terrestrial animal diseases. The aquatic proficiency tests are run to National Association of Testing Authorities (NATA) standards and are expected to earn NATA accreditation in 2011. The current panel of aquatic tests includes white-spot syndrome virus, yellow-head virus, gill-associated virus, viral encephalopathy and retinopathy, viral haemorrhagic septicaemia, and abalone viral ganglioneuritis.

Following a national workshop to consider gaps in aquatic animal health education and training in Australia, two priority needs were identified. A training scheme has been developed to address one of these priorities—enhancing the skills of practicing professionals in Australia. The scheme aims to "*improve knowledge and skills in aquatic animal health management to support Australia's fishing and aquaculture industry, including the aquarium sector*". Funding is available on a competitive basis to support Australian professionals to undertake short, focused training activities, within Australia or overseas. Alternative approaches to skills development including, but not limited to, visiting experts and master classes would also be considered under the scheme. The scheme will continue for 3 years, initially.

The Australian Biosecurity Intelligence Network aims to connect, share and create biosecurity intelligence for biosecurity research, surveillance and response through a shared online workspace that can be accessed through a single web portal. The initiative, which is funded through the National Cooperative Infrastructure Scheme, includes proof of concept projects for wildlife health, aquatic animal health, veterinary pathology, and plant health. The aquatic animal health project will include an information repository and capabilities for distribution modeling, digital microscopy, real-time virtual microscopy, and training modules.

Industries and governments in Australia have been working toward the development of a formal agreement on the approach to preparing for, and responding to, disease emergencies. Such an agreement would address increased cooperation between industries and governments, risk management, detection and response, and cost sharing. The benefits of an agreement would include ensuring responses are made in the common national interest rather than local interests.

## Discussion

- On the biosecurity intelligence network (including virtual microscopy), members questioned whether this would be available at the regional level. This may be feasible at a later time, however initial work aimed to develop a facility for use in Australia only.
- Members discussed lessons that had been learnt through the development and implementation of Australia's two national strategic plans. While the review of AQUAPLAN 2005-2010 remained underway and its findings could not be pre-empted, Dr Ernst made some general points that might be of interest for successful implementation of similar aquatic animal health programs in the region:
    - Engage relevant stakeholders—particularly those who would be expected to contribute to, or benefit from, the plan
    - Cultivate shared ownership in the plan's objectives
    - Set achievable goals consistent with resources available
    - Recognise and respect existing responsibilities; e.g. of different government agencies
    - Ensure responsibilities for implementing specific projects are defined and understood
    - Seek high-level endorsement (e.g. ministerial) of the plan—this may provide government agencies with necessary authority to commit resources to its implementation
    - Review progress and priorities regularly; ensure communication of progress and achievements to stakeholders
    - Flexibility during the implementation of the plan (e.g. priorities may change and the plan must adapt to those changed priorities).

- Members commented that training and proficiency testing schemes are highly desirable for national diagnostic and service laboratories. Proficiency testing may be necessary to meet accreditation requirements and laboratories within the region should be encouraged to participate in available programs to improve disease diagnostic services.

## Recommendations

- Recognising the value of the Australian approach in developing and implementing national aquatic animal health strategies, the AG suggested that the lessons learnt should be widely disseminated to the region;
- The AG, noting that it is unrealistic for a full spectrum of specialist diagnostic expertise to be maintained by each country in the region, recommended resource sharing and laboratory networking as a means to provide access to diagnostic expertise.

- AG suggested to follow the initiative of OIE in the establishment of RL's for specific aquatic animal diseases. Similar RL's should be established in the region to cater most of the major aquatic animal diseases affecting the aquaculture industry;
- On education and training, AG recommended long-term training programs for aquatic focal points/national coordinators for them to get used to aquatic animal health issues and other production problems which they can apply to their respective countries. AG also suggested NACA to develop another regional education program for graduate studies on tropical fish health management (similar to the previous program at University Pertanian Malaysia).

### 4.3. SEAFDEC AQD Fish Health Activities: Progress and Updates

Dr. Leaño presented the report of SEAFDEC AQD Fish Health Programmes on behalf of Dr. Edgar Amar who was not able to attend the meeting. The Government of Japan-Trust Fund Project "Accelerating Information Dissemination and Capacity Building in Fish Health Management in Southeast Asia" is being implemented by SEAFDEC AQD's Fish Health Section from 2010-2014 with two components: 1) dissemination of technology and information to stakeholders in rural communities for effective disease control, and 2) innovative research to guarantee food safety and sustainable production. For component 1, a survey was conducted to know the status and needs of aquatic animal health care in small-scale aquaculture in the region. Only freshwater species are significant for small-holders in Cambodia and Lao PDR, while brackishwater, marine or freshwater species may be selected for Myanmar and the Philippines. Field laboratories in 4 target countries such as that established in Ayeryawaddy Division in Myanmar can serve as links of small-holder aquaculturists to technical information by disseminating Level 1 and 2 diagnostic techniques. An AquaHealth online course is being implemented from July-December 2010 with 4 GOJ-funded participants from Cambodia, Myanmar, Philippines and Thailand. The survey of farmer-respondents and active surveillance of parasite fauna of economically important freshwater fish has just been completed together with the conduct of Freshwater Fish Heath Management Training Course with emphasis on zoonotic parasites on 06-10 December 2010 in cooperation with Department of Fisheries, Yangon, Myanmar.

For the research component, the following activities are being undertaken:

- Establishment of molecular methods for the diagnosis and prevention of economically important viruses in fish and shrimps. These include quantitiative PCR protocols for accurate determination of viral loads, immunization/vaccination regimen for prevention of VNN, and novel prophylactic and therapeutic methods for prevention of viral infections in commercially important maricultured fish.
- Studies on parasitic and shell diseases of abalone (*Haliotis asinina*) in the Philippines. Histological results showed presence of protozoans (*Nematopsis* sp.), *Nematopsis*- like gregarines (in interstitial tissues), ciliates (in gills), and trematodes (mantle of foot). Condition index of the abalone seem to be affected by infestation with mud worms. Histological slide preparation and analysis of abalone samples is on going with digital photographs of some shell diseases and parasites submitted to experts for confirmation.

**Discussion**

- The region has very strong and established institutions serving the aquaculture sector (e.g. SEAFDEC, NACA, WFC), however, there is a need for coherence and integration of the different activities that each of these institutes are undertaking. This is mainly to create synergy and avoid repetition and overlap of programmes that are being implemented in the region.

**Recommendations**

- AG recommended that important research results on emerging and current aquatic animal diseases should be relayed to the relevant countries' NC for inclusion in the national disease surveillance and reporting programs (e.g. parasitic infestation of *H. asinina*).
- AG also suggested the need for "disease mapping" for better integration of surveillance results, and to ensure consistency in surveillance approach for clearer interpretation of the collected information.

## 4.4. Aquatic Animal Health Management in Thailand

Dr. Temduong Somsiri (Director, AAHRI) presented the status of aquatic animal health management in Thailand, based on the current activities and projects that AAHRI are undertaking including aquatic animal disease and environment-related problems. Thailand has an existing national list of aquatic animal diseases which was based on cultured species, economic impact of the disease, diseases that are exotic to the country, regional importance, and international (OIE) disease list. Several legislations on the control of aquatic animal diseases are also existing and actively implemented: Animal Epidemic Act; Wild Animal Reservation and Protection Act; and several Department of Fisheries (DoF) Regulations and Notifications. Disease surveillance includes diseases that are not yet reported in the country (e.g. IMN, SVC, VHS among others), those considered Zone Free (e.g. EUS), and those that are Compartment Free (e.g. KHV and most shrimp viral diseases).

Thailand has very efficient emergency preparedness and contingency planning measures implemented by the DoF through the Inland and Coastal AAHRI. Once a disease outbreak has been confirmed and properly analyzed, the case will be forwarded to the Department of Livestocks for proper eradication of infected stocks, control in movement of affected animals, and compensation to aqua farmers. Strict regulations for the importation and exportation of live aquatic animals are also in place, e.g. quarantine measures for imported aquatic animals for aquaculture, and issuance of health certificates for live aquatic animals for export. Conflicting certification requirements, expensive pathogen inspection programs, improper risk analysis and new emerging diseases are some of the problems encountered in the implementation of such regulations.

Dr. Somsiri also presented the activities of the ANAAHC. A planned meeting among member countries was submitted to the Thai Government for 2011 budget allotment. Capacity building for IMNV diagnosis and surveillance program in Thailand was also submitted to FAO for funding support. Currently, most of the member countries' focal points are not communicating with ANAAHC headquarters in Bangkok.

**Discussion**

- Training programs by AAHRI should be well coordinated with other training institutions, and plans on foreseen programs shared and undertaken towards complementarities.

**Recommendations**

- The AG recommended that the various capacity building activities in the region should be mapped. As the only regional platform with an understanding of what is happening in the region, the AG should prepare and properly disseminate a report on all of the training activities/programs that have been and are being undertaken in the region.
- Thailand has successful programs for disease surveillance, emergency preparedness and contingency planning. The AG recommended that, where possible, NACA widely

disseminate the Thailand disease surveillance and emergency preparedness programs to other member governments for awareness and capacity building.

### 4.5. Institutionalization of SAARC Mechanisms for the Control of Trans-boundary Aquatic Animal Diseases

Dr. Mohan presented an overview of a project in pipe line for implementation in SAARC countries. This project proposal was prepared for the South Asian Association for Regional Co-operation (SAARC) by an Asian Development Bank (ADB) team of consultants under the ADB-funded "TA-6512 (REG) Promoting South Asian Regional Economic Co-operation II" . The project outcome is The institutionalisation of a SAARC mechanism for the control of TAADs, thereby minimising the spread of TAADs across South Asia and contributing towards increasing food available for human consumption in SAARC countries. The key outputs include:

- sustainable regional aquatic animal health management (bio-security) framework;
- sustainable regional aquatic animal health information management system;
- enhanced policy frameworks for aquatic animal diseases at national levels;
- enhanced institutional capacity for the control of TAADs; and
- efficient and effective project management, monitoring and evaluation.

Proposed activities under the project include:

- development of regional and national aquatic animal health management frameworks and upgrading of research and diagnostic laboratories;
- development of regional aquatic animal health information management systems;
- regional co-operation and policy development;
- institutional capacity development; and
- project management, monitoring and evaluation.

The project if funded, will be implemented by NACA in close collaboration with FAO and WFC.

**Recommendation**

- The AG was pleased to note the details about the project and recognized the value of the proposed project to support SAARC nations to establish strong national bio-security programs. The AG recommended that NACA pursue the project with SAARC and if approved, work closely with FAO and WFC in Dhaka to implement the program.

# Session 5: Disease Reporting

### 5.1. QAAD Reporting - NACA

Dr. Leaño presented the current status of QAAD reporting of Asia and the Pacific Region, as well as the progress it has made since its inception during the third quarter of 1998. Throughout QAAD's more than 10 years of existence, disease reporting by participating countries has improved significantly, as efficient diagnostic techniques (e.g. histopathology, molecular diagnostics, viral assays and electron microscopy) have been used to screen and detect important microbial pathogens. More and more countries have been employing level III diagnosis, from 5 countries in 1998 to 12 countries at present. Currently, an average of 16 QAAD reports is received for each quarter, out of the 21 member governments. The following member countries are currently not submitting quarterly reports:

- Cambodia (since 2009);
- China (since 2004);

- Korea, DPR (since 2000);
- Pakistan (since 2008).

The reports are widely disseminated through printed copies or e-copies downloadable at NACA website. QAAD also serve as early warning system for some emerging diseases of worldwide significance, e.g. are KHV, AVM, WTD and NHP which were initially listed in QAAD and are now listed in OIE. Aquatic animal health surveillance in the region through QAAD has been a useful mechanism for recognizing existing and emerging diseases. The published QAAD reports have generated important information on aquatic animal diseases that are present or absent in the different areas of the region.

## 5.2. QAAD Reporting, OIE Representation in the Asia-Pacific, Tokyo

Dr Sayuri Iwaki, Regional Veterinary Officer of OIE Regional Representation for Asia and the Pacific (OIE Asia-Pacific), presented a short summary of Quarterly Aquatic Animal Disease Report (QAAD) during July 2009 – June 2010. The report included the status of reporting from member countries, progress of reports, and list of major diseases and any other diseases of importance. In addition, she introduced a case which QAAD has modified in response to a request from one Member to indicate the disease situation of both domestic and wild populations. Finally, she briefly informed the AG about a Workshop for OIE National Focal Points for Aquatic Animal Diseases to be held in Vietnam on 19-22 April 2011.

**Recommendations**

- In response to the modified QAAD report on one molluskan disease from one Member country, it was recommended that disease surveillance in wild population can be included in the overall aquatic animal health report of each member country.
- For diseases never reported to occur in the country, AG suggested to follow OIE's occurrence code "0000" for both domestic and wild populations.

## 5.3. New OIE Disease List

Dr. Huang presented the OIE list of diseases adopted by the OIE World Assembly of Delegates in May 2010. Only NHP was approved for listing while the Milky haemolymph disease of spiny lobster was delisted. The full listing of NHP was adopted and Milky haemolymph disease of spiny lobsters (*Panulirus* spp.), previously listed as 'understudy' was removed from the OIE list of diseases. No changes were made for the lists of diseases for Finfishes, Mollusks and Amphibians. Below is the revised OIE list of diseases for aquatic animals adopted by the OIE World Assembly of Delegates in May 2010. The entrance into force for notification purposes will start in January 2010.

Diseases of Fishes (*Aquatic Code* Article 1.3.1):

- Epizootic haematopoietic necrosis
- Epizootic ulcerative syndrome
- Gyrodactylosis (*Gyrodactylus salaris*)
- Infectious haematopoietic necrosis
- Infectious salmon anaemia
- Koi herpesvirus disease
- Red sea bream iridoviral disease
- Spring viraemia of carp
- Viral haemorrhagic septicaemia

Diseases of Molluscs (*Aquatic Code* Article 1.3.2)

- Infection with abalone herpes-like virus
- Infection with *Bonamia ostreae*
- Infection with *Bonamia exitiosa*
- Infection with *Marteilia refringens*
- Infection with *Perkinsus marinus*
- Infection with *Perkinsus olseni*
- Infection with *Xenohaliotis californiensis*

Diseases of Crustaceans (*Aquatic Code* Article 1.3.3)

- Crayfish plague (*Aphanomyces astaci*)
- Infectious hypodermal and haematopoietic necrosis
- Infectious myonecrosis
- Necrotising hepatopancreatitis
- Taura syndrome
- White spot disease
- White tail disease
- Yellow head disease

Diseases of Amphibians (*Aquatic Code* Article 1.3.4)

- Infection with *Batrachochytrium dendrobatidis*
- Infection with ranavirus

**Recommendation**

- The AG recommended that OIE revisions to the disease list be considered while revising the QAAD list for the region.

## 5.4. Revision of QAAD List

Based on the OIE updates, NHP is now included in the QAAD list under OIE-listed diseases. Milky haemolymph disease of spiny lobster was retained in the QAAD list under Non OIE-listed diseases, despite the de-listing of this disease by OIE. The revised list of QAAD diseases which will be used starting January 2011 is presented in Annex C.

### Recommendations

- AG recommended to get information from regional experts (to be presented during the next AGM) on the following diseases which might be considered for inclusion in QAAD list for 2012:
    - Viral disease of abalone (not caused by herpes-like virus);
    - Iridovirus disease of other marine fishes including ornamentals;
    - Grass carp haemorrhagic disease in China and Vietnam;
    - Abdominal segment deformity disease (ASDD).

- AG also suggested to continue developing disease cards for non-OIE listed diseases.

## 5.5. Status of Global Reporting for Aquatic Animal Health Using WAHIS and Progress in the Implementation of OIE/NACA Regional Core

Dr. Karim Ben Jebara (OIE, France) presented the current status of the WAHIS which include immediate notification and follow-ups on specific and important diseases (international alert is being issued once a report is received by WAHIS), and regular information on the status of aquatic animal diseases through six-monthly and annual reports. The current system now offers improve d transparency of the animal health situation worldwide, and improved efficiency of the OIE's early warning system for better animal disease awareness and preparedness. Currently, WAHIS 2 is being developed from the original system because of the need to better address the system for notification of diseases in wild populations. He mentioned that the code for "Never Reported" (0000) has to be applied for both domestic and wild species and this has to be reflected in the quarterly reporting forms. A better understanding of the disease situation in both domestic and wild animals will result in better risk assessments for importing countries and fewer unjustified trade barriers. This change is also beneficial for aquatic animals.

He presented the status of the worldwide countries reporting situation of aquatic animal health using WAHIS, as well as the situation in Asia and the Pacific. He highlighted the improvements observed in aquatic animal health notification by Members and that this trend should continue for the region, especially after the launch of OIE/NACA Regional Core.

With regard to OIE/NACA WAHIS Regional Core, it is currently being finalized and some examples using some screen shots have been presented as examples of pages of the new online notification application to describe its functionalities by the WAHIS administrator and by Members participating in the OIE/NACA Regional Core. The system will be pilot tested with selected focal points before it is formally launched. Large communications on this initiative of harmonization and integration between the regional information system (OIE/NACA Core) and WAHIS worldwide information are aimed at improving aquatic animal health management.

**Discussion**

- The OIE/NACA WAHIS Interface Regional Core is still in the fine-tuning stage and NACA should still need to indicate the needed output (data or reports to be generated from the database) once the system becomes operational. Sample of outputs can be seen at WAHID;
- The WAHIS Regional Core is planned to be pilot-tested in at least four member countries;
- Training for NCs and Aquatic Focal Points will also be undertaken before the online system becomes fully operational, and will eventually replace the current QAAD reporting system.

**Recommendation**

- The AG recommended that the current paper based QAAD system be continued for the year 2011 and the decision on stopping the QAAD will be taken by the AG once the WAHIS regional core becomes fully operational.

# Session 6: Open Discussion – Proposed Scope of AG and Revision of AG's Terms of Reference (TOR)

Considering the current issues and concerns related to aquatic animal health (e.g. bio-security and certification), it was suggested that the scope of AG be broadened to address these emerging issues aside from the updates on current disease problems of aquatic animals. Dr. Ernst presented the recent AG's TOR which was last revised in 2007.

**Discussion**

There is an ongoing need to strengthen aquatic animal health management in the Asia-Pacific region driven by increasing production and trade in aquatic animal commodities, the need to meet sanitary requirements for international trade, the importance of preventing the spread of trans-boundary diseases, and recognition of the significance of aquatic animal production for food security. Effective coordination and communication of capacity building initiatives across the region is important to ensure that wherever possible available resources are applied for maximum benefit. It was suggested that the scope of AG be broadened to encompass a stronger role in regional coordination of activities, particularly for the communication of needs and progress. Dr. Ernst presented the AG's TOR which were last revised in 2007. The group considered each item listed in the TOR and suggested relevant revisions accordingly. The revised TOR are presented in Annex D.

**Recommendations**

- AG agreed to evaluate the accomplishments of the group. A draft report on the progress of the AG against its terms of reference would be considered at the 2011 meeting.
- The AG agreed that a priority activity is to identify the gaps and needs of the region in terms of aquatic animal health management arrangements and capabilities. This would require direct consultation with individual member countries. The AG recommended that a questionnaire be designed and used to gather the required information. The questionnaire would be distributed to NC's and AG members as an initiative of NACA.
- The AG recognised the need for NACA to collect/collate information on the status and implementation of national strategies by member countries.
- The AG recommended inviting aquatic animal health experts to the annual AG meeting, depending on the current issues that are relevant to the region.

# Session 7. Aquatic Animal Health Resources Updates/Any Other Business

## 7.1 Technical Guidelines

The Asia Regional Technical Guidelines on Health Management for the Responsible Movement of Live Aquatic Animals and their associated implementation plan (the Beijing Consensus and Implementation Strategy; BCIS) provide regional governments with expert guidance for developing national and regional strategies for reducing the risks of disease due to trans-boundary movement of live aquatic animals. The Technical Guidelines were the result of an extensive consultative process involving input from government-designated NCs, NACA, FAO, OIE, and regional and international specialists. The final Technical Guidelines were unanimously endorsed at the Final Workshop on Asia Regional Health Management for the Responsible Trans-boundary Movement of Live Aquatic Animals, held in Beijing, PR China, 27th-30th June 2000.

The AG recognised that the Technical Guidelines remain the principle, regionally-agreed approach to building aquatic animal health management capabilities in the region. The guidelines are intended to be used to improve and harmonise aquatic animal health management strategies for responsible trans-boundary movement of live aquatic animals—however, the principles are also applicable to aquatic animal health management more generally.

The AG acknowledged the concept of phased implementation of the Technical Guidelines based on national needs. With countries at different stages of development; and with access to different levels of technical, financial and institutional resources; setting of priorities and a phased approach to implementation of national strategies are essential. The Technical Guidelines provide an entry point for countries to build aquatic animal health management capacity from any stage of development.

The AG noted that much progress had been made since the technical guidelines were endorsed at the Beijing meeting. However, consistent with the phased approach to implementation, progress has not been uniform, and it remains important to monitor the progress of individual countries to determine where regional assistance programmes should be targeted. The AG agreed that it should more closely monitor the progress toward implementation of the technical guidelines. This role is consistent with the Beijing consensus which stated that "*The AG should assist by preparing guidelines for monitoring of implementation by NCs and preparing regional summary reports on progress* ". The AG noted the important role of NCs in monitoring national progress toward implementation.

The AG discussed each element of the technical guidelines to document relevant regional initiatives, achievements and remaining needs or required actions. A summary of the discussion is included at Annex E.

**Discussion and Recommendations**

- It is suggested the need for assistance to RRC's in improving their diagnostic capabilities; assessment of diagnostic capacities of member countries is needed;
- OIE PVS evaluations for terrestrial animals gave good results to Competent Authorities as a basis for filling the gaps on diagnostic capacities and health management, a parallel program is currently being developed for aquatic animals;
- ANAAHC is likely becoming a bilateral agreement at present due to budgetary constraints in some ASEAN member countries; AG suggested if it is possible that NACA can develop a concept on how ANAAHC can implement the different works and programs in aquatic animal health in the region;
- On Health Certification, AADCP project has done some assessment but is limited to ASEAN member countries; bilateral communication and government legislations are important in the proper implementation of health certification in aquatic animals;
- On Quarantine, the principle of bio-security and isolation is very important. However, quarantine facilities are expensive to establish and operate, thus it should not always be government-based. Private industries can make provisions on quarantine facilities in their respective farms which can be controlled and monitored by the Competent Authority (e.g. cases of Thailand and Singapore). Pre-export quarantine is also important for exporting countries prior to issuance of health certificates;
- Disease zoning and compartmentalisation should be applied to aquatic animals for better aquatic animal health management in the region (e.g. lessons learnt from Thailand on KHV);
- On aquatic animal epidemiology capacity building, it is suggested that a surveillance programme be designed to effectively assess the disease status of the country. The OIE Center for Aquatic Animal Epidemiology in Norway can be tapped for this purpose;
- On Contingency planning, resources from Australia's AQUAPLAN can be tapped. Simulation exercises can be done in each country. AG suggested to organize a Contingency Planning Workshop wherein participants from member countries will be required to prepare their own contingency plan prior to the workshop. The plan and also the people who will implement the plan will be properly evaluated during the workshop.

## 7.2. Economic Impact of Aquatic Animal Diseases in the Asia-Pacific

An action from the 2009 AG meeting was for the preparation of some concepts for the analysis of the economic impact of aquatic animal diseases in the region. Dr. Ernst presented a concept note to the AG that included the proposed need, outcomes and three possible approaches.

The rationale for such a project would be to demonstrate the potential for economic return on (government and industry) investment in aquatic animal health management systems in the Asia-Pacific region. Aquaculture is growing rapidly in the Asia region and is of increasing significance to economies and to livelihoods of people in rural communities. However, aquatic animal diseases pose a risk to profitability and to sustainable industry development (where endemic production diseases cannot be managed effectively), and to rural economies and food security (where trans-boundary emergency aquatic animal diseases may destroy productivity and limit trade opportunities). The potential economic consequences of aquatic animal diseases will likely increase in parallel to industry growth and intensification—a trend that will continue with aquaculture expected to meet the global increases in demand for seafood.

The disease risks to aquatic animal industries are many and uncertain; largely due to the emerging nature of aquaculture industries and the relatively recent domestication of production species. New, serious aquatic animal diseases emerge regularly and require significant investment in research and development to characterise them, develop diagnostic tests, understand their epidemiology, develop appropriate management practices, and extend those management practices to primary producers. Additionally, arrangements to limit the spread of trans-boundary diseases must be strengthened to accommodate new and changed risks: e.g. risk analysis, appropriate quarantine measures, surveillance, reporting, and emergency preparedness. Due to the relative uncertainty regarding the nature of disease threats, effective management will likely require resilient systems that can address known risks as well as emerging disease threats.

For aquaculture, aquatic animal health outcomes that are much lower than terrestrial livestock industries are generally considered acceptable. This is likely, in part, due to the lower unit value of aquatic animal species compared to terrestrial livestock. However some measures of aquatic animal health (e.g. survival) may underestimate the economic impact of disease. For example, diseases may also affect animal performance (growth and food conversion), treatment costs (treatments, labour and infrastructure), product quality, consistency of supply, and market access. These impacts may be difficult to value, but in combination may have very high impacts on industry profitability, growth and/or sustainability.

The proposed outcome of this project would be to provide decision makers with information on where investments in aquatic animal health management systems should be made to have the greatest economic return.

The AG considered qualitative, semi-quantitative and quantitative approaches. The AG acknowledged that most analyses that had been completed previously were either qualitative or did not determine the true cost of aquatic animal diseases throughout the value chain. As a result it is likely that the full cost had not been estimated.

The AG agreed that a quantitative approach aimed at determining the costs of aquatic animal diseases across the value chain for specific aquaculture industry sectors would be the most beneficial but also the most complex. The methodology would need to be determined in consultation between economists, aquaculture business experts and aquatic animal disease experts but might include:

- targeting a small number (2-3) of aquaculture sectors of varying stages of development
- targeting these aquaculture sectors in a small number of countries (2-3)

- determining the economic impact of aquatic animal diseases throughout the value chain for each sector
- determining the likely return on investment by improving certain elements of aquatic animal health management systems for sectors/ countries
- based on the findings, offer recommendations for the most cost-effective investments (in terms of expected benefit) for aquatic animal health systems
- this option would require strong industry and government cooperation.

**Discussion and Recommendations**

- The AG recognised that a limitation to investment in aquatic animal health programs was the ability to demonstrate the socio-economic return on those investments. With better information on the expected returns, governments could make more informed decisions on funding priorities.
- The AG agreed that a quantitative approach aimed at determining the costs of aquatic animal diseases across the value chain for specific aquaculture industry sectors would be the most beneficial but also the most complex approach.
- If there are good studies in 3 or 4 countries that show the real economic impact of aquatic animal diseases, then this can serve as model for other countries.
- The quantitative approach could be pilot-tested in India with an already established group and many successful industry activities; a team composed of aquatic animal health experts, economist, local officials and legislators are needed;
- The OIE has completed a project to estimate the costs of national prevention systems compared to response actions. The OIE may be able to identify experts in the region that could contribute to the proposed project;
- There is a need for economic indicators on the effect of aquatic animal diseases on the aquaculture industry in general; the AG suggested that it might be possible to collate some preliminary information from member countries through an appropriate survey to be targeted at the NCs;

## 7.3. Updates of RREs, RRCs and RRLs

Dr. Leaño mentioned the interest of APIQTC to officially become a RRC of NACA. The request was made by Dr. Hong Liu, the current Director of the Key Lab of Aquatic Animal Diseases which is under the Center. The Center is also applying as RRL of OIE for SVC. The AG agreed to consider the application and asked NACA to inform the center to officially submit their application to NACA for consideration in the next AGM.

A list of aquatic animal health experts from China was also submitted by Dr. Liu for inclusion on RRE list. It was approved by AG and the following experts will be added to the list:

| Name and Address | Expertise |
|---|---|
| **Dr. Hong Liu**<br>Key Lab of Aquatic Animal Diseases<br>Animal and Plant Inspection and Quarantine Technology Centre (APIQTC)<br>Shenzhen Exit & Entry Inspection and Quarantine Bureau<br>Room 908, 1011 Fuqiang Road, Futianqu,<br>Shenzhen City, Guangdong 518001, P. R. China<br>Tel: +86-755-25588410<br>E-mail: Liuhong@szciq.gov.cn, ciqliuhong@gmail.com | Fish Virology |

| | |
|---|---|
| **Dr. Guitang Wang**<br>Institute of Hydrobiology, Chinese Academy of Sciences<br>Donghunan Rd 7#, Wuhan 430072, Hubei Province, P. R. China<br>Tel: +86-27-68780611<br>E-mail: gtwang@ihb.ac.cn | Fish Parasitology |
| **Dr. Dong Qian**<br>Fish Disease Laboratory, Zhejiang Institute of Freshwater Fisheries<br>No 999, South Huangchangqiao Road, Huzhou, Zhejiang Province, 313001<br>P. R.China<br>Tel: +86-572-2045132, Cell phone: +86-013757263859<br>e-mail: gdomonas@163.com | Shrimp Diseases |
| **Dr. Anxing Li**<br>Institute of Aquatic Economic Animals, School of Life Sciences<br>Sun Yat-sen University, Guangzhou(510275),China<br>Tel: +86-20-84115113<br>e-mail: lianxing@mail.sysu.edu.cn , anxing_li2002@yahoo.com.cn | Fish Parasitology<br>Fish Bacteriology |
| **Dr. Changfu Chen**<br>Fishery Department, Central China Agricultural University<br>1 Shizishan Road, Wuchangqu, Wuhan city, Hubei Province, 430070<br>P. R. China<br>e-mail: chenchangfu@mail.hzau.edu.cn | Fish Bacteriology<br>Fish Immunology |

## 7.4. Overview of the 8th Symposium on Diseases in Asian Aquaculture

Dr Mohan provided a brief overview of 8th DAA. The eighth symposium on diseases in Asian aquaculture is being organised under the banner of the Fish Health Section (FHS) of the Asian Fisheries Society (AFS) during 21-25 November, 2011 in Mangalore, India with the theme "Fish Health for Food Security". The FHS of the AFS was founded in May 1989 with the goal to improve regional knowledge on fish health management and to develop awareness among Asian aquaculturists towards establishing a sustainable aquaculture industry. The FHS is credited with holding triennial symposia on "**Diseases in Asian Aquaculture**" (DAA) where members and aquatic animal health professionals meet to discuss broad issues and specific topics related to aquatic animal health. FHS has conducted symposia earlier in Bali, Indonesia (1990); Phuket, Thailand (1993); Bangkok, Thailand (1996); Cebu, The Philippines (1999); Gold Coast, Australia (2002); Colombo, Sri Lanka (2005) and Chinese Taipei, Taiwan (2008).

**Discussion**

- The AG appreciated the role played by the FHS of the AFS in organizing these triennial symposia. The AG suggested that it would be a good idea to hold the next AG meeting as a back to back activity with DAA8 in India, as it will also give an opportunity for AG to participate in the DAA8 and at the same time more experts could be asked to attend the AG meeting as well.

## 7.5. Overview of AqASEM Programme

The European Commission, under the 7th frame work programme (FP7) Cooperation Theme 2: Food, Agriculture, Fisheries and Biotechnologies has approved funding (Euro 0.97 million) for the project "ASEM Aquaculture Platform", coordinated by Ghent University, under the leadership of Professor Patrick Sorgeloos, and involves nine participating European and Asian institutions/ organizations. The project's major aim is to develop a strong 'Community of Practice' to reconcile

ecosystem and economic system demands to promote and consolidate sustainability in aquaculture development in both regions. Specific actions include; 1) validation of first round recommendation; 2) translating key themes into concrete actions; 3) facilitating industry interaction; 4) building and exchangingknowledge and its application, and will be conducted through well defined ten work packages.

NACA will lead two work packages. WP2 on "Development and validation of commodity-specific Better Management Practices (BMPs) for smallholder farmers in the Asia-Pacific region, and WP 9 on "Communication".

In addition, NACA is a major partner for WP 5 on "Diseases and health management" led by University of Stirling. The main tasks of WP5 are:

- Create a steering group with representatives from PANDA, Asia Regional Advisory Group on Aquatic Animal Health of NACA and FHS of AFS to address aquatic animal health issues of common interest to both regions;
- Establish a formal mechanism that utilizes the networks and expertise in both the regions to implement identified actions;
- Develop a resource document providing details of existing networks and initiatives in both the regions and widely disseminate the information electronically;
- Facilitate regular sharing of network activities and outputs through a structured process (e.g. e-newsletter, discussion forums);
- Facilitate utilization of expertise for development of joint research, training and development activities in both the regions.

**Discussion**

- The AG took note of the ASEM platform and its usefulness in creating a network between Europe and Asia. The AG recommended that NACA take suitable steps to contribute to the work package and involve AG as appropriate

### 7.6. Date of next meeting

The AG agreed that the next meeting will be held back-to-back with 8th Symposium on Diseases in Asian Aquaculture (DAA8) in Mangalore, India on 19-20 November 2011 (DAA8 is scheduled on 21-25 November 2011).

# Session 8: Presentation of Meeting Report and Closing

The draft report (Discussion and Recommendations) was revised and adopted, and the meeting closed.

# Action List

(Based on the list of recommendations from all sessions)

| Issue(s) | Actions needed |
|---|---|
| 1) Regional priorities on aquatic animal health | • Convening of a Regional Meeting for NCs/Aquatic Focal Points; proper concepts and objectives of the meeting is needed; FAO, NACA and OIE to organize. |
| 2) International standards, regulations and certifications | • Member countries should engage more strongly in international standard setting processes through a more cooperative regional approach and commenting on draft international standards;<br>• NACA to assist in collating country comments on international standards and facilitate a regional response;<br>• Strong "one voice" is needed for the region during the annual meeting of OIE |
| 3) OIE's Animal Welfare regulation | • Member countries need to provide inputs on the development of standards for animal welfare;<br>• NACA to start e-communications to gather information on the needs for formulation of animal welfare standards;<br>• Regional meeting should be organized to discuss issues and concerns in the Asia-Pacific region on international animal welfare regulations. |
| 4) IMN in *Penaeus vannamei* in Indonesia: current status (spread) and the threat that it pose on neighboring *P. vannamei*-producing countries in the region | • FAO, NACA and AAHRI to organize an emergency regional meeting to address the current problem; participants will be from top *P. vannamei*-producing countries; technical support and organization by NACA and AAHRI with funding from FAO;<br>• NACA to prepare and publish a one-page Disease Advisory on IMN/IMNV |
| 5) Disease surveillance and reporting | • Targeted pro-active surveillance and management in the region; private companies (in some circumstances) involved in the industry should be encouraged, through the initiative of NACA, to support active surveillance for them to fully understand the current aquatic animal disease situation;<br>• Refinement and pilot-testing of WAHIS Regional Core to at least four member countries;<br>• Training for NCs/Aquatic Focal Points on the use of WAHIS Regional Core prior to its full implementation. |
| 6) QAAD List | • Revision of QAAD list to include Necrotising hepatopancreatitis of shrimps as listed by OIE, and retaining Milky haemolymph disease of spiny lobster *Panulirus* sp. under the non-OIE listed diseases; new list to be used for 2011 QAAD reports;<br>• Relevant information to be gathered on the following diseases which will be considered for inclusion in the list for 2012: Viral disease of abalone (not caused by herpes-like |

| | |
|---|---|
| | virus); iridovirus disease of other marine finfishes including ornamentals; Grass carp haemorrhagic disease in China and Vietnam; and, Abdominal segment deformity syndrome (ASDS) of shrimps. |
| 7) Scope of AG | • Evaluate the accomplishments of the AG and identify gaps and needs of the region in terms of aquaculture production in general and aquatic animal health in particular; questionnaire to be designed for this purpose to be distributed to NCs and AG members;<br>• Aquatic animal health experts to be invited to annual AG meeting, depending on the current issues that are relevant to the region;<br>• NACA to collect/collate information on the status of implementation of national strategies; regional progress table on aquatic animal disease monitoring. |
| 8) Capacity building, Education and Training | • Prepare a table report for all the training activities/programs that have been and are being undertaken in the region;<br>• NACA to possibly develop another regional education program for graduate studies on tropical fish health management;<br>• Encourage member countries to set-up RRLs specialising on specific aquatic animal diseases. |
| 9) Economics of Aquatic Animal Diseases | • Collate some preliminary information from member countries on economic indicators on the effect of aquatic animal diseases |
| 10) Contingency Planning | • Organize a Contingency Planning Workshop wherein participants from member countries will be required to prepare their own contingency plan prior to the workshop.<br>• Proper evaluation of the contingency plan as well as the people who will implement it will be undertaken. |
| 11) RRLs, RRCs and RREs | • Establishment of one more RRC for Ranavirus in the Asia-Pacific region;<br>• Consider the application of Animal and Plant Inspection and Quarantine Technology Center (APIQTC) to be one of the RRCs; request the Center to send official application letter to NACA;<br>• Five fish health experts from China to be included in the list of RREs |

# Annex A: Meeting Agenda

## ***Day 1 (8 November, Monday)***

**09:00 – 12:00**

**Opening Session**

- Introduction (**Dr. Eduardo Leaño**)
- Welcome Remarks **(Dr. C.V. Mohan)**
- Election of Chair and Vice Chair **(elected Chair will take over)**

**Session 1. Progress Report since AGM-8 and expected output from AGM-9 (Dr. Eduardo Leaño and Dr. CV Mohan)**

**DISCUSSIONS AND RECOMMENDATIONS**

**Session 2. Global Issues and Standards**

- Outcomes of recommendations from OIE General Session and the Aquatic Animal Health Standards Commission (**Dr. Jie Huang**, AAHSC)
- Current Global Issues on Aquatic Animal Health relevant to Asia-Pacific region (**Dr. Melba Reantaso**, FAO)

**DISCUSSIONS AND RECOMMENDATIONS**

**Group Photo**

**13:30 – 17:00**

**Session 3. Disease Trends and Emerging Threats**

- Updates on Crustacean Diseases in the region (**Dr. Tim Flegel**, Mahidol University)
- Updates on Fish Diseases in the region (**Dr. Siow Foong Chang**, Intervet)
- Updates on Mollusk Diseases in the region (**Dr. Supranee Chinabut**, Thailand)
- Updates on Amphibian Diseases in the region (**Dr. Somkiat Kanchanakhan**, AAHRI)

**DISCUSSIONS AND RECOMMENDATIONS**

**18:00**

**Welcome Dinner**

## *Day 2 (9 November, Tuesday)*

**09:00 – 12:00**

**Session 4. Aquatic Animal Health Programmes Relevant to the Region by Partner Agencies**

- Initiatives and Programs of FAO in support of Aquatic Animal Health Management in the Asia Pacific Region (**Dr. Melba Reantaso**, FAO)
- Progress and Status of Aquatic Animal Health Programme of DAFF-Australia (**Dr. Ingo Ernst**, DAFF)
- Progress and updates of SEAFDEC AQD Fish Health Program (**Dr. Edgar Amar**, SEAFDEC)
- Aquatic Animal Health Programs of Thailand and Current Activities of AAHRI (**Dr. Temduong Somsiri**, AAHRI)
- ADB/SAARC Project on control of trans-boundary aquatic animal diseases in SAARC: Overview (**Dr. CV Mohan**, NACA)

**DISCUSSIONS AND RECOMMENDATIONS**

**13:30 – 17:00**

**Session 5. Disease Reporting**

- QAAD Reporting: 2010 List and status of reporting(**Dr. Eduardo Leaño**, NACA)
- Aquatic Animal Disease Reporting: OIE Regional Representation for Asia and the Pacific – Tokyo (**Dr. Sayuri Iwaki**, OIE Tokyo)
- New OIE Disease List (**Dr. Jie Huang**, AAHSC, OIE)
- Revisions to the QAAD list for 2011
- Status of global online reporting and Regional Core: WAHIS (**Dr. Karim Ben Jebara**, OIE)

**DISCUSSIONS AND RECOMMENDATIONS**

## *Day 3 (10 November, Wednesday)*

**09:00 – 12:00**

**Session 6. Proposed Scope of AG: Open Discussion (Chair)**

- Identifying current key issues and problems of the aquaculture sector at regional, national and local (farm) level with regard to:
    - Aquatic health management
    - Bio-security
- Proposed priority actions/projects to solve the current problems: regional and sub-regional level
- Other suggestions
- Revision of TOR

**DISCUSSIONS AND RECOMMENDATIONS**

**14:00**

**Session 7. Aquatic Animal Health Resources Updates/Discussion/Others (Chair)**

- RRE's, RRC's and RRL's
- AqASEM Overview
- 8th Symposium on Diseases in Asian Aquaculture: Overview (**Dr. CV Mohan**, NACA)
- Other business
- Date of next meeting

**Session 8. Closing**

- Adoption of Report and Recommendations

# Annex B: List of Participants

| I. Advisory Group Members |
|---|
| **Aquatic Animal Health Standards Commission (AAHSC) of OIE** |
| Dr. Jie Huang<br>Virologist – Senior Researcher<br>Head, Maricultural Disease Control and Molecular Pathology Laboratory<br>Yellow Sea Fisheries Research Institute<br>Chinese Academy of Fishery Sciences<br>106 Nanjing Road, Qingdao, SD 266071<br>PR China<br>aqudis@ysfri.ac.cn; huangjie@ysfri.ac.cn |
| **World Organization for Animal Health (OIE), Paris** |
| Dr. Karim Ben Jebara<br>Head, Animal Health Information Department<br>OIE, 12 Rue de Prony, Paris 75017<br>France<br>k.benjebara@oie.int |
| **Food and Agriculture Organization of the United Nations (FAO)** |
| Dr. Melba Reantaso<br>Aquaculture Officer<br>Aquaculture Service (FIRA)<br>Fisheries and Aquaculture Resources Use and Conservation Division (FIM)<br>Fisheries and Aquaculture Department<br>Food and Agriculture Organization of the United Nations (FAO)<br>Viale Terme di Caracalla, 00153, Rome,<br>Italy<br>Melba.Reantaso@fao.org |
| **OIE Regional Representation for Asia and the Pacific, Tokyo** |
| Dr. Sayuri Iwaki<br>OIE Regional Representation for Asia and the Pacific<br>Sanseido Building 4F, 2-4-10 Kojimachi,<br>Chiyoda-ku, Tokyo 102-0083, Japan<br>s.iwaki@oie.int |
| **Australia** |
| Dr. Ingo Ernst<br>Manager, Aquatic Animal Health<br>Animal Health Programs Branch<br>Australian Government Department of Agriculture, Fisheries and Forestry<br>GPO Box 858<br>Canberra ACT 2601<br>Australia<br>ingo.ernst@daff.gov.au |

| **Thailand** |
|---|
| Prof. Timothy Flegel<br>Centex Shrimp, 4th Floor Chalermprakiat Building<br>Faculty of Science, Mahidol University<br>Rama 6 Road, Bangkok 10400<br>Thailand<br>sctwf@mahidol.ac.th |
| Dr. Somkiat Kanchanakhan<br>OIE Expert on Epizootic Ulcerative Syndrome (EUS)<br>Inland Aquatic Animal Health Research Institute<br>(OIE Reference Laboratory for EUS)<br>Inland Fisheries Research and Development Bureau<br>Department of Fisheries<br>Phahonyothin Road, Jatujak, Bangkok 10900<br>Thailand<br>kanchanakhan@yahoo.com |
| Dr. Supranee Chinabut<br>Fish Disease Specialist<br>Bangkok, Thailand<br>supraneecb@yahoo.com |
| **Philippines** |
| Dr. Edgar Amar*<br>Fish Health Section<br>SEAFDEC Aquaculture Department<br>Tigbauan, Iloilo<br>Philippines<br>eamar@seafdec.org.ph |
| **Private Sector** |
| Dr. Siow Foong Chang<br>Intervet Norbio Singapore<br>1 Perahu Road<br>Singapore 718847<br>siow.foong.chang@sp.intervet.com |
| **II. Co-opted Member** |
| Dr. Temduong Somsiri<br>Director, Aquatic Animal Health Research Institute<br>Inland Fisheries Research and Development Bureau<br>Department of Fisheries<br>Phahonyothin Road, Jatujak, Bangkok 10900<br>Thailand<br>tsi_f@yahoo.com |

* Did not attend

| **III. NACA Secretariat** |
| --- |
| Dr. C.V. Mohan<br>Manager, Research and Development<br>Network of Aquaculture Centres in Asia-Pacific<br>Suraswadi Building, DOF Complex<br>Kasetsart University Campus<br>Jatujak, Ladyao, Bangkok 10900<br>Thailand<br>mohan@enaca.org |
| Dr. Eduardo M. Leaño (Technical Secretary of AG)<br>Coordinator, Aquatic Animal Health Programme<br>Network of Aquaculture Centres in Asia-Pacific<br>Suraswadi Building, DOF Complex<br>Kasetsart University Campus<br>Jatujak, Ladyao, Bangkok 10900<br>Thailand<br>eduardo@enaca.org |
| Mr. Simon Wilkinson<br>Coordinator, Communications Programme<br>Network of Aquaculture Centres in Asia-Pacific<br>Suraswadi Building, DOF Complex<br>Kasetsart University Campus<br>Jatujak, Ladyao, Bangkok 10900<br>Thailand<br>simon@enaca.org |

# Annex C: List of Diseases in the Asia-Pacific

***Quarterly Aquatic Animal Disease Report***
***(BeginningJanuary 2011)***

| **1. DISEASES PREVALENT IN THE REGION** | |
|---|---|
| **1.1 FINFISH DISEASES** | |
| **OIE-listed diseases** | **Non OIE-listed diseases** |
| 1. Epizootic haematopoietic necrosis | 1.Grouper iridoviral disease |
| 2. Infectious haematopoietic necrosis | 2.Viral encephalopathy and retinopathy |
| 3. Spring viraemia of carp | 3.Enteric septicaemia of catfish |
| 4. Viral haemorrhagic septicaemia | |
| 5. Epizootic ulcerative syndrome | |
| 6. Red seabream iridoviral disease | |
| 7. Infection with koi herpesvirus | |
| **1.2 MOLLUSC DISEASES** | |
| **OIE-listed diseases** | **Non OIE-listed diseases** |
| 1. Infection with *Bonamia exitiosa* | 1. Infection with *Marteilioides chungmuensis* |
| 2. Infection with *Perkinsus olseni* | 2. Akoya oyster disease |
| 3. Abalone viral mortality | 3. Acute viral necrosis (in scallops) |
| **1.3 CRUSTACEAN DISEASES** | |
| **OIE-listed diseases** | **Non OIE-listed diseases** |
| 1. Taura syndrome | 1. Monodon slow growth syndrome |
| 2. White spot disease | 2. Mikly haemolymph disease of spiny lobster (*Panulirus* spp.) |
| 3. Yellowhead disease | |
| 4. Infectious hypodermal and haematopoietic necrosis | |
| 5. Infectious myonecrosis | |
| 6. White tail disease (MrNV) | |
| 7. Necrotising hepatopancreatitis | |
| **1.4 AMPHIBIAN DISEASES** | |
| **OIE-listed diseases** | **Non OIE-listed diseases** |
| 1. Infection with Ranavirus | |
| 2. Infection with *Batracochytrium dendrobatidis* | |
| **2. DISEASES PRESUMED EXOTIC TO THE REGION** | |
| **2.1 Finfish** | |
| **OIE-listed diseases** | **Non OIE-listed diseases** |
| 1. Infectious salmon anaemia | 1. Channel catfish virus disease |
| 2. Gyrodactylosis (*Gyrodactylus salaris*) | |
| **2.2 Molluscs** | |
| **OIE-listed diseases** | **Non OIE-listed diseases** |
| 1. Infection with *Bonamia ostreae* | |
| *2.* Infection with *Marteilia refringens* | |
| *3.* Infection with *Perkinsus marinus* | |
| *4.* Infection with *Xenohaliotis californiensis* | |
| **2.3 Crustaceans** | |
| **OIE-listed diseases** | **Non OIE-listed diseases** |
| 1. Crayfish plague (*Aphanomyces astaci*) | |

# Annex D: Revised TOR of the AG

The Asia Regional Advisory Group on Aquatic Animal Health was established in 2001 by the Governing Council of the Network of Aquaculture Centres in the Asia Pacific (NACA) to provide advice to NACA members in the Asia-Pacific region on aquatic animal health management. Recommendations of the AG provide guidance to governments in coordinating the implementation of aquatic animal health management strategies.

The Terms of Reference (TOR) of the Advisory Group (AG) are to provide advice to NACA through the following activities:

- To evaluate disease trends and emerging threats in the region;
- Identify developments with global aquatic animal disease issues and standards[1] of importance to the region;
- Review and evaluate the Quarterly Aquatic Animal Disease (QAAD) reporting programme, and assess the list of diseases of regional concern;
- Provide guidance and leadership on regional strategies for improving management of aquatic animal health, including those under the framework of the Asia Regional Technical Guidelines;
- Monitor and evaluate progress on *Technical Guidelines* implementation;
- Facilitate coordination and communication of progress on regional aquatic animal health programmes;
- Advise in identification and designation of regional aquatic animal health resources, including Regional Resource Experts (RRE), Regional Resource Centres (RRC) and Regional Reference Laboratories (RRL);
- To identify issues of relevance to the region that require in-depth review and then propose appropriate actions needed;
- Review the TOR as and when required.

The AG will consist of ten members, including: Chairperson; Vice Chairperson; and Technical Secretary. The criteria for selecting members are based on their technical competence in the subject matter areas of interest to aquatic animal health management in the region. They are as follows:

| NO. | CRITERIA/COMPETENCE IN AQUATIC ANIMAL HEALTH |
|---|---|
| 1 | Policies and national programme development, harmonization and standardization of diagnostics and health management procedures |
| 2 | Quarantine and health certification. Trade related issues of aquatic animal health, international treaties, agreements, etc. |
| 3 | Regional Centres, research needs, training and capacity building, etc. |
| 4 | Information systems, surveillance and reporting |
| 5 | Private sector involvement including knowledge on contingency planning and early warning, etc. |
| 6 | Representing OIE Regional Representation for the Asia-Pacific |
| 7 | Representing the OIE Aquatic Animal Health Standards Commission |
| 8 | Representing FAO Fisheries Department |
| 9 | Representing SEAFDEC Aquaculture Department |
| 10 | NACA Regional Aquatic Animal Health Coordinator – as Technical Secretary |

The AG members will be recruited for an initial period of two years. The Chairperson and Vice-Chairperson will be selected by the AG. The Chairperson will serve for one term (two-years) and if required and willing, could be extended for another term, pending the Chairperson's consent and if required, the term may be extended by another two years.

As and when required, the AG will co-opt technical experts for their work.

At least three selected members of the AG will only serve for two-year term and at least three new members will be recruited at two-year intervals to guarantee a degree of continuity in the composition of AG. NACA's Aquatic Animal Health Specialist will serve as the Technical Secretary to the AG with no fixed-term basis. The NACA Secretariat will nominate or select new membership as required on the basis of the advice of the AG.

The AG will meet on an annual basis, and the meetings will be held usually at the NACA Secretariat in Bangkok unless otherwise decided by the AG. The AG meetings will be held during the first week of November each year, unless otherwise specified. The dates and venue for the next meeting will be decided at the end of each meeting by the AG.

# Annex E: Asia Regional Technical Guidelines – status overview

| Element of technical guidelines | Progress / status | Gaps / opportunities |
|---|---|---|
| 1. Disease reporting<br><br>*An understanding of the basic aquatic animal health situation is a pre-requisite for prioritising activities, developing national policy and identifying pathogens of national importance.* | • Regional QAAD reporting system established – participation has increased<br>• The QAAD list has incorporated emerging diseases that were later listed by the OIE<br>• Many countries have established national lists for reporting purposes with appropriate supporting legislation | • Participation could improve further – some countries report irregularly<br>• The proposed regional core utilising the OIE's WAHID will streamline reporting and may improve participation<br>• The exact status of individual countries with regard to adoption of national lists and supporting legislation is not know |
| 2. Disease diagnosis<br><br>*Diagnosis requires various levels of data, starting with farm- or site-level observations and progressing in technical complexity to electron microscopy, immunological and nucleic acid assays and other biomolecular methods. This means all levels of expertise, including that of the farmer and extension officer working at the pond side, make essential contributions to rapid and accurate disease diagnosis.*<br><br>*Effective diagnostic capability underpins a range of programs including early detection for emergency response and substantiating disease status through surveillance and reporting.* | • Diagnostic capabilities have improved in many countries<br>• NACA disease cards have been developed and maintained for emerging diseases<br>• The Asia regional diagnostic manual has been developed<br>• An Asia regional diagnostic field guide has been developed<br>• OIE reference laboratories<br>• Regional reference laboratories – where no OIE reference laboratory exists<br>• Regional Resource Experts are available to provide specialist advice<br>• Ad hoc laboratory proficiency testing programs have been run | • OIE twinning programs are a means to assist laboratories to develop capabilities<br>• The exact status of diagnostic capability in individual countries is not certain<br>• There is limited or no access to ongoing laboratory proficiency testing programs<br>• Some areas of specialist diagnostic expertise are lacking<br>• Network approaches are a means draw on available diagnostic expertise |
| 3. Health certification and Quarantine measures<br><br>*The purpose of applying quarantine measures and health certification is to facilitate transboundary trade in aquatic animals and their products, while minimising the risk of spreading infectious diseases* | • Strong progress has been made, particularly for high risk importations (e.g. importation o broodstock and seed stock)<br>• Training has been provided through regional initiatives (e.g. AADCP project)<br>• Commercial implications for trade have driven improved certification practices<br>• Harmonisation with OIE model certificates has occurred | • The importance of supporting aquatic animal health attestations through sound aquatic animal health programs continues to be underestimated, with possible ramifications for trade<br>• Some inappropriate or illegal activities continue and threaten to spread trans-boundary diseases |
| 4. Disease zoning and compartmentalisation<br><br>*Zoning (and compartmentalization) allows for part of a nation's territory to be identified as free of a particular disease, rather than having to* | • Is an emerging need to meet requirements of importing countries<br>• To facilitate trade, some countries are working toward having compartments and zones recognised | • Where common health status can be identified restrictions on trade can be reduced<br>• Training opportunities would be beneficial<br>• Learn from the experience of terrestrial animal industries |

| | | |
|---|---|---|
| *demonstrate that the entire country is free. This is particularly helpful to facilitate trade in circumstances where eradication of a disease is not feasible.Zoning is also an effective tool to restrict the spread of important pathogens and aid in their eradication.* | | (e.g. poultry) |
| 5. Disease surveillance and reporting<br><br>*Necessary to produce meaningful reports on a country's disease status by providing evidence to substantiate claims of absence of a particular disease and thereby support import risk analysis, justify import health certification requirements, and enable export health certification* | • Regional Resource Experts are available to provide specialist advice<br>• Training has been provided through a number of initiatives (e.g. AADCP project)<br>• Many published resources are available, including those of the OIE (publications and the OIE centre for aquatic animal epidemiology)<br>• Collation of surveillance information has improved through participation in international reporting | • Remains a reliance on passive surveillance. Active surveillance may be beneficial but cost is often a barrier.<br>• Methodologies to undertake effective but low-cost active surveillance would be of assistance<br>• Epidemiological expertise is often limited<br>• There is a need to increase surveillance of wildlife to support health status |
| 6. Contingency planning<br><br>*Important to provide a rapid and planned response for containment of a disease outbreak – thereby limiting the impact, scale and costs of the outbreak* | • Important provides a rapid and planned response for containment of a disease outbreak Some countries have advanced contingency planning with appropriate supporting legislation<br>• Some countries have tested contingency plans through simulation exercises<br>• Resources are available (e.g. Australia's AQUAVETPLAN, FAO guidelines, OIE links to resources) | • The exact status of contingency planning in individual countries is not certain<br>• Training in emergency management frameworks may be useful<br>• Support for developing contingency plans might usefully be directed at particular disease threats e.g. IMN |
| 7. Import risk analysis<br><br>*The movement of live aquatic animals involves a degree of disease risk to the importing country. Import risk analysis (IRA) is the process by which hazards associated with the movement of a particular commodity are identified and mitigative options are assessed. The results of these analyses are communicated to the authorities responsible for approving or rejecting the import.* | • Numerous resources and case studies published<br>• The approach has been applied, particularly for some circumstances e.g. import of live *P. vannamei*<br>• However risk analysis is not always applied, or is not applied appropriately<br>• Regional training has been provided (e.g. AADCP project)<br>• | • There is a need to build awareness of the concepts<br>• Training can be abstract and disengaging - should aim at trainees learning on scenarios relevant to their circumstances<br>• This is a high priority generic need that is suited to development of a central training program |
| 8. National strategies<br><br>*The implementation of these Technical Guidelines in an effective* | • Many countries have developed national strategies<br>• Detailed assistance has been provided to some countries (e.g. | • The exact status of national strategies in individual countries is not certain<br>• The OIE's PVS tool provides a |

| | | |
|---|---|---|
| *manner requires an appropriate national administrative and legal framework, as well as sufficient expertise, manpower and infrastructure.* | AADCP project) | means of assessing the progress of individual countries |
| 9. Regional capacity building<br><br>*Regional-level capacity building in support of the implementation of the Technical Guidelines* | • Regional level programs are a cost-effective means to support capacity building in the region<br>• Organisational structures are in place to coordinate activities and communicate progress (e.g. NACA, AG)<br>• Numerous projects have been implemented to support capacity building across a range of disciplines (e.g. those supported by/through FAO, OIE, SEAFDEC, AADCP etc.)<br>• Many organisations have an ongoing interest in investing in aquatic animal health capacity building in the region | • While many projects have been implemented, they are sometimes ad hoc in nature and ongoing impact may not be measured<br>• Better coordination might be achieved by better documentation of progress and remaining gaps<br>• There may be strategic benefit in implementing major projects that address multiple capabilities |